

# ROMAN AMPHORAE FROM VINDOBONA

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## Introduction

The amphorae found in Vindobona first attracted attention during the early 1940's in A. SCHÖRGENDORFER'S catalogue. F. V. KENNER and J. NOWALSKI DE LILIA had already referred to a number of Vindobona amphorae, amphora stamps and inscriptions in the list of the most important objects unearthed during the first decades of the twentieth century. These were published by W. KUBITSCHEK in the volumes of CIL III (14371.6; 15212). The excavations of A. NEUMANN, O. HARL and R. POHANKA have enriched the collection.

The earliest museum documents often referred to the amphorae as *diota* (two handled vessel), and, on the other hand, some of the objects that were called amphorae at that time would now be excluded from this group. Many objects were destroyed during World War II. Sometimes we could only use the original documentation (the inventory books<sup>1</sup>, or the drawings in the publications<sup>2</sup>, or those which were made by É. BÓNIS during the early 1940's<sup>3</sup>).

When compared with other Pannonian sites, the number of amphorae is no more than average, but there are quite a few types among them. Some of these types are represented by only one amphora. The form, origin and distribution of most of these amphorae are well-known. Recent excavations all over the Roman Empire have unearthed large quantities of amphorae, which necessarily leads to re-evaluation of their production sites and their distribution. Since the amphorae were a part of the Empire's long-distance trade, it should be emphasized that the role they played in the Roman economy cannot be limited to individual provinces.

The amphorae found in Vindobona contribute to our knowledge of the local import of such products as wine, olive oil, olives, various types of fish sauce, and dried fruits. They were imported either from the distant provinces of Spain, North Africa and Asia Minor or from Italy and Istria. The petrological analysis of the amphorae (which was performed by R. SAUER) has also yielded new information. A small number of the amphorae are incorrectly placed in the catalogue. This is due to the fact that the petrological analysis was not complete when the catalogue was first completed. This has affected four pieces: Cat. no. 109 (Schörgendorfer 558), Cat. no. 124 (Portorecanati), Cat. no. 125 and 128 (Rhodian type)

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<sup>1</sup> Inventarbücher, Fundtagebücher (FT), Fundprotokolle (FP), Fundakten (FA), all documents of the HMW, for "old" finds until the 1970's; see bibliography.

<sup>2</sup> Mainly the publications of F. V. KENNER; see bibliography.

<sup>3</sup> É. BÓNIS (unpublished manuscript).

the author. Special thanks to my brother G. BEZECZKY who translated the manuscript and Á. VÁRI who made the drawings for press. I would like to thank ST. GREEP for correcting the English text.

In the following we shall discuss these amphorae type by type.

### 1. Dressel 2–4 (Plate 1–4, Cat. no. 1–20)

(Camulodunum 182–183; Ostia LI; Oberaden 78; Haltern 66; Hofheim 73; Augst 5; Peacock and Williams Class 10–11; Benghazi ER amphora 2, Pompeii 3–8)

This type is represented by a group of amphorae.<sup>4</sup> Type Dressel 2–4 was created through the imitation of the Hellenistic Koan vessels. They were produced at various sites of the Roman Empire, e.g. in Italy<sup>5</sup> (Campania, Latium, Etruria and the Adriatic coast), in Central and Southern France,<sup>6</sup> in Spain<sup>7</sup> (Catalonia and Baetica) as well as in the Eastern Mediterranean.<sup>8</sup> According to the latest publications, there were production sites in England<sup>9</sup> (Brockley Hill) and Raetia (Augst)<sup>10</sup> as well.

The form is characterized by a short, rounded rim, a cylindrical neck, the conical upper part of the body, the tapering lower part of the body which ends in a base. The handles attached to the neck under the rim begin either horizontally or slightly upward and are bent to the upper part of the body vertically. The handles are made either of two separate rods or a scratched line<sup>11</sup> imitating

<sup>4</sup> DRESSEL 1899, Taf. 1,2–4.

<sup>5</sup> A. HESNARD, Note sur un atelier d'amphores Dr. 1 et Dr. 2–4 près de Terracine. *Mél. École Française Rome* 89, 1977, 157–168; PEACOCK 1977, 262–269; PANELLA/FANO 1977, 149–153; RILEY 1979, 149; A. HESNARD, Un dépôt augustéen d'amphores a la Longarina, Ostie. *Mem. Am. Acad. Rome* 36, 1980, 143–145; C. PANELLA, Retroterra, porti e mercati: l'esempio dell'ager Falernus. In: *The Seabone Commerce of Ancient Rome. Mem. Am. Acad. Rome* 36, 1980, 251–259; C. PANELLA, La distribuzione e i mercati. In: A. GIARDINA/A. SCHIAVONE (Hrsg.), *Merci, Mercati e Scambi nel Mediterraneo* (Bari 1981) 75; J. PATERSON, Salvation from the Sea: Amphorae and Trade in the Roman West. *Journal Roman Stud.* 72, 1982, 151; P. R. SEALEY/G. M. R. DAVIES, Falernian Wine at Roman Colchester. *Britannia* 15, 1984, 250–254; N. PURCELL, Wine and Wealth in ancient Italy. *Journal Roman Stud.* 75, 1985, 9–19; PEACOCK/WILLIAMS 1986, 68–71; TCHERNIA 1986, 127–129; C. PANELLA, Le anfore italiche del II secolo d.C. In: *Amphores romaines et histoire économique, dix ans de recherche. Collect. École Française Rome* 114, 1989, 141–156; MARTIN-KILCHER 1994, 338–339; *Amphores romaines et histoire économique, dix ans de recherche. Collect. École Française Rome* 114, 1989 posters: No. 6, G. M. FACCHINI, Una fornace d'anfore Dressel 2/4 a Brignano Francata (AL), 560–561; No. 14, C. BECKER, Production régionale d'amphores de type Dressel 2/4 et de type Dressel 1, 578–579; No. 25, J. FREED, Late stamped Dressel 2–4 amphoras from a deposit dated post 200 A.D. at Villa site 10 on the Via Gabina, 616–617; No. 27, M. PASQUINUCCI ET AL., Ricerche archeologico-topografiche nella fascia costiera Tirrenica (*ager pisanus* e *volterranus* occidentale): risultati preliminari, 620–625; P. ARTHUR/D. WILLIAMS, Campanian Wine. *Roman Britain and the third century A.D. Journal Roman Arch.* 5, 1992, 250–258; S. J. KEAY, The Siena Amphora Conference. Part 1: Amphorae and the Roman economy. *Journal Roman Arch.* 5, 1992, 355–357.

<sup>6</sup> F. Zevi, Appunti sulle anfore romane. *Arch. Class.* 18, 1966, 216; A. TCHERNIA/J.-P. VILLA, Note sur le matériel recueilli dans la fouille d'un atelier d'amphores à Veaux (Bouches-du-Rhône). In: *Méthodes classiques et méthodes formelles dans l'étude des amphores. Collect. École Française Rome* 32, 1977, 231–232; M. CORSI-SCIALLANO/B. LIOU, Les épaves de Tarraconaise à chargement d'amphores Dressel 2–4. *Archaeonautica* 5, 1985; PEACOCK/WILLIAMS 1986, 67–68; TCHERNIA 1986, 144–146; LAUBENHEIMER 1989, 118–123; MARTIN-KILCHER 1994, 341–342.

<sup>7</sup> A. TCHERNIA, Les amphores vinaires de Tarraconaise et leur exportation au début de l'Empire. *Archivo Español Arqu.* 44, 1971, 57–76; A. TCHERNIA/F. Zevi, Amphores viniaries de Campanie et de Tarraconaise a Ostie. *Recherches sur les amphores Romaines. Collect. École Française Rome* 10, 1972, 35–67; PEACOCK/WILLIAMS 1986, 75–76; J. MIRO, La producción de ánforas romanas en Catalunya. *BAR Internat. Ser.* 473 (Oxford 1988) 78–91, 144–170; MARTIN-KILCHER 1994, 340–341.

<sup>8</sup> GRACE 1979, Fig. 57 and 60; PANELLA 1986, 617; A. HESNARD, Imitations et raisonnement archéologique: A propos des amphores de Rhodes et de Cos. *Recherches sur les Amphores Grecques. Bull. Corr. Hellénique Suppl.* 13, 1986, 75–78; MARTIN-KILCHER 1994, 344–345.

<sup>9</sup> S. A. CASTLE, Amphorae from Brockley Hill, 1975. *Britannia* 9, 1978, 386.

<sup>10</sup> MARTIN-KILCHER 1994, 342–344.

<sup>11</sup> TCHERNIA (Anm. 7) 71; CORSI-SCIALLANO/LIOU (Anm. 6) 14–15; MARTIN-KILCHER 1994, 338.



Fig. 1: The distribution of Dressel 2–4 amphorae in Pannonia.

the dual composition. Some of the formal criteria show local variation, others have a more general value. The handles of the amphorae produced in Italy and in the Eastern Mediterranean never had the scratched line, which is very frequent on the vessels that came from Catalonia or Gaul.

In some cases, the production site can be identified with certainty. Sometimes the site of the production can only be established by petrological analysis. R. SAUER has come forward with a suggestion for the identification of the sites for the amphora samples he analyzed.

The fabric of the Tarraconensis and Campanian amphorae is distinctive and well identifiable. The Catalonian fabric is rough, dark red to reddish brown (10YR 4/4 to 4/6 to 5/6) with large white inclusions.<sup>12</sup> The Campanian fabric has the characteristically volcanic "black sand".<sup>13</sup> Among the vessels in Vindobona, there are two amphorae from Tarraconensis (Cat. no. 1 and 10) and two from Campania<sup>14</sup> (Cat. no. 9 and 12; see R. SAUER I, WA4/98 and WA10/98). On the basis of the petrological analysis, two amphorae Cat. no. 11 and 19 (see R. SAUER I, WA8/98 and WA9/98) may have been produced in Calabria, or perhaps in Northern Sicily. The fragment catalogued as Cat. no. 8 (see R. SAUER I, WA1/98) is similar. This may also have been produced either in Calabria or in Southern France. Two more amphorae (Cat. no. 15 and 16; see R. SAUER I, WA13/98 and WA14/98) with their volcanic material may also be of Southern Italian origin. The mineral composition of Cat. no. 15 is similar to that of the ceramic objects found near Paestum.

<sup>12</sup> TCHERNIA/ZEVI (Anm. 7) 45; PEACOCK/WILLIAMS 1986, Class 6, Fabric 1; MARTIN-KILCHER 1994, 620.

<sup>13</sup> PEACOCK/WILLIAMS 1986, Class 3; MARTIN-KILCHER 1994, 619.

<sup>14</sup> Compare the form PANELLA/FANO 1977, Fig. 17–18, Gruppo 3.

R. SAUER has established the Northern Italian origin of five amphorae (Cat. no. 2, 4, 5, 7 and 13; see R. SAUER I, WA2/98, WA15/98, WA5/98, WA7/98 and WA11/98). On the basis of the mineral composition, he pointed out their similarity with the fabric "A" of the Schörgendorfer 558 amphorae. The amphora Cat. no. 3 (see R. SAUER I, WA3/98) may have been produced either on the Adriatic coast (Albania) or in the Ionic Greek region. Not even the petrological analysis could establish the origin of Cat. no. 6 (see R. SAUER I, WA6/98).

Within the type, "Pompeian form 6" can be distinguished<sup>15</sup> from the rest. The upper part of the handles rises high, and has a sharp angle. There are two such amphorae (Cat. no. 17 and 18) among the objects found in Vindobona and were made in the Eastern Mediterranean. The fabric is red (2.5YR 5/8) with white inclusions and mica. The cross-section of the handles at the point they bend is different, which is probably due to fact that the potter had pressed them.

The Dressel 2–4 amphorae have their stamp on their neck, on their handles, or above the base. The stamped Vindobona amphora (Cat. no. 1) is a typically Tarraconensis form, having the stamp<sup>16</sup> where the body and the base meet. This type of amphorae is often stamped.<sup>17</sup> The stamp is repeated: C.PA | C.PA. There is an amphora base<sup>18</sup> (Cat. no. 10) with graffiti: C/NI... This comes from Catalonia. It was scratched (upside down) into the base before the amphora was fired. The other stamp<sup>19</sup> DICAE was found on the base of an amphora. The stamp is known from the Falernum amphorae ("Pompeii type 8"). According to ancient sources, the Falernum wine was simply the best. This amphora fragment has been lost.

The Dressel 2–4 amphora was one of the most common wine jar in the early Imperial period. They can be dated between the middle of the first century B.C. and the second half of the second century A.D. In certain areas, they were produced even in the third century. The amphora in Rennweg 44 (Cat. no. 19) can be dated to the second half or the end of the first century A.D., the age of Nero and the Flavians. The other two amphorae (Cat. no. 12 and 14) were found in layers dated to the period of Domitian and Antonine. The amphorae in Freyung and Palais Harrach come from layers dated to the second half or the end of the first century, as well as from second century layers.

The Dressel 2–4 type is well-known in Pannonia, especially in the Amber Route and the Danubian sites.<sup>20</sup> The amphorae found in the northern sites of Pannonia (Brigetio and Aquincum) can be dated to the post-Vespasian period. We have no chronological information to date the amphorae, which were found in the sites south of the river Drava (Mursa, Cibalae, Acuminum, Bononia and Sirmium).<sup>21</sup>

<sup>15</sup> PANELLA/FANO 1977, 161 Fig. 35–36; PANELLA 1986, 617 Fig. 13.

<sup>16</sup> NEUMANN 1967, 46, publ. GPA.

<sup>17</sup> MIRO (Anm. 7) 223.

<sup>18</sup> KENNER 1896, 60 Fig. 16.

<sup>19</sup> KENNER 1900, 7 Fig. 4; Schottengasse vor Haus 5; "the foot of a huge diota with the stamp: DICAE"; GC 1897\_26, Schottengasse 5/Mölker Bastei. The same stamp was also found in Pompei: Casa di Successus, PANELLA/FANO 1977, 162, l.b. Fig. 45.

<sup>20</sup> Dressel 2–4 along the Amber Route: BEZECZKY 1987, 49 No. 1–43; other sites KELEMEN 1988, 117–123 and BRUKNER 1981, Pl. 157 No. 19–24; Emona: BEZECZKY 1994a, 85 No. 4–18 Pl. 1 and 4; Carnuntum: BEZECZKY 1997a, 163 No. 49–57 Fig. 11; BEZECZKY 1997b, 176 No. 1–4 Fig. 1–3; Tarraconensis form: Arrabona: E. SZÖNYI, A győri Kálvária utcai római temető csontvázas sírjai. Arrabona 16, 1974, 14, Grave 17, Pl. 6,5; Koan 6 type: Carnuntum: M. GROLLER, Bericht des Vereins Carnuntum in Wien für das Jahr 1903 (Wien 1905) 70 Fig. 45b; an other example Inv. No.: 1029 (33); Arrabona: SZÖNYI a.a.O. 18 Pl. 8 No. 3 = KELEMEN 1988, 117 No. 1 Fig. 1,1; Kölesd-Lencsepuszta: KELEMEN 1988, 117 No. 2 Fig. 1,2; Sirmium: BRUKNER 1981, Pl. 157 No. 18.

<sup>21</sup> BRUKNER 1981, Pl. 157 No. 19; 20; 21; 24; 25.

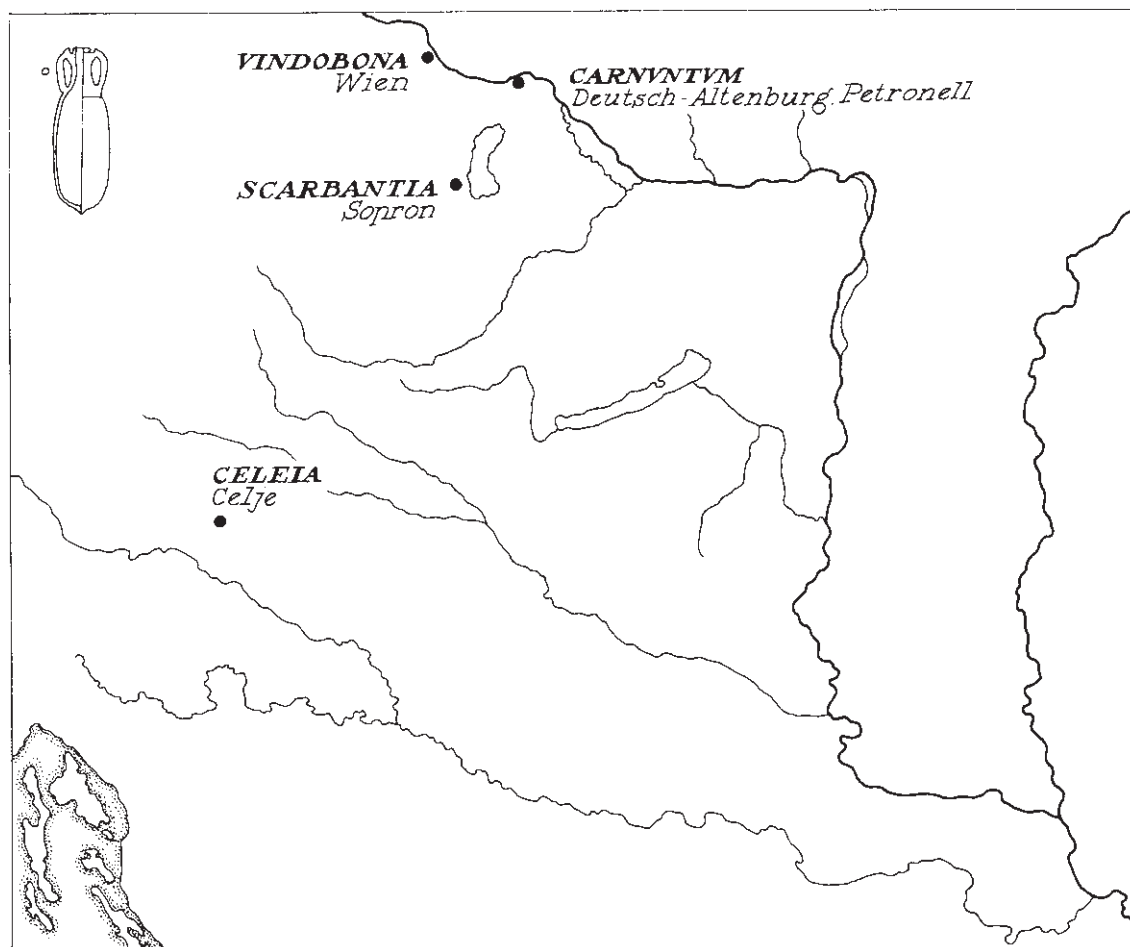


Fig. 2: The distribution of Dressel 43/Amphore "Crétoise AC4" in Pannonia.

## 2. Dressel 43/Amphore "Crétoise AC4" (Plate 4, Cat. no. 21)

(Knossos 4–5; Mau XXXVI; Ostia II, 525; Augst 7)

In Roman times, wine was shipped from the Island of Crete to various parts of the Empire in various vessels. Six types of amphorae<sup>22</sup> have been distinguished (AC1–4 and AC6–7). They were produced from the first century B.C. to third/fourth century A.D. Most amphora types can be classified into smaller groups. In Vindobona, the upper part of an AC4c type amphora (Cat. no. 21) was found. The type is characterized by a flat rim, a conical neck, an oval body, and a very small base. The handles are round in cross-section. They are horn-shaped – like those of the Rhodian type amphorae – and are attached to the neck below the rim. These amphorae were formerly called Dressel 43/Knossos 4–5 and are now referred to as "amphore Crétoise 4" (AC4). The difference lies in their rims, necks and handles. There are three varieties<sup>23</sup> of the AC4 form. Their height varies between 60 and 70 cm, the diameter of the rim is 6–8 cm, their volume is 12–13 litres.

J. W. HAYES<sup>24</sup> found some amphorae belonging to this type at the Dionysos villa in Knossos. He thought the amphora were of local production. This has been recently confirmed: this form was also found in Herakleion in the North and near Dermatos and Tsoutsouros in the Southern Crete.<sup>25</sup> The Vindobona amphorae were probably produced in the southern part of the island, in the work-

<sup>22</sup> MARANGOU-LERAT 1995, Fig. 81–82.

<sup>23</sup> MARANGOU-LERAT 1995, 84–86 Fig. 69; 72 and 75.

<sup>24</sup> HAYES 1983, 145, Type 5.

<sup>25</sup> MARANGOU-LERAT 1995, 85–86 Map 11.



shop of Tsoutsouros-East.<sup>26</sup> This workshop produced AC1b and AC4 amphorae<sup>27</sup> during the second century A.D. Amphorae similar to the type AC4 were published from a Veneto villa (Corte Cavanella, Rovigo).<sup>28</sup> Relying on the petrological analysis, A. TONIOLO proposed a local workshop, even though it had not been discovered.<sup>29</sup>

This AC4 type is known from Cyprus, North Africa, the Aegean, at the mouth of the Danube, in Italy, in Germania, in Gallia Narbonensis,<sup>30</sup> in Egypt,<sup>31</sup> in Raetia,<sup>32</sup> and Noricum.<sup>33</sup> The jars in Pannonia were found at the Amber Route sites<sup>34</sup> (Scarbantia and Carnuntum). They contained wine, which is confirmed by the *titulus pictus* of the Dressel 43 (AC4) amphora of Fos.<sup>35</sup> The fourth line of the *titulus pictus* mentions Cretan vine.

The Vindobona amphora was found in the *canabae* (Michaelerplatz). The layer containing the amphora also had a terra sigillata that can be dated between the period of Domitian to the middle of the second century A.D. The second century A.D. as a likely dating is in accordance with what we know about the workshop.

### 3. Rhodian type amphorae (Plate 4, Cat. no. 22–24; Plate 17, Cat. no. 125, 128)

(Camulodunum 184; Oberaden 79; Haltern 67; Ostia LXV; Peacock and Williams Class 9; Augst 6)

The so-called Rhodian type occurs often in Italy and in the provinces. The form is characterized by a short, curved rim, a cylindrical neck, and a round, tapering body. The handles are attached to the body below the rim, and are horn-shaped. The handles are round in cross-section. Several different production centres were suggested for this type of amphorae. They were not only produced on Rhodes but on the neighbouring islands and in Asia Minor<sup>36</sup> as well. They were found in various parts of the Empire,<sup>37</sup> as well as in Pannonia.<sup>38</sup> In Vindobona, a rim and two handle fragments (Cat. no. 22–24) were unearthed in the Rennweg, which is part of the civilian settlement. Two base fragments (Cat. no. 125 and 128, see R. SAUER I, WA55/98 and WA56/98) – coming from old excavations with unknown sites – also probably belong to this group.

<sup>26</sup> MARANGOU-LERAT 1995, 55–57.

<sup>27</sup> MARANGOU-LERAT 1995, 57; S. MARKOULAKI/J.-Y. EMPEREUR/A. MARANGOU, Recherches sur les centres de fabrication d'amphores de Crète Occidentale. Bull. Corr. Hellénique 113, 1989, 575.

<sup>28</sup> A. TONIOLO, Anfore commerciali a Corte Cavanella. Alcune precisazioni. Aquileia Nostra 65, 1994, 142–143.

<sup>29</sup> On the basis of the inscriptions A. TONIOLO thinks the content of the amphorae was fish sauce.

<sup>30</sup> In details MARANGOU-LERAT 1995, 85–87 Pl. 47.

<sup>31</sup> R. S. TOMBER, Provisioning the Desert: Pottery Supply to Mons Claudianus. In: D. M. BAILEY, Archaeological research in Roman Egypt (Ann Arbor 1996) 45.

<sup>32</sup> MARTIN-KILCHER 1994, 350.

<sup>33</sup> Celeia, VIDRIH PERKO 1994, 104 Pl. 4,1.

<sup>34</sup> Scarbantia: BEZECZKY 1987, 73 No. 268 Fig. 23; Carnuntum auxiliary fort: BEZECZKY 1997b, 176 No. 18.

<sup>35</sup> B. LIOU, Inscriptions peintes sur amphores: Fos (suite), Marseille, Toulon, Port-la-Nautique, Arles, Saint-Blaise, Saint-Martin-de-Crau, Mâcon, Calvi. Archaeonautica 7, 1987, 91 Fig. 20, F 132.

<sup>36</sup> PEACOCK 1977, 266–270; PEACOCK/WILLIAMS 1986, 102–103, class 9; J.-Y. EMPEREUR/M. PICON, Les régions de production d'amphores impériales en Méditerranée orientale. In: Amphores romaines et histoire économique, dix ans de recherche. Collect. École Française Rome 114, 1989, 224–225 Fig. 1.

<sup>37</sup> PEACOCK 1977, 277 Fig. 4; PANELLA 1986, 615 Fig. 6; MARTIN-KILCHER 1994, 348–349.

<sup>38</sup> Emona, Salla, Savaria, Scarbantia: BEZECZKY 1987, 69 No. 229; 230 and 231–272; Emona: BEZECZKY 1994a, No. 54–61; Carnuntum: GRÜNEWALD 1983, Pl. 45 No. 15–16; GASSNER 1989, 69 No. 4–5; BEZECZKY 1997a, No. 58–59 and 111–112; BEZECZKY 1997b, No. 17; Solva, Aquincum: KELEMEN 1988, No. 2; 12; 16; 23; BEZECZKY 1991, No. 3–7; Gorsium: BEZECZKY 1995, 52 No. 50–53 Fig. 4; Vetus Salina: T. BEZECZKY, Amphorák az adonyi (Vetus Salina) korarómai táborból [Amphorae from the auxiliary fort of Adony (Vetus Salina)]. Arch. Ért. 117, 1990, 101 No. 11 Fig. 2; Sirmium: BRUKNER 1981, Pl. 157 No. 25; 26; 28.



Fig. 3: The distribution of Rhodian type amphorae in Pannonia.

The principal content of the amphora was wine. A Pompeii inscription<sup>39</sup> mentions Pass(um) Rhod(ium), another inscription in France<sup>40</sup> refers (Μιλησιας) to the wine of the Millets region. These amphorae were current from the first century B.C. to the early second century A.D.<sup>41</sup> The Vindobona rim (Cat. no. 22) was found with a coin (As) of Hadrian (A.D. 125–128). The handle fragments (Cat. no. 23–24) were in the upper layer, which does not allow their dating. The amphorae in Salla, Gorsium, and Vetus Salina can be dated from the middle of the first century to the second century A.D. Some of the Carnuntum amphorae are dated to the first half of the second century.

The microscopic analysis of D. PEACOCK has discovered six groups of fabric.<sup>42</sup> Two of them (1 and 2) are Rhodian, the rest are Aegean. D. WILLIAMS has found a seventh group<sup>43</sup> which is also of Aegean origin. The fabric of the Vindobona amphora is hard and fairly fine. The colour of two fragments (Cat. no. 22 and 23) is buff-brown (2.5YR 6/6), which is similar to Peacock's group 4.

<sup>39</sup> A. MAIURI, *La casa del Menandro e il suo tesoro di argenteria* (Roma 1933) 485–486: "Pass(um) Rhod(ium) / P(ubli) Coeli Galli"; SEALEY 1985, 56–58, SEALEY mentions three possibilities: (1) sweet wine made from dried grapes, (2) figs, (3) resin; MARTIN-KILCHER (1994, 348) considers it to be mild wine („gekochter süsser Wein“).

<sup>40</sup> A. DESBAT/R. LEQUÉMENT/B. LIU, *Inscriptions peintes sur amphores: Lyon et Saint-Romain-en-Gal*. *Archaeonautica* 7, 1987, 152, L 13.

<sup>41</sup> The best examples are the Augst amphorae MARTIN-KILCHER 1994, 349 Abb. 134.

<sup>42</sup> PEACOCK 1977, 266–270; PEACOCK/WILLIAMS 1986, 103–104.

<sup>43</sup> D. WILLIAMS, *Petrological Examination of Amphorae from Colchester Sheepen*. In: SEALEY 1985, 162–163.

The colour of the third amphora fragment (Cat. no. 24) is buff-brown (5YR 6/4–5/4), which is very close to Peacock's group 5. The fabric of this handle is quite different from the other two amphorae. The petrological analysis of the two base fragments mentioned above shows that Cat. no. 125 (see R. SAUER I, WA55/98) contained volcanic minerals which suggest an Aegean origin, while the origin of Cat. no. 128 (see R. SAUER I, WA56/98), although it also contained volcanic inclusions, could not be established.

#### 4. Knidian (Plate 5, Cat. no. 26; Plate 19, Cat. no. 25)

(Pompei XXXVIII; Zeest 48; Augst 50)

Knidian wine was extremely popular in Hellenistic times but its consumption in Imperial times is less well documented.<sup>44</sup> A number of production sites are known from Knidos and other parts of the Datcha peninsula.<sup>45</sup> Its production was not restricted to one place. Only three fragments of Knidian amphorae, which are extremely rare in the northern provinces, had earlier been identified in Pannonia.<sup>46</sup>

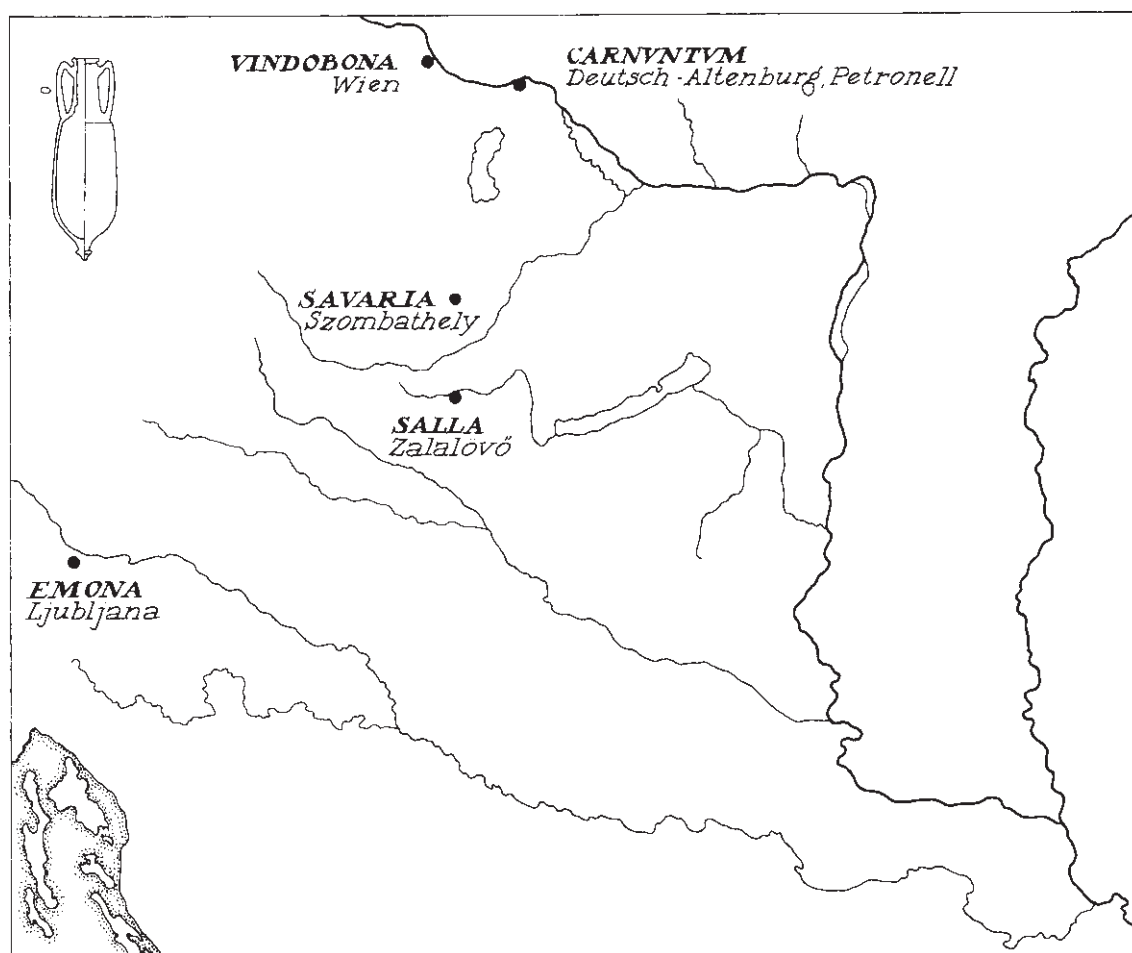


Fig. 4: The distribution of Knidian amphorae in Pannonia.

<sup>44</sup> GRACE 1979, above Fig. 31; RILEY 1979, 128; PANELLA 1986, 621; MARTIN-KILCHER 1994, 440.

<sup>45</sup> J.-Y. EMPEREUR/M. PICON, A la recherche des fours d'amphores. Bull. Corr. Hellénique Suppl. 13, 1986, 116–118 Fig. 23.

<sup>46</sup> GASSNER 1989, 71 Nr. 25 Abb. 10; BEZECZKY 1993, 237–244.



The distinctive features of this type are a short curved rim, cylindrical neck and a conical body which is slightly bigger than the base. On the amphora base, this type has the distinctive ring around the toe marks. The ring on the base is typical of Knidian amphorae.<sup>47</sup> The handles are attached to the body below the rim, and rise almost as high as the rim. The cross-section of the handle is oval.

Two Knidian amphora fragments were found in Vindobona. Cat. no. 25 is a characteristic base fragment and the other piece Cat. no. 26 is a handle fragment.

Amphorae of this type belonging to the Roman period were found in Italy,<sup>48</sup> Raetia, Germania,<sup>49</sup> and Noricum.<sup>50</sup> New finds have been unearthed in Carnuntum<sup>51</sup> and Emona.<sup>52</sup> The earliest handle fragment (with a figural stamp) in the northern region (at Magdalensberg) can be dated to the first century B.C. Of the earlier finds from sites along the Amber Route, the vessel from Salla can be assigned to the second century, while the Carnuntum *canabae* amphora can be dated to the third century. The Vindobona handle fragment can be dated on the basis of the second century objects with which it was found. The Pompeii, Ostia, Fishburne, and Luni amphorae were dated to the early Imperial period by C. PANELLA.<sup>53</sup> The Augst amphorae<sup>54</sup> were found in layers which are dated from the late first century B.C. to the early second century A.D.

The petrological analysis of the Vindobona amphorae (Cat. no. 26, see R. SAUER I, WA16/98) found a relatively small amount (9%) of tempering material. In addition to the quartz, there is a large amount of carbonate. The firing temperature must have been relatively high, because the limestones have partly disappeared. The petrological analyses established that the Vindobona amphorae were not produced in the same workshop as the Magdalensberg, Savaria and Salla<sup>55</sup> pieces. The production site probably was in the Datcha peninsula.

### 5. Kapitän II (Plate 5, Cat. no. 27–28)

(“Hollow Foot” amphora; Ostia VI; Kuzmanov VII; Niederbieber 77; Zeest 79; Agora K 113; Benghazi MR amphora 7; Peacock and Williams Class 47; Augst 54)

In mid- and later Imperial times, one of the most common amphorae<sup>56</sup> was the type Kapitän II. In Vindobona, two fragments (of different fabric) have been identified. The one (Cat. no. 27, see R. SAUER I, WA17/98) was a sporadic find, the other (Cat. no. 28, WA18/98) was found at Michaelerplatz.

There is a groove on the narrow, flat rim. The neck is conical with shallow horizontal grooves on the exterior, the body tapers to the base. The base is hollowed and also has horizontal grooves on the exterior. The thick handles are attached to the upper part of the neck, rising above the rim, and returning almost vertically, to the upper part of the body. The average height is 75 cm, the diameter of the rim varies between 6.5–7 cm.

For a long time it was thought that this type of amphorae came from production sites somewhere in the Aegean region.<sup>57</sup> Based on morphological considerations, V. GRACE<sup>58</sup> thought that the amphorae came from Samos.

<sup>47</sup> GRACE 1979, Fig. 64; PANELLA 1986, 621 Fig 18.

<sup>48</sup> PANELLA 1986, 621.

<sup>49</sup> MARTIN-KILCHER 1994, 440.

<sup>50</sup> BEZECZKY 1993, 237–241.

<sup>51</sup> BEZECZKY 1997b, No. 60.

<sup>52</sup> VIDRIH PERKO 1994, 85, T/8 No. 1.

<sup>53</sup> PANELLA 1986, 621.

<sup>54</sup> MARTIN-KILCHER 1994, Fig. 134.

<sup>55</sup> BEZECZKY 1993, 242–244: The analyses were performed by S. JÓZSA, Gy. SZAKMÁNY and T. WEISZBURG. Most of the major statements are based on these analyses.

<sup>56</sup> G. KAPITÄN, Le anfore del relitto romano di Capo Ognina (Siracusa). Recherches sur les amphores Romaines. Collect. École Française Rome 10, 1972, 243–252.

<sup>57</sup> RILEY 1979, 192; PEACOCK/WILLIAMS 1986, 193; PANELLA 1986, 617.

<sup>58</sup> V. GRACE, Samian Amphoras. Hesperia 40, 1971, 72 footnote 51; RILEY 1979, 192, but RILEY did not share this view; MAJCHEREK 1993, 218.



Fig. 5: The distribution of Kapitän II amphorae in Pannonia.

This type of amphorae was common both in the Mediterranean and in the provinces.<sup>59</sup> In the Amber Route in Pannonia, it is known from two sites, Poetovio and Scarbantia, but it was quite frequent in the settlements on the river Danube<sup>60</sup> (Vindobona, Carnuntum, Brigetio, Aquincum, Matrica, Intercisa, Mursa and Sirmium) and also not far away from the Danube, in Gorsium.<sup>61</sup>

Their content is not known. It is supposed that they contained wine.<sup>62</sup> In Ostia, there are amphorae belonging to the late second century, but they were most common in the third and fourth centuries. The Michaelerplatz amphora (Cat. no. 28) was found together with Raetian ware that can be dated to the late second century A.D. The pieces in Pannonia can usually be dated to the third century.

<sup>59</sup> PANELLA 1986, 616.

<sup>60</sup> Poetovio: VIDRIH PERKO 1994, 117 No. 3, T3; Scarbantia: BEZECZKY 1987, 78 No. 323 Fig. 31; Carnuntum: GASSNER 1989, 71 Nr. 23–24 Abb. 10; BEZECZKY 1997a, 166 No. 61–68 Fig. 12; BEZECZKY 1997b, 176 No. 20 Fig. 2; Brigetio: KELEMEN 1990, 175 No. 1 Fig. 6,1; 176 No. 6 Fig. 6,6; 177 No. 7 Fig. 6,7; 177 No. 9 Fig. 6,9; 179 No. 21 Fig. 7,8; Aquincum: KELEMEN 1990, 177 No. 15–20; 179 No. 2227 Fig. 7; 179–181 No. 30–45 Fig. 8; 181 No. 50 Fig. 8; BEZECZKY 1991, No. 8–11; Intercisa: Arch. Ért. 1917, 50 = KELEMEN 1990, 177 No. 14; 181 No. 49 Fig. 8,21; Matrica: KELEMEN 1990, 181 No. 51 Fig. 8,23; BEZECZKY 1994, 120 Fig. 4; Mursa: BRUKNER 1981, Pl. 163 No. 69; Sirmium: BRUKNER 1981, Pl. 163 No. 70–75.

<sup>61</sup> BEZECZKY 1995, 52 No. 54–57 Fig. 4.

<sup>62</sup> A. CARANDINI/C. PANELLA, The trading connections of Rome and Central Italy in the late second and third centuries: the evidence of the Terme Del Nuotatore excavations, Ostia. In: A. KING/M. HENIG (eds.), *The Roman West in the Third Century*. BAR Internat. Ser. 109 (Oxford 1981) 494.

Although formally identical, the amphorae have two distinct types of fabric,<sup>63</sup> which probably means there must have been two or more production<sup>64</sup> centres:

a) the standard Kapitän II fabric<sup>65</sup> (orange red 2.5YR 5/8–6/8), commonly reported from other sites throughout the Mediterranean area;

b) a fine, hard fabric,<sup>66</sup> creamy buff (10YR 8/4), covered with pale, creamy slip.

The Vindobona handle fragment (Cat. no. 28, see R. SAUER I, WA18/98) is type "a", and is of the same colour. The provenance of this amphora cannot be defined by petrological analysis. The surrounding countryside of Ephesos can be considered as a site of production (Samos can also be considered). The colour and fabric of the other amphora (Cat. no. 27, see R. SAUER I, WA17/98) is consistent with type "b". The analysis of the materials of this piece suggest that it may have been produced in the valley of Meander<sup>67</sup> (Küçük Menderes). However, the island of Samos should also be considered. This seems to be new information, since only the amphorae belonging to group "a" ("light red" fabric) are known from Ephesos so far.<sup>68</sup> The geological inclusions both of the Vindobona amphorae are distinctly different than those published by PEACOCK and WILLIAMS.

## 6. Gauloise amphorae

Until recently, no Gaulish amphorae have been found in the north-eastern provinces. Only the recent excavations produced objects that can be classified as representative of this form. There are several versions of Gaulish amphorae which were widespread in the Western Mediterranean. Only in Carnuntum and Vindobona,<sup>69</sup> and only two types – Gauloise 4 and 5 – occur in Pannonia. In Pannonia these amphorae appear during the second and third centuries. In Vindobona, Gauloise 4 amphora is more common and better known, while there is little information of the distribution of the other.

### Gauloise 4 (Plate 5, Cat. no. 29–31)

(Pélichet 47; Ostia LX; Niederbieber 76; Peacock and Williams Class 27; Augst 12)

The amphora is characterized by a fairly thick rounded rim, and a short, curved handle, which is flat with a central depression and groove on its outer side. The neck is short, the body is round tapering to a flat footring. These amphorae were produced in Southern France. F. LAUBENHEIMER<sup>70</sup> has published a number of workshops in the region of Narbonensis<sup>71</sup> (the mouth of Rhône). A number

<sup>63</sup> MAJCHEREK 1993, 218, Type 14, Fig. 1.

<sup>64</sup> Recently U. OUTSCHAR, *Produkte aus Ephesos in alle Welt*. *BerMatÖAI* 5, 1993, 49, suggested Ephesos as the production site. Although the kilns have not been found, a heap of sherds, probably the waste area of a ceramic workshop, was unearthed outside the city walls. At the so-called Magnesia gate, there were Kapitän II (Peacock and Williams Class 47), but this hypothesis requires further research. When surveying in the area we found a number of other amphorae belonging to the Knidian, LR 3, Agora M 54, Koan, Dressel 20, North African, Almagro 51C types.

<sup>65</sup> PEACOCK/WILLIAMS 1986, 195.

<sup>66</sup> MAJCHEREK 1993, 218, b: "Its characteristics show close similarities with one of the Rhodian fabrics distinguished by Peacock (267–268, fabric No. 2) on the basis of petrological analyses. Although safe identification is still premature, this attribution should at least be considered."

<sup>67</sup> R. SAUER, *Bericht über die archäometrischen Untersuchungen für das FWF-Projekt Nr. 9280: Produktionszentren späthellenistischer und römischer Keramik an der W-Küste Kleinasien (mit einem Anhang von U. OUTSCHAR (unpubl. Manuskript 1995).*

<sup>68</sup> This is based on OUTSCHAR (Anm. 64) and on the pieces I came across in Ephesos.

<sup>69</sup> BEZECZKY 1997b, 176 No. 19 Fig. 5.

<sup>70</sup> LAUBENHEIMER 1985, 261–293; PEACOCK/WILLIAMS 1986, 142–143; LAUBENHEIMER 1989, 132–135; MARTIN-KILCHER 1994, 360–364.

<sup>71</sup> LAUBENHEIMER 1989, 133 Fig. 12.

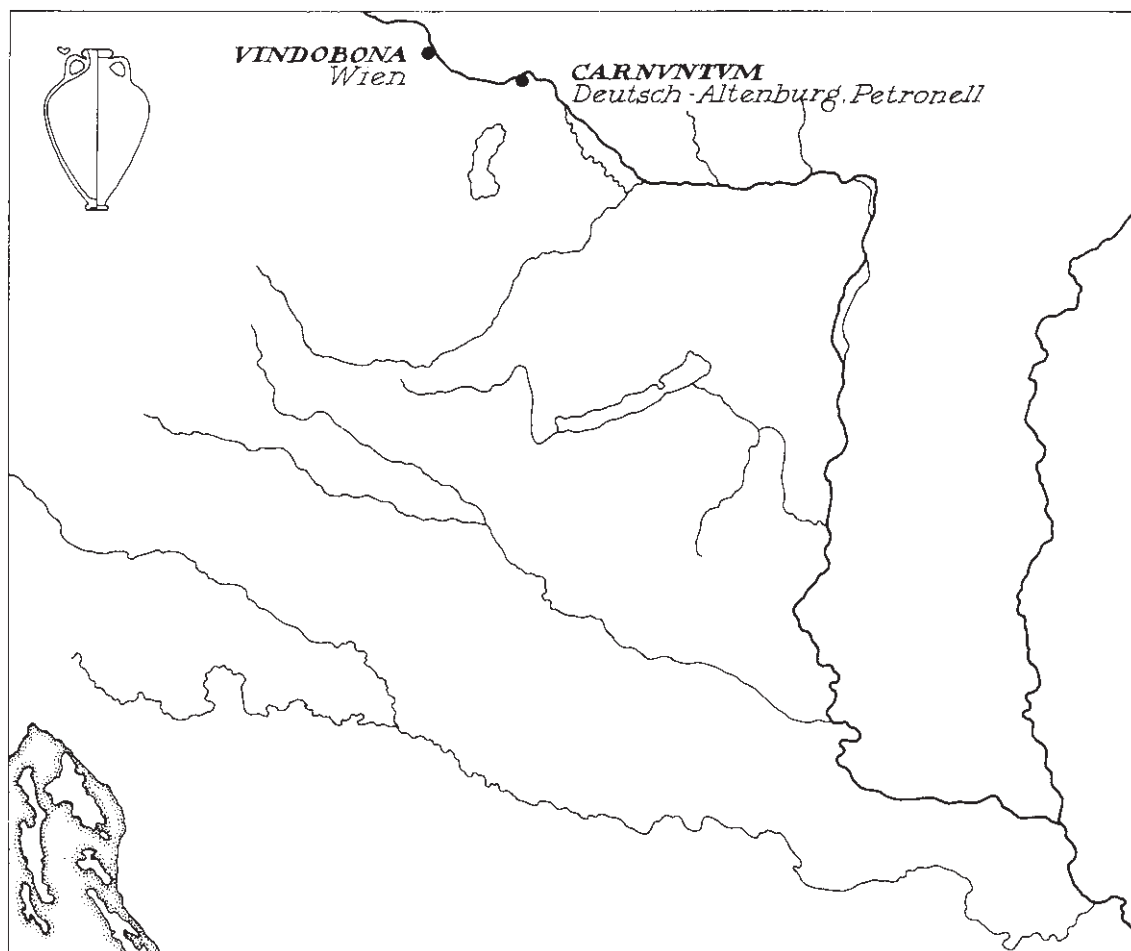


Fig. 6: The distribution of Gauloise amphorae in Pannonia.

of *tituli picti* were published from the Southern France and Augst excavations. Based on these, the content of the amphorae was wine.<sup>72</sup>

The fragments of three such amphorae (Cat. no. 29–31) were found in Vindobona at the *canabae*. The petrological analysis found that the frequency of the inclusions is the same (moderate, 9–11%) for all three. The colour of the amphorae varies between reddish yellow (5YR 6/6) and light red (between 2.5YR 6/6 and 6/8). The fabric of the Gaulish amphorae found in Vindobona shows a slightly internal variation. The differences between the rim (Cat. no. 30, see R. SAUER I, WA20/98) and the handle fragments (Cat. no. 29, see R. SAUER I, WA21/98) are due to the variation in the heavy minerals. The geological characteristics of the base fragment (Cat. no. 31, see R. SAUER I, WA19/98) are similar to fabric “b” of one of the Schörgendorfer 558 amphora group.

These Gauloise amphorae were primarily distributed in the Western Mediterranean, Britain and Germany. They were shipped along the axis of the Rhône and Rhine rivers. Very few have been found in the Eastern Mediterranean,<sup>73</sup> but the new Egyptian excavations<sup>74</sup> have unearthed them in significant numbers. There are a couple of pieces in Ephesus as well.

<sup>72</sup> MAS(sicum) or MAS(siliense) and AMIN(eum) and PICAT(um) and MVLS(um): B. LIOU/R. MARICHAL, *Les inscriptions peintes sur amphores de l'anse Saint-Gervais a Fos-sur-mer*. *Archaeonautica* 2, 1978, 145–151; LAUBENHEIMER 1985, 399–403; TCHERNIA 1986, 283; DESBAT ET AL. (Anm. 40) 142–144; ARTHUR/WILLIAMS (Anm. 5) 254: “The problem of the appearance of Campanian wine in Gaulish amphora forms needs to be resolved”; MARTIN-KILCHER 1994, 368.

<sup>73</sup> Benghazi: RILEY 1979, 195–196; Knossos: HAYES 1983, Type 8, 145–146 Fig. 21; Athen: PANELLA 1973, 543.

<sup>74</sup> Marina el-Alamein: MAJCHEREK 1993, 220; Mons Claudianus: TOMBER (Anm. 31) 44.

These Gallic amphorae were in use for a fairly long time from the mid-first century A.D. to the third century.<sup>75</sup> The Vindobona rim fragment (Cat. no. 30) was found with Raetian ware (which can be dated to the end of first and to third century). The other two fragments cannot be dated. The fragment in the Carnuntum auxiliary fort was found in the upper layer, the amphora in Noricum (Aelium Cetium)<sup>76</sup> among the objects of a third century vessel depot.

#### Gauloise amphora similis (Plate 5, Cat. no. 32)

The upper part of an amphora (Cat. no. 32, see R. SAUER I, WA22/98) which shows a close formal resemblance to the Gaulish amphorae was found in the *canabae* of Vindobona. There are concentric circles on the rim, the neck is short and cylindrical. The wide, flat handles<sup>77</sup> are segmented by ribbing. This is the fragment of a large amphora. The colour is reddish-brown (5YR 6/6). The macroscopic examination (x10 hand-lens) shows silicate and (partly fired) limestone. The petrological analysis found that it was produced in Pannonia on the basis of a Gaulish form.

#### 7. Forlimpopoli amphora (Plate 5, Cat. no. 33)

(Agora K 114)

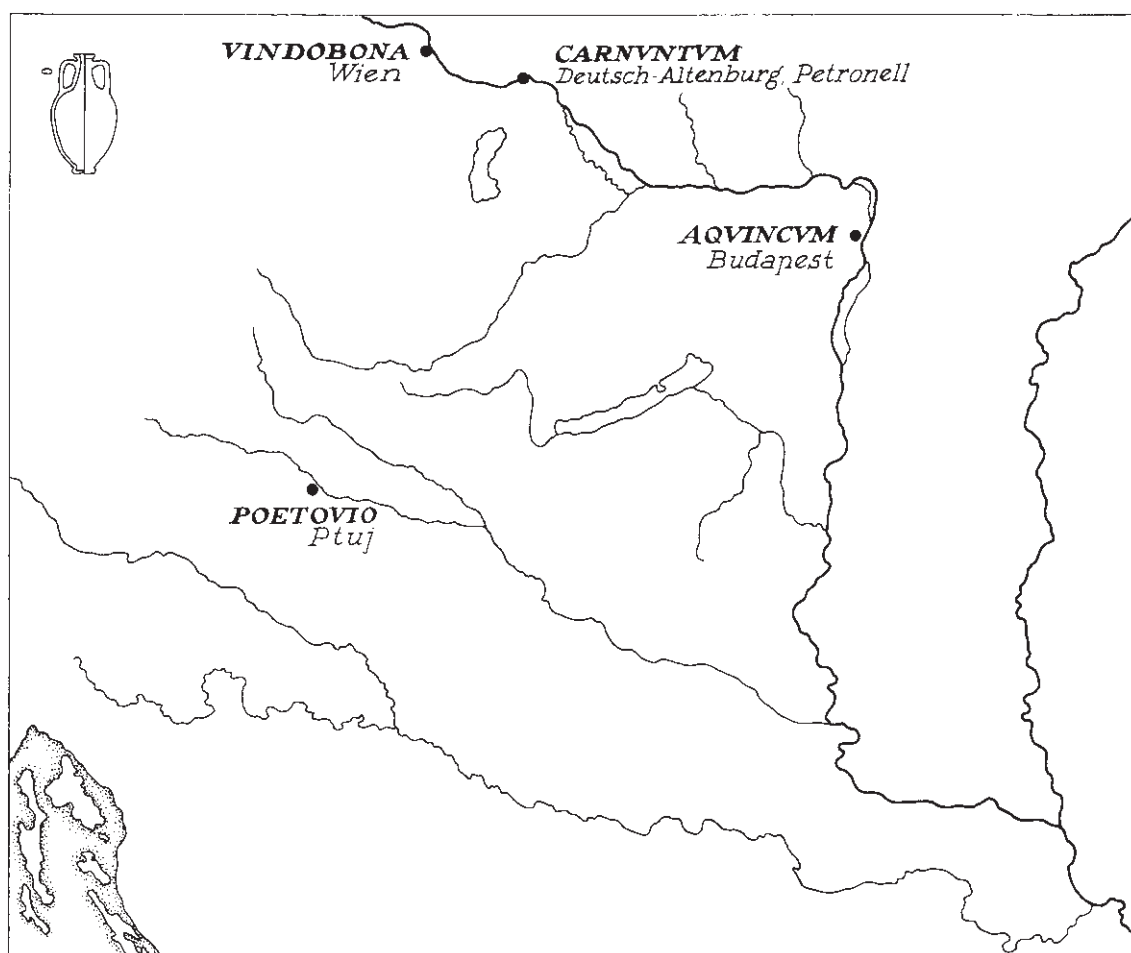


Fig. 7: The distribution of Forlimpopoli amphorae in Pannonia.

<sup>75</sup> LAUBENHEIMER 1985, 390–392; PEACOCK/WILLIAMS 1986, 143; MARTIN-KILCHER 1994, 360–361.

<sup>76</sup> I am grateful to P. SCHERRER for the opportunity to study the pieces.

<sup>77</sup> The form closely resembles the G5 amphora (Aquitanian type 1) which was published by F. BERTHAULT, Production d'amphores dans la région bordelaise. In: F. LAUBENHEIMER (ed.), Les amphores en Gaule, production et circulation (Paris 1992) 93 Fig. 1,1 from Bordeaux.

The discovery of the workshops<sup>78</sup> in which the flat-based Northern Italian amphorae were produced made it possible to identify the amphorae, which were often confused with other types.<sup>79</sup> Four groups (A–E) have been described, some of which have variations. This group is characterized by a short, rounded rim, narrow neck and round body which ends in a base ring. The handles are almost horizontally attached to the neck below the rim and have a sharp angle before reaching the body vertically. The height is 60–65 cm, the diameter of the rim is 7.5–9 cm, and the base ring is 7–10 cm. They were used from the end of the first century A.D. to the end of the second century.<sup>80</sup> The content of the amphora was wine. Traces of resin<sup>81</sup> were found in some of these amphorae which is also characteristic of wine amphorae.

This type of amphorae was identified in Pannonia only recently.<sup>82</sup> The Vindobona amphora (Cat. no. 33) that belongs to group C, cannot be dated. It comes from an old excavation.

They were distributed in Ostia and the Adriatic region. On the basis of the vessels found in Pannonia (Vindobona, Carnuntum, Aquincum and Poetovio) more amphorae can be expected there.

### 8. Type Dressel 6B (Plate 6, Cat. no. 34–41)

(Dressel 'forma 6 similis'; Baldacci III; Buchi 6B; Peacock and Williams Class 8; Augst 38)

There are fewer Dressel 6B amphorae in Vindobona than at other Pannonian sites. The fragments come from the *canabae* (Freyung, Palais Harrach and Michaelerplatz) and from the civilian settlement (Rennweg). The most important characteristic of the Dressel 6B amphorae is the chalice-shaped rim, which meets the neck at a sharp angle. The outer contours are continuous along the body and the handles. The upper part of the handles is attached to the neck below the rim. The body is oval with a short stub base. The rim of the amphorae in the Augustan to the Vespasian period is curved. During the Domitian and Nerva period, the rim became straight.<sup>83</sup> The amphorae with the stamp of Traian and Hadrian also have conical rims.<sup>84</sup> Sometimes they have a sine line<sup>85</sup> running on the outside of the rim. The straight-rimmed, funnel-shaped amphorae were connected to the "Porto Recanati" type<sup>86</sup> ("anfore con orlo ad imbuto"), as it was supposed sometimes. The height varies between 80 and 95 cm. The outer diameter of the rim is 13–16 cm. The outer diameter of the body is 35–40 cm.

The Dressel 6B amphorae had their stamp on the rim. There is only one such amphora in Vindobona. This fragment has two stamps: IMP(eratoris) [Nervae] TRA(iani) (upside down, M-P letters in ligature) and SERV(...) with the S written backwards. The SERV(...) stamp is above one of the handles. The abbreviation SERV(...) can be interpreted in various ways: Servacus, .... Serus.<sup>87</sup> The most frequent cognomens are Servandus, Servatus and Servilius,<sup>88</sup> or simply Serv(us). The same

<sup>78</sup> T. ALDINI, Anfore foropopiliensi. Arch. Class. 30, 1978, 236–245; M. L. STOPPIONI PICCOLI, I materiali della fornace di Via della Resistenza, a Santarcangelo di Romagna. Studi Romagnoli 34, 1983, 29–46.

<sup>79</sup> CARRE 1985, 228 see her notes.

<sup>80</sup> ALDINI (Anm. 78) 390; PANELLA 1973, 482–484; MANACORDA 1977, 370–371; CARRE 1985, 228–231; TCHERNIA 1986, 257–259; PANELLA 1989, 147–156.

<sup>81</sup> CARRE 1985, 229.

<sup>82</sup> BEZECZKY 1994a, 165.

<sup>83</sup> BUCHI 1973, 551 Fig. 6 Pl. VI–VII; CARRE 1985, 220 Fig. 3a–b; BEZECZKY 1994, Abb. 9–37; STARAC 1997, Pl. I; BEZECZKY 1998, 7 Fig. 6 Pl. 1–33.

<sup>84</sup> The changes of the form has been discussed in detail by BALDACCII 1967–68, 49; later CARRE 1985, 219; STARAC 1997, Pl. II–III; BEZECZKY 1998, Pl. 36, No. 676–677.

<sup>85</sup> STARAC 1997, Pl. III; VI/4; BEZECZKY 1998, Pl. 36, No. 679.

<sup>86</sup> A. TONIOLO, Anfore conservate nel magazzino del Museo di Este. Civiltà Padana. Archeologia e storia del territorio I. 1988 (Modena 1989) 58 Fig. 42; A. STARAC, Morfologija Sjevernojadranskih amfora: primjeri iz Istre. Diadora 16/17, 1994, 145 Pl. 1 and 12.

<sup>87</sup> A. MÓCSY ET AL., Nomenclator. Diss. Pannonicae Ser. III 1 (Budapest 1983) 263–264; I. KAJANTO, The Latin Cognomina (Helsinki 1965) 40; 94; 111; 155; 162; 165; 295; 314; 356; 359; 360.

<sup>88</sup> MÓCSY ET AL. (Anm. 87) 263.





Fig. 8: The distribution of Dressel 6B amphorae in Pannonia.

stamp has been found in Milan, but it was interpreted differently.<sup>89</sup> One of the biggest workshops, the one owned by Laecanius family, stamped their amphorae in a similar way. The owner stamp was on the rim between the two handles,<sup>90</sup> while the *vilicus*/estate manager stamp was invariably on the handles. The other "Istrian" amphorae had usually only one stamp referring to the owner of the workshop, e.g.: [Statilius Taurus] Sisenna, Cal(via) Crispinilla, P. Itur(ius) Sab(inus), L. Iun(ius) Paetin(us), T. Flav(ius) Fontan(us). In other cases, it signified only a name or the abbreviation of a name: Apic, Apici, Cosae, Crispin, Primi, Pacci, etc.

The distribution of the amphorae with the Imperial stamps:

IMP; CLYMEN or CLYME: Vercelli, Fažana  
 IMP; PAGANI: Brijuni, Fažana  
 IMPE.VES.. or IMP.VESP: Aguntum, Pula, Salzburg  
 IMP CAES VESP; DAT(...): Fažana, Salzburg, Aquincum  
 IMP; POLL: Vercelli, Fažana, Salzburg  
 IMP; G.MI (or COMI): Fažana  
 [I]MP T CAE AVG; BERENT(...): Aquileia, Aguntum  
 IM[P]TCAEV...: Pula

<sup>89</sup> BRUNO/BOCCHIO 1991, No. 85 Pl. CXVI and CXXVII/19, publ: Laecanius (L[A]JEK V) and (OTEP) ??.

<sup>90</sup> BEZECZKY 1998, 11 and Fig. 12–13.

IMP.AVG.GER: Parentium, Pula, Concordia, Trieste, Tortona, Vallera, Reggio E., Monteu da Po, Aquileia, Aguntum, Zollfeld, Maribor, Emona, Poetovio, Salla, Aquincum, Solva, Gomolava  
 IMPDOMITI: Savaria

IMP.NERVAE.AVG: Parentium, Pula, Asolo, Coira, Milano, Padova, San Bellino, Curia, Aguntum, Salzburg, Porolissum, Maribor, Poetovio, Aquincum, Singidunum

IMP.NER.TRA: Pula, Loron, Concordia

IMPTRA; SERV: Milano, Vindobona

IMP.HADRI AVG: Parentium, Pula, Concordia

HAD.AVG: Este, Pula, Fažana, Loron

The most important centres of production were on the Istrian peninsula and on the island of Brijuni. The stamps of a number of workshops and more than 50 villas<sup>91</sup> are known. However, hardly any workshops have been identified so far. One of them was in Fažana<sup>92</sup> (near Pula), the property of the Laecanius Family. The other is supposed to have been in the Loron villa<sup>93</sup> (near Poreč). It seems likely that this villa was originally owned by T. Statilius Taurus Sisenna, and lately by Calvia Crispinilla. On the basis of brick stamps, the existence of a third workshop is also supposed near Capodistria.<sup>94</sup> Amphora stamps and stone inscriptions show that there must have been other Dressel 6B workshops somewhere in the region of Padova and Verona.<sup>95</sup>

“Istrian” amphorae have been primarily found in Cisalpina, Noricum and Pannonia. Some amphorae were published from the eastern part of Upper Moesia. Early Imperial period (Tiberian and Claudian) amphorae with stamps have been found in the eastern part of Raetia as well. In Raetia, however, the Istrian oil was replaced by Baetican oil from the middle of the first century A.D.

The Magdalensberg and Aguntum *tituli picti* make it certain that the content was olive oil.<sup>96</sup> The Dressel 6B amphorae are often confused with the Dressel 6A which contained wine, and which were produced on the Adriatic coast of Italy. The fundamental differences between the two types<sup>97</sup> have been established in the past few years.

The earliest production evidence belongs to the mid-late Augustan period.<sup>98</sup> The stamps have the names of senators and other well-known individuals up to the Flavian period. Then the owner-

<sup>91</sup> R. MATIJAŠIĆ, Oil and Wine Production in Istria and Dalmatia in Classical Antiquity and the Early Middle Ages. Bull. Corr. Hellénique Suppl. 26, 1993, 248.

<sup>92</sup> A. GNIRS, Eine römische Tonwarenfabrik in Fasana bei Pola. Jahrb. Altkde. 4, 1910, 79–88; DERS., Forschungsergebnisse aus dem südlichen Istrien. Jahresh. Österr. Arch. Inst. 13, Beibl. 1910, 95–97; DEGRASSI 1953, 57; BALDACCIO 1967–68, 34; TASSAUX 1982, 252; CARRE 1985, 222; T. BEZECZKY/M. PAVLETIC, New objects from the figlina of C. Laecanius Bassus. Jahresh. Österr. Arch. Inst. 65, 1996, 144–148; BEZECZKY 1998, 3–4.

<sup>93</sup> F. TASSAUX, Loron (Croatie): la villa maritime. Mém. École Française Rome 107, 1995, 545–547; A. STARAC, Loron. In: Arheološki nalazi u Puli i Istri tijekom 1995. Godine (Scoperte archeologiche a Pola ed in Istria nel 1995) Exhibition. cat. Pula 1995 (Pula 1996) 6–7; F. TASSAUX, Loron (Poreč): villa maritime. Mém. École Française Rome 108, 1996, 500; F. TASSAUX/M. BALDINI/R. MATIJAŠIĆ, Loron (Poreč): villa maritime. Mém. École Française Rome 109, 1997, 500–501.

<sup>94</sup> E. BOLTIN-TOME, Zigi na Rimskih opekah iz depoja Pomorskega Muzeja „Sergej Masera“ v Piranu. Arh. Vestnik 25, 1976, 226–230; F. TASSAUX, L’implantation territoriale des grandes familles d’Istrie sous le Haut-Empire romain. AttiMusTrieste 13,2, 1983–84, 196; BEZECZKY 1985, 70.

<sup>95</sup> BUCHI 1973, 594–596; E. BUCHI, Commerci delle anfore istriane. Aquileia Nostra 45/46, 1974/75, 437; CARRE 1985, 223; C. ZACCARIA, Per una prosopografia dei personaggi menzionati sui bolli delle anfore romane, dell’Italia nordorientale. In: Amphores romaines et histoire économique, dix ans de recherche. Collect. École Française Rome 114, 1989, 483.

<sup>96</sup> R. EGGER, Bericht 2: Die Ausgrabungen auf dem Magdalensberg 1949. Carinthia 140, 1950, 487 Abb. 35 Nr. 8; later EGGER corrected the name: Tusidius, DERS., Bericht 10: Die Ausgrabungen auf dem Magdalensberg 1960 und 1961. Carinthia 153, 1963, 97 No. 34; ALZINGER 1955, 50 No. 4 Pl. 22.

<sup>97</sup> CARRE 1985, 223.

<sup>98</sup> Earlier the production was thought to have begun at the end of the Augustan period: TASSAUX 1982, 259; CARRE 1985, 222. The latest Magdalensberg chronology suggests that the production of the Laecanius amphorae started in the mid/late Augustan period: BEZECZKY 1998, 24–27.

ship changed, and the names of the Emperors can be seen on the stamps.<sup>99</sup> Dressel 6B amphorae were still made during the Hadrian period. Later they disappeared from their traditional markets.<sup>100</sup>

The dating of the amphora with Traian's stamp (Cat. no. 34) is quite obvious: the beginning of the second century. The Cat. no. 41 fragment was found in a layer that can be dated to the second century.

### 9. Type Dressel 20 (Plate 7, Cat. no. 42–43, 47–51, 56–58)

(Globular amphora; Beltrán V; Ostia I; Peacock and Williams Class 25)

This is one of the most common amphora from the Augustan period to the mid-third century. The oil was produced in the valley of Guadalquivir (Baetis) river, between Seville and Cordoba. The form of this globular olive oil amphora changed little. However, the form of the rim, neck and handle is characteristic of each period.<sup>101</sup>

The characteristics of the amphorae (1) of the Flavians and Antonines period are the triangular rim and the long handles. (It should be noted that we are speaking only of the Baetican amphorae dated to the first half of the second century, found in Pannonia). Later, until the end of the second century, the rim becomes flat, the neck becomes shorter, and the handles are closer to the body. In the third century, the profile of the handles is almost circular. When compared with the large body, the base is rather small. E. RODRÍGUEZ-ALMEIDA stated that the potter put a stopper into the bottom from the inside when he cut the body of the amphora from the wheel.<sup>102</sup> The graffiti which showed that the amphora had been checked are scratched into the soft surface. This was followed by the mounting of the neck, rim, and handles. Then the amphora was stamped. The amphora was fired and next taken to the storeroom.

When it was filled with olive oil, it got *tituli picti*: ( $\alpha$ ) empty weight, ( $\gamma$ ) full weight, ( $\delta$ ) customs. When it was shipped, ( $\beta$ ) the name of the merchant (*diffusor*) was added.<sup>103</sup>

Numbers of stamps have been found on the Pannonian amphorae.<sup>104</sup> They can be dated to the second quarter of the second century to the mid-third century A.D. The dating and the origin of the Vindobona stamps are:

Cat. no.	Stamp	Date	Origin	Bibliography
51	QIAFSF	type: mid second century A.D.	Malpica	PONSICH 1979, 133 Fig. 46; REMESAL RODRÍGUEZ 1997, No. 159c
57	LCM	type: mid second century A.D.	La Catria	CIL 2754a, Callender 827, REMESAL RODRÍGUEZ 1997, No. 73
47	ACIRGI	type: third century A.D. 220? 222?	La Catria	CIL 2575, Callender 18, REMESAL RODRÍGUEZ 1997, No. 51
48	NTCEI .../...	type: third century A.D.	?	

<sup>99</sup> BALDACCI 1967–68, 30–31 and 46; TASSAUX 1982, 267; BEZECZKY 1998, 7–9.

<sup>100</sup> There are a number of hypotheses concerning this issue. BALDACCI (1967–68, 46) stated that it was the advent of the Spanish oil that resulted in the decrease of the production. DEGRASSI (1956, 111 = 1962, 971) thought the reason was the change in the agricultural production. However, it is possible that the reason was quite simple: e.g. the olive trees may have been frozen: BEZECZKY 1998, 10–11.

<sup>101</sup> E. RODRÍGUEZ-ALMEIDA, Bolli anforari di Monte Testaccio I. Bull. Comm. Arch. Roma 84, 1974–75, 226 Fig. 18; St. MARTIN-KILCHER, Die römischen Amphoren aus Augst und Kaiseraugst. Die südspanischen Ölamphoren (Gruppe 1). Forsch. Augst 7,1 (Augst 1987) 55 Abb. 28.

<sup>102</sup> E. RODRÍGUEZ-ALMEIDA, Il Monte Testaccio (Roma 1984) 163 Fig. 67.

<sup>103</sup> E. RODRÍGUEZ-ALMEIDA, Graffiti e produzione anforaria della Betica. In: W. V. HARRIS (ed.), The Inscribed Economy. Journal Roman Arch. Suppl. 6, 1993, 97 Fig. 1.

<sup>104</sup> Poetovio: Q.L.S, GMM; Carnuntum: P.M.S, P.CLODIICELI, MMC.SAIP, ?..RAMS, ?..VITA, POR...?; Ad Statuas: LCMY; Brigetio: FCCVFPAC, FCVCVM, [F]SCIM/NIANO; Azaum: P.M.S.P; Aquincum: DOMS, ST.PL, LCM, SA♠IS FGRVMESEA / GGGNNNCE, FSCIM / NIANO, ...VCVM, PNN, L.....M, .../ P...; Gorsium: [IVNI]M/[ELI]SSI, TFAMV; Mursa: DOMS; Cibalae: LFCCVCF, LIVNIM/ELISSI; Sirmium: SFF or SFE; Strayfind ACIRGI.



Fig. 9: The distribution of Dressel 20 amphorae in Pannonia.

The Vindobona amphorae are badly broken. In many places, only fragments of the body were unearthed. Baetican oil appeared in Pannonia when the Istrian olive oil production seems to have declined, after the Hadrian period. No closer dating is possible at this time. In the civilian settlement of Vindobona (Rennweg 44), one of the wells had the body fragments of Dressel 20 amphorae, (Cat. no. 54) together with terra sigillata vessels, and a Hadrian coin which is dated to 134–138 A.D. (Dupondius or As, RIC 949c). In another well, there were body fragments (Cat. no. 50) with other terra sigillata vessels, and two coins. The coins belong to the Hadrian (Denar, 134–138 A.D., RIC 306) and the Antonine period (Dupondius or As, Antoninus Pius for Diva Faustina I, RIC 1170).<sup>105</sup>

The amphorae from Baetica can be found all over the Empire, especially in the western provinces. They also occur in smaller quantities in the Eastern Mediterranean. In Pannonia, they were unearthed primarily in the settlements of the Amber Route. The form is common in the military camps along the limes.

<sup>105</sup> I am grateful to M. MÜLLER for the information.

**10. Type Schörgendorfer 558 (Plate 8, Cat. no. 63, 68, 76; Plate 9, Cat. no. 60, 63–67; Plate 10, Cat. no. 68–72, 74–76; Plate 14, Cat. no. 109; Plate 20, Cat. no. 62; Plate 21, Cat. no. 60; Plate 22, Cat. no. 73; Cat. no. 77.1–77.2)**

(Anfora tronco-conica da olive)

A number of Schörgendorfer 558 amphorae were found in the legionary fortress, in the *canabae*, and in the civilian settlement. This special amphora was first described by V. LIPP<sup>106</sup> in the nineteenth century, when he prepared the catalogue of the ceramic objects found in Savaria. Fifty years later, the same amphora form was catalogued by SCHÖRGENDORFER<sup>107</sup> as 558. This amphora had a *titulus pictus*, which mentioned black and green olive. The *tituli picti* were published in volume V of CIL (8111.1–3), but the fact that these inscriptions were on the “tronco-conico” type (that is type Schörgendorfer 558) was pointed out only recently by P. BALDACCI.<sup>108</sup>

The neck and the base are cylindrical. The body is composed of two truncated cones facing each other. The handles are attached to the rim horizontally, and reach the upper part of the body. The handles are flat, with longitudinal grooves. The inside is smooth. There are two grooves parallel to the concentric circles on the upper part of the body. These amphorae have a few variations. P. BALDACCI published finds from Northern Italy, the handles and the body of which are different. G. MUFFANTI MUSSELLI<sup>109</sup> distinguished “A” and “B” subtypes. The type “A” is distinguished from type “B” by its flattened handles and less globular belly. The height is 70–75 cm, the diameter of the rim is 14.5–16 cm, the diameter of the body is 27.3–29.8 cm, the diameter of the base is 8.8–10 cm.

A. DEGRASSI,<sup>110</sup> P. BALDACCI<sup>111</sup> and G. MUFFANTI MUSSELLI<sup>112</sup> thought that these amphorae had been produced on the Istrian peninsula. However, I have not seen any in the museums Pula, Poreč or Rovinj, or among the Pula and Brijuni<sup>113</sup> amphorae. The P.M.P. stamp found on a type “A” amphora in Altino<sup>114</sup> offers no real clue to identify the centre of production. This stamp has not been published anywhere else. The Carnuntum auxiliary fort amphora<sup>115</sup> has a graffiti on its rim: ...VSATT..., but this is no help either. The petrological analyses may take us closer to the solution. For the time being, these analyses show the amphorae were not produced in Istria.<sup>116</sup>

In the first century, the famous olive producing sites were in Istria, Baetica and Italy, that is, where the climate was suitable for growing olives. According to Pliny N.H. XV.1.4: “Fabianus says that the olive will not grow in extremely cold places nor yet in extremely hot ones ... There is no doubt that even in the case of olives the soil and the climate are of very great importance ...”. In the Po valley, only near the lakes is it possible to grow olives.<sup>117</sup> Later sources mention the lake of Como<sup>118</sup> and recent sources find evidence at the lake of Garda.<sup>119</sup> Modern scholars, however, point-

<sup>106</sup> V. LIPP, A római agyagipar a Vasm. Régiséggyűjteményben. Vas megyei Rég.-Egyet. Évi Jel. 1875, 87 Fig. 36.

<sup>107</sup> SCHÖRGENDORFER 1942, 65–66, Type 558, Pl. 45.

<sup>108</sup> BALDACCI 1972, 27–28 Fig. 8 and 11.

<sup>109</sup> MUFFANTI MUSSELLI 1987, 187–188 Pl. I.

<sup>110</sup> DEGRASSI 1953, 60; DEGRASSI 1956, 108–109.

<sup>111</sup> BALDACCI 1972, 27–28 Fig. 8 and 11.

<sup>112</sup> MUFFANTI MUSSELLI 1987, 201–206.

<sup>113</sup> BEZECZKY 1998, 6–9.

<sup>114</sup> TONILO 1991, 153 No. 172 Fig. 364.

<sup>115</sup> BEZECZKY 1997b, 176 No. 15 Fig. 2 and 4.

<sup>116</sup> BEZECZKY 1994, 101–102 and 116–117; S. JÓZSA/R. SAUER/GY. SZAKMÁNY/T. WEISZBURG, Mineralogisch petrographische Untersuchungen. In: BEZECZKY 1994a, 155–159. An earlier analysis of the fabric showed materials of volcanic origin (augite, Ti-augite, aegerine-augite, pigeonit, hornblende and volcanic rock) which are missing from the Istrian amphorae. The technique of production was different as well. The inclusions of the Dressel 6B amphorae are usually small (0.01–0.15 mm). Only the limestones are larger than this. The fabric of the Schörgendorfer amphorae contain a much higher proportion of clast, which have the shape of splinters, their size is larger. Their composition is also more varied.

<sup>117</sup> DEGRASSI 1956, 107.

<sup>118</sup> CARRE 1985, 224; Claudien, *Bell. Goth.*, 319–320; Cassiodore Var. XI, 4, 3.

<sup>119</sup> CARRE 1985, 224; BUCHI 1973, 630 No. 148.

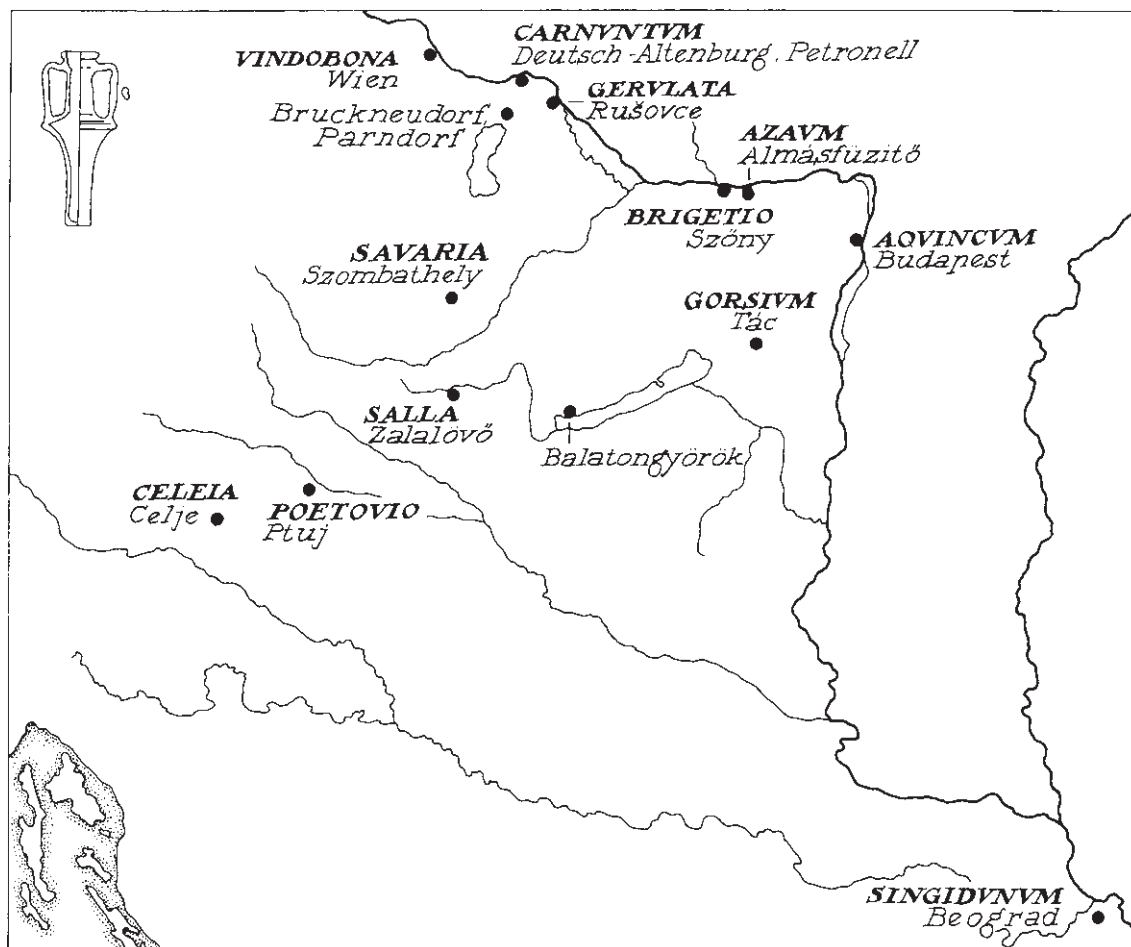


Fig. 10: The distribution of Schörgendorfer 558 amphorae in Pannonia.

ed out that the production – if any – at these sites could only satisfy the local demand.<sup>120</sup> According to A. DEGRASSI,<sup>121</sup> the production of olive oil in Emilia (Romagna included) was insignificant. In Marche, there was some production, but it was so little that not even Pliny mentions it. As opposed to these regions, the production in Istria is both documented by ancient sources and is evidenced by the archaeological finds (stamped amphorae and villas) there.

Columella listed<sup>122</sup> ten kinds of olives "... *Pausia*, *Algiana*, *Liciniana*, *Sergia*, *Nevia*, *Culminia*, *Orchis*, *Regia*, *Cercitis* and *Myrtea* ...", some of which can be used for oil, others can only be eaten. "... Of these the berry of the *Pausia* is the sweetest, that of the *Regia* the most beautiful but both are better for food than for oil. The oil of the *Pausia* has an excellent flavour when it is green, but it spoils with age. The *Orchis* and the *Radius* are also better for food than for oil. The *Liciniana* gives the best oil, and the *Sergia* the most ...". Pliny<sup>123</sup> has precise information concerning the Venafrum production: "... the district of Venafrum and the part of it which produces the *Licinian* oil which causes the *Licinian* olive to be exceptionally famous...". This makes it certain that only oil was produced in Venafrum. The result of the petrological analyses indicated Italy as the origin of the Schörgendorfer 558 amphorae.

<sup>120</sup> CARRE 1985, 224 footnote 84–85.

<sup>121</sup> DEGRASSI 1956, 107.

<sup>122</sup> Columella, 5.8.1–4.

<sup>123</sup> Pliny N.H. 15.8.



The Cisalpine amphorae were published by P. BALDACCİ and summed up by G. MUFFANTI MUSSELLI. They state that these amphorae can be found in Milan, Vercelli, Chiavenna, Como, Cremona, Asti, Feltre, Oderzo, Caorle, Altino, Portogruaro and Aquileia.<sup>124</sup>

Italy has the Schörgendorfer 558 "A" type, except for Portogruaro and Altino<sup>125</sup> where there are both "A" and the "B" type amphorae, and Oderzo and Feltre<sup>126</sup>, which have only the "B" type. In Raetia, there are a few fragments in the settlement of Chur.<sup>127</sup> It is certain that this type did not reach Augst.<sup>128</sup> In Noricum, Schörgendorfer 558 amphorae were found in Ovilava, Aguntum, Iuvavum (Salzburg), Flavia Solva, Virunum, Celeia, Aelium Cetium (St. Pölten) and Magdalensberg;<sup>129</sup> in Pannonia, in the settlements of the Amber Route, as well as in Gerulata, Brigetio, Aquincum, Gorsium, Azaum and Balatongyörök.<sup>130</sup> In Upper Moesia there are finds in two settlements: Singidunum and Viminacium.<sup>131</sup> Noricum, Pannonia and Upper Moesia have the "B" type and its variations. It is interesting that in these provinces the distribution of the Schörgendorfer 558 is the same as that of the Dressel 6B.

Recently, R. TOMBER<sup>132</sup> found fragments of Schörgendorfer 558 amphorae in Egypt, and rim and handle fragments were identified in Pergamon.<sup>133</sup> They are unique in Egypt and in Pergamon. However, the fact that they found their way to the Eastern Mediterranean is significant.

The *tituli picti* mention black and green olives. The *tituli picti* were made – with one exception – in red paint with carefully written letters. The Italian *tituli picti* (which I know only from the publications) are slightly different: OL(iva) / NIG(ra) / EXDVL(cis) / EXC(ellens)<sup>134</sup> and A(lba) / OL(iva) / EX MV(urio) BEL(...) / EXC(ellens).<sup>135</sup> The abbreviations EXDVL(cis) and EXCEL(ens) coincide only in three cases (Aguntum, Poetovio, and Azaum).

A. SCHÖRGENDORFER dated this type to the late Imperial period, while P. BALDACCİ – on the basis of a Milan excavation – stated that the amphorae were used in the Augustan period. W. ALZINGER<sup>136</sup> emphasized that the nature of the *tituli picti* is characteristic of the first century. In Pannonia, one of the Salla (Zalalövö) amphorae<sup>137</sup> was found with coins of Claudius from 41 and 43, while an-

<sup>124</sup> BALDACCİ 1972, 7–28, App. II, 27–28; CARRE 1985, 231–232; MUFFANTI MUSSELLI 1987, 189–194.

<sup>125</sup> TONIOLO 1991, 155 Fig. 362–364; MUFFANTI MUSSELLI 1987, Pl. 5.

<sup>126</sup> MUFFANTI MUSSELLI 1987, Pl. 5.

<sup>127</sup> ST. MARTIN-KILCHER, Die Amphoren. In: A. HOCHULI-GYSEL/A. SIEGFRIED-WEISS/E. RUOFF/ V. SCHALTENBRAND OBRECHT, Chur in römischer Zeit. II. Basel. Antiqua (Zürich) 19, 1991, 121, T 42, 63–68.

<sup>128</sup> MARTIN-KILCHER 1994, 386 Fig. 162,7, this is a valuable piece of information. However, one wonders why the other missing types are not indicated in Augst.

<sup>129</sup> Ovilava (Wels): RE XVII 1 (1936) E. POLASCHEK col. 1040; Virunum: S. ZABEHICKY-SCHEFFENEGER, Virunum. Übersicht über das Fundmaterial der Grabung 1992 in Virunum. Carinthia 183, 1993, 266 Abb. 4,48; Aguntum: ALZINGER 1955, 18 No. 140–142 Pl. 6,140 and Pl. 22, Inscr. 1; Celeia: BEZECZKY 1987, 74 No. 275; VIDRIH PERKO 1994, Pl. 6,4–5; 4,3 (15790); Flavia Solva: SAKL-OBERTHALER 1994, 10–11 Pl. 4,14–21; Iuvavum: N. HEGER, Salzburg in römischer Zeit. Jahresschr. Salzburger Mus. Carolino Augusteum 19, 1973 (1974) 135; Magdalensberg: BEZECZKY 1994, 112–117 Abb. 43; MAIER-MAIDL 1992, 22.

<sup>130</sup> Poetovio, Salla, Savaria, Carnuntum: BEZECZKY 1987, 74–76 No. 276–294; Bruckneudorf: H. ZABEHICKY, Bruckneudorf (Burgenland). Österreichisches Archäologisches Institut Grabungen 1994. Jahresh. Österr. Arch. Inst. Beibl. 1995, 54 = DERS., Bruckneudorf (Burgenland). Fundberichte aus Österreich 35, 1996. Jahresh. Österr. Arch. Inst. 1997, 473 (3 példány Inv. No. 5/94 OL / ... D / .EC; 420/95 OL; 428/95 ..XI.); Gerulata: M. PICHLEROVÁ, Antická Gerulata. Slovenské Národné múzeum (Bratislava 1984–85) 9, frontpage; Azaum, Balatongyörök: KELEMEN 1988, 144 No. 7–8 Fig. 7; Aquincum: KELEMEN 1988, No. 4–5 Fig. 7; BEZECZKY 1991, 134 No. 20–21 Abb. 30; Gorsium: BEZECZKY 1995, 40–44 Fig. 2 and Fig. 6 No. 31–45; Brigetio: unpublished, L. BORHY excavated No. 994, B13.240–242.

<sup>131</sup> Singidunum: D. BOJOVIC, Rimska keramika Singidunuma (Beograd 1977) Pl. 64, 559; Viminacium: L. BIJELAJAC, Amfore gornjomezijskog Podunavlja (Amphorae of the Danubian basin in Upper Moesia) (Beograd 1996) 19–23 No. 22–25 Fig. 3.

<sup>132</sup> I am grateful to R. TOMBER for the information.

<sup>133</sup> I am grateful to S. JAAP for the information.

<sup>134</sup> DEGRASSI 1953, 60.

<sup>135</sup> CIL V 8111.3; CARRE 1985, 232.

<sup>136</sup> ALZINGER 1955, 18 footnote 72.

<sup>137</sup> BEZECZKY 1987, 31.

other vessel comes from a layer that can be dated to the late first/mid second century. The fragments of one of the reconstructed (Cat. no. 71) Vindobona amphorae (unearthed in Rennweg 44) belong to a mixed layer that can be dated to the end of the first century to the beginning of the third century. The rim was found with terra sigillata vessels which can be dated to the Domitian period. However, there were other terra sigillata fragments dated to later times in the same place. On the basis of the petrological analysis the handle of Cat. no. 109 (see R. SAUER I, WA23/98), found on the Michaelerplatz, belongs to Schörgendorfer 558 amphora type. Its form is consistent with the smaller version. A similar piece was found in a mid-second century layer in Salla.

Pannonia						
Poetovio	OL/	ALB/	EXDUL			
Gorsium		ALB				
Vindobona	O./	EXD/	..CEL/	ALB		
Azaum	OL/	EXDVL/	EXCEL/	A../		L
Bruckneudorf	OL/	..D/	..XC			
Bruckneudorf	OL/					
Noricum						
Celeia	OL/	ALB/	EXD/	EXC		
Flavia Solva	OL/	ALB/	..D/	EXC/		L
Upper Moesia						
Singidunum	OL/	ALB/	EXD/			T.L(?)..T (or F)
Pannonia						
Savaria	OL/	NIG/	EXD/	EXC		
Carnuntum	..L/	..G/	EXD/	EXC		
Vindobona	OL/	NIG/	EXD/	EXC		
Gerulata	OL/	..G/	EXD/	EXC/	XXV/	TVLLIORVM
Aquincum	..L/	N.G/	EXD/	EXC/	XV/	COC PHIL
Vindobona	OL/					
Vindobona					CCL	I.P.C
Savaria				EX./	XXII	
Aquincum			EXD			
Gorsium				EXC		
Salla	OLIVA/		..XCEL			
Salla						L.S.E
Noricum						
Iuvavum		NIG/	EXD/	EXC/	..X	
Ovilava		NIG/	EXD	EXC/		
Cetium	OL/	N..				
Aguntum	OL/	NIG/	EXDUL	EXCEL/	XV/	..FS
Upper Moesia						
Singidunum	OL/	NIG/	EXD/	EXC		
Singidunum	OL/	NIG/	..D			

The outer surface of the amphorae is in most cases creamy buff (5YR 7/4), but in some cases it varies between reddish yellow (5YR 7/6) and buff (7.5YR 7/4–10YR 8/4). The clay is fine, hard and well fired.

R. SAUER distinguishes petrographically three different groups among the Vindobona amphorae:

Group "Aa" (Cat. no. 65, WA26a/98; 66, WA26b/98; 67, WA30/98; 76, WA35/98; 109, WA23/98) is probably a version of group "Ab". It may have been fired at a higher temperature than group "Ab". The frequency of inclusions are moderate (9%). The average size of the inclusions is 0.2 mm – and none of them exceeds 0.4 mm. In group "B" (Cat. no. 60, WA24/98; 63, WA25/98; 68, WA27/98; 71, WA31/98; 74, WA33/98; 75, WA34/98) the largest grains are 0.9 mm. The proportions of the individual components are similar (7%). There is a slight difference

among the heavy minerals. In the group "Ac" (Cat. no. 69, WA28/98; 70, WA29/98 and 72, WA32/98) the frequency of the inclusions are common (12%). The average size of the inclusions is 0.4 mm, the maximum 2.3 mm. The different grain sizes make this group distinct from the other two.

On the basis of the geological data, the production site should be located in Northern Italy. Padova or the region lake Garda are likely candidates. This requires further research, and should be investigated with reference to the ideas according to which some of the "ante" 6B and Dressel 6B amphora production sites<sup>138</sup> are to be found also here. The names of well-known families<sup>139</sup> from Padova and Verona occur on both the amphorae (P.SEPVLLI P.F and P.Q.SCAPVLAE) and on stone inscriptions.

## 11. Fish sauce amphorae

In addition to the Baetica olive oil, Spain exported marine products to various parts of the Empire. Sea food factories have been discovered on the southern coast of Spain and Portugal.<sup>140</sup> The amphorae were produced in the workshop, which belonged to these factories. There were a number of amphora types. Their petrological analysis have been performed by D. PEACOCK and D. WILLIAMS and recently ST. MARTIN-KILCHER.<sup>141</sup> The *tituli picti* on the amphorae refer to various fish sauces: *liquamen*, *muria*, *garum* etc.<sup>142</sup> Certain rules and formulae have been established on the basis of the abundant *tituli picti*.<sup>143</sup> The inscriptions refer not only to the product, to the merchant, but in some cases to the person (name, military rank, the name of the legion) who ordered the product, which means they functioned in the same way as waybills.<sup>144</sup>

### Dressel 7–11 (Plate 11, Cat. no. 78)

(Included within Beltrán I; Peacock and Williams Class 16; Augst 23 to 25)

The form of these amphorae varies. The body is oval, there is a groove on the rim. Most probably all these amphorae are of Spanish origin.<sup>145</sup> They were produced in a number of places, which probably explains the form variations. Their distribution in the western Mediterranean region is well documented from the late first century B.C. to the first century A.D. (widest distribution was from the second quarter of the first century).<sup>146</sup>

Among the amphorae in Vindobona, only one (Cat. no. 78, see R. SAUER I, WA36/98) belongs to this type. It comes from an old excavation. The colour and fabric are characteristic to this type. It has a groove on the handle. It is possible, on the basis of the petrological analysis, to establish the production site in South Spain.

<sup>138</sup> BUCHI (Anm. 95) 437; CARRE 1985, 223.

<sup>139</sup> BUCHI 1973, 594–596; ZACCARIA (Anm. 95) 483; BEZECZKY 1998, 5–6.

<sup>140</sup> M. PONSICH/M. TARRADELL, *Garum et industries antiques de salaison dans la Méditerranée occidentale*. Bibliothèque de l'École des Hautes Études Hispaniques 36 (Paris 1965); BELTRAN LLORIS 1970, 388–464; D. P. S. PEACOCK, *Amphorae and the Baetican fish industry*. *Ant. Journal* 54, 1974, 232–243; PEACOCK/WILLIAMS 1986, 72–76; M. PONSICH, *Aceite de oliva y salazones de pascado. Factores Geo-Economicos de Betica y Tingitania* (Madrid 1988); MARTIN-KILCHER 1994, 393–409.

<sup>141</sup> PEACOCK 1974 (Anm. 140) 236; 239; 241 Pl. 45; PEACOCK/WILLIAMS 1986, 117–133; MARTIN-KILCHER 1994, 393; 620–623.

<sup>142</sup> ZEVİ (Anm. 6) 242–247; BELTRAN LLORIS 1970, 415–417; PANELLA 1973, 509.

<sup>143</sup> MARTIN-KILCHER 1994, 402–403.

<sup>144</sup> T. BEZECZKY, *Amphora Inscriptions – Legionary Supply?* *Britannia* 27, 1996, 336.

<sup>145</sup> PEACOCK/WILLIAMS 1986, 118.

<sup>146</sup> PANELLA 1973, 508; RILEY 1979, 159.



Fig. 11: The distribution of Spanish fish sauce amphorae in Pannonia.

**Beltrán I (Plate 19, Cat. no. 79; Plate 11, Cat. no. 80, 83; Cat. no. 81–82)**

(Camulodunum 186A; Peacock and Williams Class 17; Schöne-Mau VII)

This type has a conical rim tapering toward the neck. The handles are flat with grooves. The body is “radish-shaped” with a long hollow base. The thickness of the walls is between 2 and 3 cm. Its fabric is hard, slightly rough sand. The colour is reddish-buff (7.5YR 7/6). They can be dated between the first century B.C. to the early second century A.D. They were also produced in South Spain.

In Vindobona there were two amphorae in the cemetery next to the road, which came from the auxiliary fort Klosterneuburg and was leading to the legionary fortress. One of the amphorae has been lost (Cat. no. 79), but there is a drawing in the inventory book.<sup>147</sup> The same form occurs in Poetovio.<sup>148</sup> The rim of another amphora (Cat. no. 80) also has been recovered. Fragments of this type occur in the *canabae* (Cat. no. 81–82) and in Unterlaa (Cat. no. 83). There are similar amphorae in Emona, Poetovio.<sup>149</sup>

<sup>147</sup> HMW old Inv. Nr. 198, 1661, old inventory book.

<sup>148</sup> BEZECZKY 1987, No. 197–198 Pl. 10.

<sup>149</sup> BEZECZKY 1987, No. 194; 196; 199–201 Pl. 9–10; BEZECZKY 1994, No. 51–52 Pl. 4.

**Beltrán II A/Pélichet 46 (Plate 11, Cat. no. 84–86; Plate 12, Cat. no. 87–89)**

(Dressel 38; Camulodunum 186C; Peacock and Williams Class 18; Augst 27)

The type has a broad neck with a hooked rim. The handles run parallel to the neck. The body is wider at the base. The base is long and hollow. Production of this form started either during the Flavian period, or shortly before it. It was produced as long as the middle of the second century A.D.<sup>150</sup> They were also produced in Southern Spain.

The Vindobona amphorae were found in the legionary fortress (Cat. no. 89), the *canabae* (Cat. no. 84–86) and in the civilian settlement (Cat. no. 88). Only one (Cat. no. 89, see R. SAUER I, WA37/98) of the amphorae was analysed. It is not possible, on the basis of the petrological analysis, to identify the site of production.

Amphorae of the same type were found in Pannonia: Emona, Poetovio, Salla, Savaria, Carnuntum, Arrabona, Aquincum, Vetus Salina, Gorsium.<sup>151</sup>

**Beltrán II B (Plate 12, Cat. no. 90)**

(Ostia LVIII; Peacock and Williams Class 19; Augst 29)

This type has a wide rim, long handles, and a body, which widens toward the base. It has a longish spike, either hollow or solid.<sup>152</sup> They were produced from the first to third century.<sup>153</sup> A base fragment (Cat. no. 90, see R. SAUER I, WA38/98) in Vindobona belongs to this type. They were probably produced in the Southern Spanish coast. They were found in the western provinces and in North Africa, especially in Morocco.<sup>154</sup> Only in Baláca<sup>155</sup> have such amphorae been recovered in Pannonia.

**12. Type Camulodunum 189 (Plate 12, Cat. no. 91 and 91.1)**

("Carrot amphora"; Pompeii XV; Peacock and Williams Class 12; Augst 44)

This "carrot amphora" is characterized by a flat rim, small, thick loop-handles and a body covered with horizontal rilling. The handles are attached to the body below the rim. Its height is 40–50 cm. This type has several varieties.<sup>156</sup> Only one piece was found in the Vindobona *canabae*; the lower part of the amphora is missing.

Their exact provenance remains unknown, but the special kind of quartz in their fabric suggests an origin of desert environment. A Greek inscribed vessel points to a production centre in Egypt. Besides Italy, many of these amphorae were found in the northern and western provinces. There are very many in Britain, Raetia and along the German limes.<sup>157</sup> These amphorae became known in Noricum, Pannonia and Upper Moesia only recently. In Pannonia, they were found in the Emona forum, the Carnuntum auxiliary fort, the Vindobona *canabae*, the civilian settlement in Brigetio, the fort (Iža) opposite Brigetio, Tokod, Aquincum and Sirmium.<sup>158</sup>

<sup>150</sup> PEACOCK/WILLIAMS 1986, 123; MARTIN-KILCHER 1994, 399–406.<sup>151</sup> KELEMEN 1990, 156–158; BEZECZKY 1987, 69 No. 224–228; BEZECZKY 1994, No. 53; BEZECZKY 1995, 52 No. 46–49.<sup>152</sup> BELTRAN LLORIS 1970, 440 Fig. 173; PEACOCK/WILLIAMS 1986, 124.<sup>153</sup> BELTRAN LLORIS 1970, 436; PANELLA 1973, 511; PEACOCK/WILLIAMS 1986, Class 19, all dated from the Tiberian-Claudian to the mid second century A.D.; in Augst a variety of this form dated 2nd and third century, MARTIN-KILCHER 1994, 401.<sup>154</sup> BELTRAN LLORIS 1970, 433–444; PANELLA 1973, 511; PEACOCK/WILLIAMS 1986, 125; MARTIN-KILCHER 1994, 401.<sup>155</sup> H. M. KELEMEN, Amphora. Balácai Közl. 2, 1992, 22 No. 17 and 21 Abb. 25,3–4.<sup>156</sup> W. REUSCH, Kleine, spitzkonische Amphoren. Saalburg-Jahrb. 27, 1970, Abb. 1–2.<sup>157</sup> C. F. C. HAWKES/M. R. HULL, Camulodunum. Reports of the Research Committee of the Society of Antiquaries of London 14 (Oxford 1947) 253; REUSCH (Anm. 156) 54; 56; 59–60; SEALEY 1985, 89; PEACOCK/WILLIAMS 1986, 109; TOMLIN 1992, 307; MARTIN-KILCHER 1994, 434–436.<sup>158</sup> Noricum, Magdalensberg: MAIER-MAIDL 1992, 20; BEZECZKY 1994, 111 Abb. 43; Flavia Solva: SAKL-OBERTHALER 1994, 16 Pl. 10; Emona: BEZECZKY 1994a, 86 No. 62–67; Carnuntum: BEZECZKY 1997b, 176 No. 21 Fig. 5; Brigetio: Inv. No. 995.B.15.060 and 993.E.11.127 unpublished, excavation of L. BORHY; Iža: unpublished, excavation of M. PICHLEROVÁ; Aquincum and Tokod: KELEMEN 1990, 149 No. 1–2 Fig. 1.

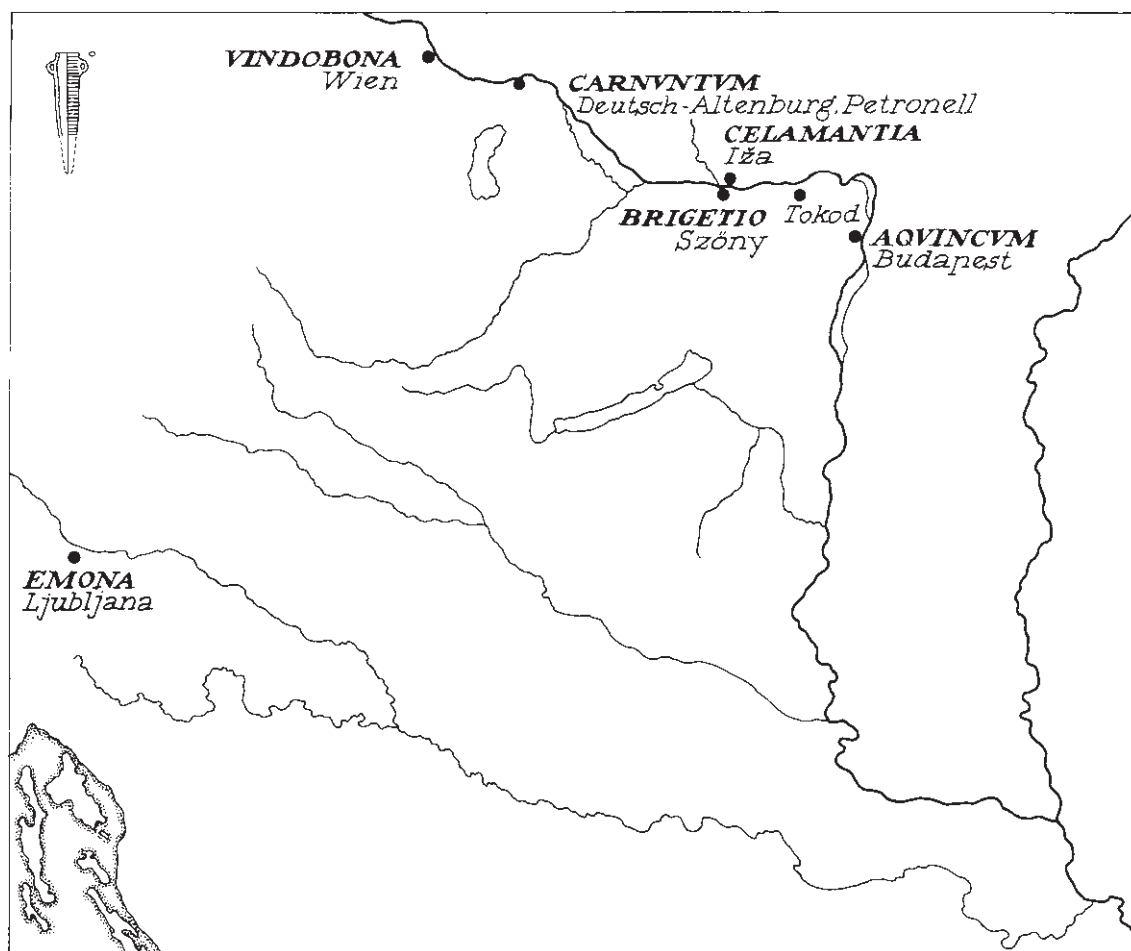


Fig. 12: The distribution of Camulodunum 189 amphorae in Pannonia.

These amphorae were probably used for shipping dried fruits (dates, figs and perhaps olives).<sup>159</sup> The inscribed vessel mentioned earlier refers not only to the content but also perhaps to the origin as well. The Caerlon amphora has it in black Greek letters: ΚΟΥΚ, κουκ(τον), Latin *cuci*, the fruit of the doum palm. This palm in antiquity was limited to the Nile valley, Upper Egypt and Sudan(?).<sup>160</sup> The latest analyses confirm the site of the production of this amphora must have been in Palestine region.<sup>161</sup> These amphorae were produced from the early first century to the early second century A.D. This dating is confirmed by data from a number of places. The vessels in Augst<sup>162</sup> were found in layers dated between 10 B.C. and 110 A.D. The Magdalensberg amphorae were recovered from Tiberian and Claudian layers.<sup>163</sup> The amphorae in Britain<sup>164</sup> were used primarily in the Claudian and Flavian period. The amphora from Brigetio was found with Vespasian – Traian terra sigillata vessels.<sup>165</sup> The Vindobona piece can be dated to the end of the first century A.D. The information available is not sufficient to date the other jars in Pannonia.

<sup>159</sup> MARTIN-KILCHER 1994, 434.

<sup>160</sup> TOMLIN 1992, 308–312.

<sup>161</sup> The new result published R. TOMBER/D. WILLIAMS, Egyptian Amphorae in Britain and the Western Provinces. *Britannia* 31, 2000, 45.

<sup>162</sup> MARTIN-KILCHER 1994, 436 Abb. 197.

<sup>163</sup> BEZECZKY 1994, 111.

<sup>164</sup> HAWKES/HULL (Anm. 157) 253; SEALEY 1985, 88–89; TOMLIN 1992, 308.

<sup>165</sup> L. BORHY and M. MIKLOSITY-SZÖKE personal communication.



## Amphorae with unknown contents

**13. Type "Porto Recanati" (Plate 13, Cat. no. 92–98; Plate 18, Cat. no. 99, 124)**

(Anfora a con collo ad imbuto)

L. MERCANDO<sup>166</sup> was the first to mention the distinctive funnel-shaped rim of the Porto Recanati amphorae. The name Porto Recanati to refer to this type was also used by B. BRUNO at the conference in Siena.<sup>167</sup> Later it was mentioned by M.-B. CARRE,<sup>168</sup> and described by A. TONIOLO and S. MAZZOCCHIN ("le anfore con collo ad imbuto").<sup>169</sup>

The rim and the neck of the amphora is funnel-shaped. The neck and the body form a continuous line. The body is egg-shaped. The base is sometimes semicircular.<sup>170</sup> In other cases it is the same as those of the Dressel 6B amphorae.<sup>171</sup> The handles are attached halfway between the rim and the body. They are semicircular, and meet the upper part of the body. They are round in cross-section. The height is 87–90 cm, the diameter of the rim is 12.5–16 cm, the diameter of the body is 32–38 cm. Some of the amphorae have a sine line on the rim, other have a horizontal groove.

Few stamps are known:

1. T.CARVLLI / GEMELLI "T. Carulli/Gemelli" stamp found in Milano,<sup>172</sup> at the construction of the underground. It was stamped on the upper part of the body, without frame, in negative.
2. IVLI / PAVLIN "Iuli/Paulin(i)" stamp found in Cupra Marittima.<sup>173</sup> It is on the body of the amphora. A similar stamp has already been published in CIL IX 6082.61.
3. LCSRCAR "L. C(...) S(...) R CAR" stamp found in Venetia.<sup>174</sup> It is on the rim of the amphora.
4. CSRCAR "C(...) S(...) R CAR" stamp found in St. Peter im Holz<sup>175</sup> (Noricum, Teurnia). It is on the neck of the amphora. The form of the amphora has not been identified yet.
5. LCSREV "L. C(...) S(...) REV" stamp found in "Porto Recanati".<sup>176</sup> It is on the neck of the amphora.
6. LCSRPHI "L. C(...) S(...) R PHI" stamps found in Alba Pompeia, Cuneo<sup>177</sup> and in Rennweg, Vienna (Cat. no. 98). It is on the rim of the amphora.
7. LCH "L. C(...) H(...)" stamp found in Via Emilia, Modena.<sup>178</sup> It is on the rim of the amphora. The same stamp can be seen on the rim of a Magdalensberg Dressel 6B amphora.<sup>179</sup>
8. M.M.N "M. M(...) N(...)" stamp, Cremona. It is on the rim of a Dressel 6B amphora.<sup>180</sup>

<sup>166</sup> MERCANDO 1974, 174; DERS., Marche. Rinvenimenti di insediamenti rurali. *Not. Scavi Ant.* 31, 1979, 180.

<sup>167</sup> B. BRUNO, Lombardia: ricerche in corso poster. In: *Amphores romaines et histoire économique, dix ans de recherche*. Collect. École Française Rome 114, 1989, 644 No. 6, amphora from „villa romana di Descenzano del Garda“.

<sup>168</sup> CARRE 1985, 232–235.

<sup>169</sup> TONIOLO 1991, 37; S. MAZZOCCHIN, Proposta per una definizione tipologica delle anfore „collo ad imbuto“. *Quad. Arch. Veneto* 9, 1993, 148–155.

<sup>170</sup> D. VRŠALOVIC, Istrazivanja i zaštita podmorskih arheoloskih spomenika u SR Hrvatskoj (Zagreb 1974) 139 No. 113, T 113, Museum of Rovinj; CARRE 1985, 233 Fig. 7.

<sup>171</sup> MAZZOCCHIN (Anm. 169) 150 Fig. 5 and 153 Fig. 11.

<sup>172</sup> BRUNO/BOCCHIO 1991, 269 Pl. CXVII/95; CXXVII/20; CXXIX/30, Inv. No. 41086; PANELLA/MORIZIO, No. 2021.

<sup>173</sup> PANELLA/MORIZIO, No. 2025.1–2.

<sup>174</sup> PANELLA/MORIZIO, No. 2024.

<sup>175</sup> CIL III 12010.27. The first letter may have been "L"; PANELLA/MORIZIO, No. 2024.

<sup>176</sup> MERCANDO 1979 (Anm. 166) 224; 226 No. 3 Fig. 139b; 265 Fig. 176; PANELLA/MORIZIO, No. 2023.

<sup>177</sup> B. BRUNO, Contenitori da trasporto: i consumi di olio, vino e di altre derrate. In: F. FILIPPI (ed.), *Alba Pompeia. Archeologia della città dalla fondazione alla tarda antichità*, Famija Albèisa (1997) 519.

<sup>178</sup> PANELLA/MORIZIO, No. 2022.

<sup>179</sup> MAIER-MAIDL 1992, 35.

<sup>180</sup> BALDACCIO 1967–68, No. 41; BRUNO/BOCCHIO 1991, 269; PANELLA/MORIZIO, No. 2026, mentioned among the Dressel 6A stamps (No. 1680).



Fig. 13: The distribution of type "Porto Recanati" amphorae in Pannonia.

It is supposed that the Imperial Dressel 6B amphora stamp HAD. AVG "Had(rianus) Aug(ustus)" had been on the rim of such an amphora, and that these amphorae had been produced on Imperial property.<sup>181</sup> However, it has already been pointed out that the Dressel 6B forms changed from the period of Domitian and Nerva. The rim is no longer curved but funnel-shaped. This may be the reason why it was supposed that these amphorae also had the Imperial stamp. No such amphora has been discovered in the Istrian workshops. It is quite certain that the workshop of Laecanius Bassus<sup>182</sup> produced no such form. It is possible that the Dressel 6B was used as a prototype when the "Porto Recanati" form was created, and the two forms were produced at the same time from the early Claudian period. Up till now it is not known where they were produced. The stamps offer no clue. The different formal characteristics and the petrological analyses make it clear that they were not produced in the same workshop. We have no information about their content.<sup>183</sup>

Their distribution is similar to that of Dressel 6B and Schörgendorfer 558 amphorae: Cisalpinga, Noricum and Pannonia.<sup>184</sup>

<sup>181</sup> TONIOLO (Anm. 86) 58 Fig. 42; STARAC (Anm. 86) Pl. 1 and 12.

<sup>182</sup> BEZECZKY 1998, 6–9.

<sup>183</sup> S. CIPRIANO, Anfore con collo ad imbuto. In: S. PESAVENTO MATTIOLI (ed.), Anfore romane a Padova: ritrovamenti dalla città. *Materiali d'archeologia* 1 (Padova 1992) 47, thinks their content was oil.

<sup>184</sup> Emona, Poetovio, Salla: BEZECZKY 1987, 76–77 No. 295–310; Emona: BEZECZKY 1994b, 86 No. 68–69 Pl. 1; Savaria: KELEMEN 1988, 131 No. 4 Fig. 4; Gorsium: BEZECZKY 1995, 46; Carnuntum: BEZECZKY 1997a, 168 No. 71–73 Fig. 13; BEZECZKY 1997b, 176 No. 22 Fig. 5; Tokod: KELEMEN 1988, 132 No. 18 Fig. 4,18; Amphora from Aquincum unpublished.

Only two sherds from the civil town of Vindobona, both unearthed in Rennweg 44, can be dated on the basis of the stratigraphy. The Cat. no. 97 vessel was found in a mixed layer with a Hadrian coin. The amphora with the LCSRPHI stamp (Cat. no. 98) was found in an Antoninian layer with Dragendorf 37 terra sigillata vessels from central Gaul.<sup>185</sup>

The Amber Route excavations offer a secure basis for the dating. The objects in Salla were recovered from layers that can be dated between the mid first century and the first quarter of the second century A.D. At the same time, the Magdalensberg objects allow an earlier dating. The use of the amphorae in the "Porto Recanati" cemetery can be followed to the mid-second century.

The colour of the amphorae is varied: light red (2.5YR 6/6), reddish yellow (5YR 6/6–7/6), light buff (10YR 8/4), and dark buff (7.5YR 6/4). R. SAUER distinguished two groups among the Vindobona amphorae:

The frequency of inclusions in fabric "Aa" (Cat. no. 93, WA39/98; 96, WA43/98; 97, WA44/98; 98, WA45/98) is moderate (9%). The frequency of inclusions in fabric "Ab" is also moderate (6%). Fabric "Ab" (Cat. no. 92, WA40/98; 94, WA41/98 and Cat. no. 95, WA42/98) has the same inclusions as group "Aa". In addition, there are volcanic materials. On the basis of the petrological analysis, the site of production should be located in Northern Italy. This is also suggested by the objects found there. It should be noted that Cat. no. 92 (see R. SAUER I, WA40/98) in "Porto Recanati" Fabric "Ab" resembles the "Aa" group of Schörgendorfer amphorae. The earlier petrological analyses suggest also several production centres.<sup>186</sup>

The following two amphora types are similar in some respects. Their fragments can be easily confused. The smaller (Bónis XXXI/5) type was published<sup>187</sup> as early as 1942. The other, the Aquincum 78 amphora, in turn, was recovered in 1978, and published<sup>188</sup> only recently. They differ not only in size but in fabric as well. Only one stamp (OFFOCL♥) is known. It is on the rim of a Carnuntum<sup>189</sup> reddish-brown (2.5YR 6/4) amphora. Its form probably makes it a Bónis XXXI/5 type amphora. The stamp occurs on two other Pannonian<sup>190</sup> (Sirmium and Teutoburgium) amphorae. However, their size or colour have not been published, which renders the identification probable, instead of being definite. There was also a *titulus pictus* on the fragment of an amphora that has been lost.

#### 14. Type Aquincum 78 (Plate 8, Cat. no. 102; Plate 14, Cat. no. 100–103)

One such amphora was found in Aquincum, in the house of the *tribunii laticlavii*, in the legionary fortress.<sup>191</sup> Formal characteristics: the rim has the shape of a chalice. The groove on the rim either runs horizontally or forms a sine line. The rim is attached to the neck in a sharp angle. The neck and body contours are continuous. The body is oval-shaped ending in a short stub. The thin, small handles are attached to the upper part of the body. Their cross-section is round. The diameter of the rim is 10 cm, the height is 77 cm. They are similar in form to the Dressel 6B vessels, although the Aquincum 78 is somewhat smaller.<sup>192</sup>

The fabric is markedly different. It is carefully fired, and creamy buff (10YR 8/3) in colour. It was used between the end of the first and the end of the second century A.D. In Pannonia, this

<sup>185</sup> I am grateful to M. MÜLLER for the information.

<sup>186</sup> BEZECZKY 1987, 36.

<sup>187</sup> É. BÓNIS, Die kaiserzeitliche Keramik von Pannonien (außer den Sigillaten) I. Die Materialien der Frühen Kaiserzeit. Diss. Pannonicae Ser. II 20 (Budapest 1942) 232.

<sup>188</sup> BEZECZKY 1997a, 178.

<sup>189</sup> BEZECZKY 1997b, 176 No. 23 Fig. 2 and 4.

<sup>190</sup> BRUKNER 1981, Pl. 158 No. 31; 33–34.

<sup>191</sup> This was the excavation of L. KOC SIS.

<sup>192</sup> BEZECZKY 1994a, 161 Fig. 8.



Fig. 14: The distribution of Aquincum 78 amphorae in Pannonia.

form can be found at Emona, Salla, Savaria, Scarbantia, Carnuntum, Arrabona, Mursella, Tokod, Aquincum, Gorsium, Mursa.<sup>193</sup>

In Vindobona, an almost complete amphora (Cat. no. 100), a rim fragment (Cat. no. 101) and an upper part of an amphora (Cat. no. 102) with a *titulus pictus* were found at the *canabae*, and a base fragment in the civilian settlement (Cat. no. 103).

The *dipinti* is on the upper part of an amphora of "light fabric".<sup>194</sup> On the basis of the publication, the fragmentary *titulus pictus* had two lines. F. v. KENNER read it as: :: I(iquamen) / C(aii) Nonni(?) Nigri / (f)os. In CIL III 14371.6a W. KUBITSCHKEK read it as: C NONI NIGRI, and the second line: [Pri]sco(?). The *nomen gentilicium* Nonius is frequent in Northern Italy and in North Africa, and was often found in Dalmatia.<sup>195</sup> The *cognomen* is either Nigri(nus) or Nigri(o). According to L. BARKÓCZI it was frequent in Pannonia: "its occurrence is typical of the western part of Pannonia. In other Danubian Provinces it is infrequent enough, while it is more frequent in the West (CIL XII p. 896; XII p. 41). The bearers of the name are mostly natives".<sup>196</sup> The *cognomen* Nigrio occurs

<sup>193</sup> Emona: BEZECZKY 1994b, 87 No. 70–73 (I described as Bónis type); Salla: BEZECZKY 1987, No. 318–319; Carnuntum: BEZECZKY 1997a, 170 No. 74–83; other sites: KELEMEN 1988, 134 No. 1–3 and 5–12 and 13–22 Fig. 5; Mursa: BRUKNER 1981, Pl. 160,49.

<sup>194</sup> KENNER 1900, 72 Fig. 74.

<sup>195</sup> L. BARKÓCZI, The population of Pannonia from Marcus Aurelius to Diocletian. *Acta Arch. Acad. Scien. Hungaricae* 16, 1964, 302.

<sup>196</sup> BARKÓCZI (Anm. 195) 319; KAJANTO (Anm. 87) 228; G. ALFÖLDY, Die Personennamen in der römischen Provinz Dalmatia (Heidelberg 1969) 253.

only in one inscription (CIL XI 2639). Since the amphora (Cat. no. 102) has been lost, the reconstruction of the inscription will yield another variation. The inscription begins with a capital italic L. This belongs to the first line. On the basis of the form of the letters, the first line could have been even L(uci) CISONI(i) NIGRI.?? The second line is uncertain. With the original missing, it is not possible to find an acceptable interpretation. The names suggest an individual with a Celtic *cognomen*. He may have been either the merchant, or the person to whom the amphora was shipped.

After I finished this manuscript, the latest edition of *Archeologia Subacquea* appeared with P. DELL'AMICO's paper<sup>197</sup> on the ship found near Grado (GO). A number of vessels on the ship are either identical with or very similar to the amphorae found in Aquincum and Vindobona. However, it is hard to agree with the definition of the type. These pieces have probably nothing to do with the type that DRESSSEL described as 19. Although DRESSSEL's drawings are somewhat vague, he made no major mistakes. He was referring to the amphorae found in Rome. The amphorae known from the Pannonian sites or found on the ship do not occur in Rome. The inscriptions of the Grado amphorae mention *liquamen* that may have come from Spain. Only after the petrological analysis the site of production can be established with any degree of certainty.

#### 15. Type Bónis XXXI/5 (Plate 14, Cat. no. 104)

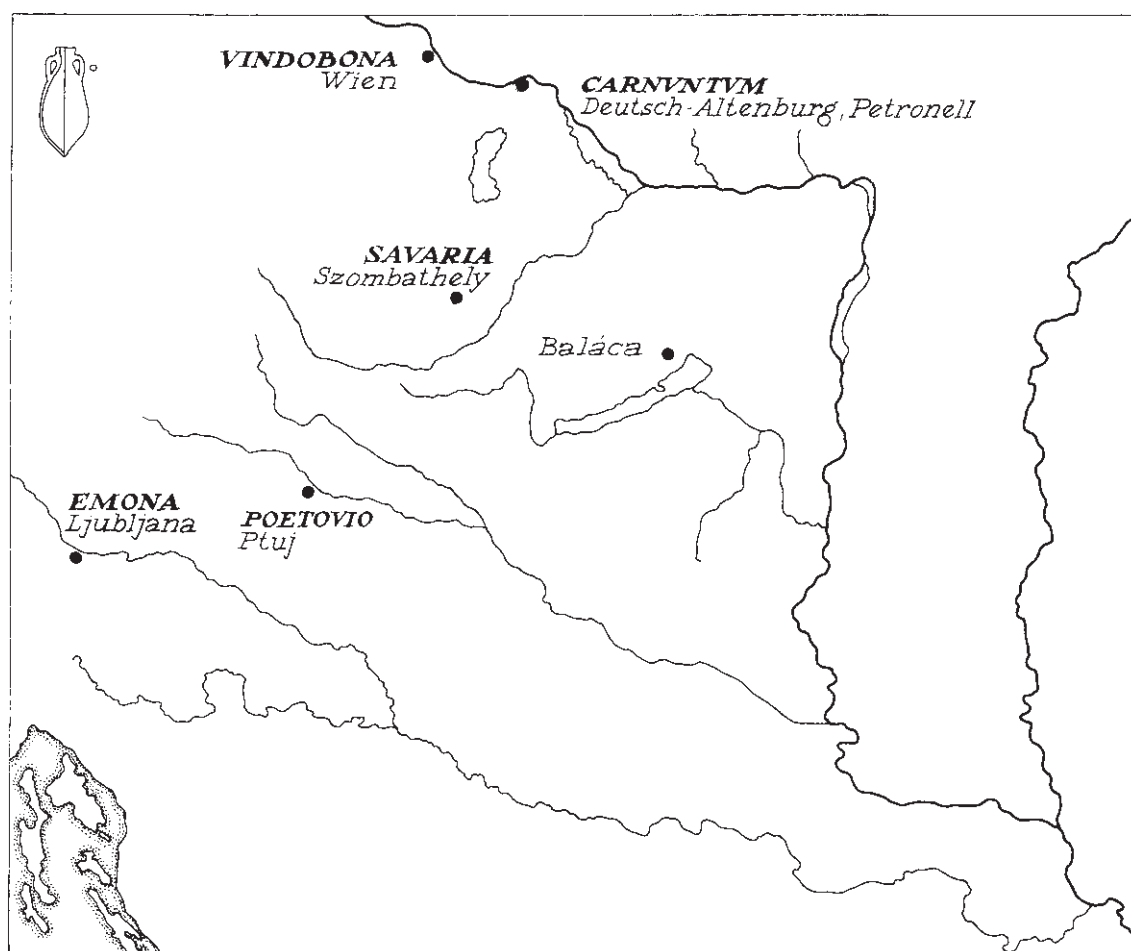


Fig. 15: The distribution of Bónis XXXI/5 amphorae in Pannonia.

<sup>197</sup> P. DELL'AMICO, Il relitto di Grado: considerazioni preliminari. *Archeologia Subacquea*. Studi, ricerche e documenti II (Rome 1997) 98 Fig. 4,1.4.

This small amphora was first published by É. BÓNIS<sup>198</sup> from an early cemetery in Emona. The rim is chalice-shaped, the neck is short. The body is bag-shaped, ending in a very small stub. The handles are attached to the neck below the rim horizontally, and reach the upper part of the body almost vertically. Their cross-section is round. The diameter of the rim is 6–7.7 cm, the diameter of the body is 12–17 cm, and the height is 32–39 cm. The colour is red (2.5YR 5/8).

A base fragment (Cat. no. 104) was found in the villa in Unterlaa, Vienna. There were several amphorae in the villa of Baláca<sup>199</sup> (near the lake Balaton). They are slightly bigger than the one in Emona. Their height is 41–53 cm, the diameter of the rim is 7–9 cm. The graffiti they had do not refer either to their content, or to the origin. The Emona amphora is dated to the first century A.D. The vessels in Baláca are dated to the Hadrian/Antonine period, although the Domitian period cannot be excluded. This amphora type was found in Aquileia, Poetovio, Savaria, Carnuntum and in Flavia Solva (Noricum).<sup>200</sup> It is quite certain that no such amphora were produced in the Laecanius workshop. The small amphorae produced there are different. Their presence in Aquileia suggests that they were not locally produced.<sup>201</sup>

### 16. Type “Spatheion” (Plate 15, Cat. no. 105–106)

(Keay XXVI; Beltrán 65B; Ostia IV; Peacock and Williams Class 51; Augst 67)

The long, narrow amphorae belonging to this type are not common in Pannonia. The rim is everted, the neck is long. The handles are flat. The base is long and solid. The body has vertical burnishing strokes. There are two basic varieties: the long and the short ones. The height varies between 75 and 105 cm. The diameter of the rim is 10–13 cm. This type was produced in several places, which also means it has a number of varieties.<sup>202</sup> Workshops are known in Cartagena, Spain, and in North Africa. It was produced between the 4th and 6th centuries A.D. It was common in the Mediterranean.

In addition to the Vindobona amphorae, this type has only been unearthed in Poetovio<sup>203</sup>. The smaller<sup>204</sup> one in Vindobona (Cat. no. 105) tapers conically to the base where it becomes a little wider. It has vertical ribbing and the traces of a light paint. The body of the bigger amphora (Cat. no. 106) is cylindrical with horizontal ribbing. The colour is reddish brown (2.5YR 5/6). Besides the small dark brown components, there are light, possibly white inclusions. It was probably produced in Africa.

The information concerning the content is not unequivocal. Wine, olive oil, fish sauce, honey and lentils<sup>205</sup> were suggested.

<sup>198</sup> BÓNIS (Anm. 187) 232.

<sup>199</sup> KELEMEN (Anm. 155) Cat. no. 1; 3; 14–15; 19 and 23–27 Abb. 23–25, but the fabric are sometimes white or yellow.

<sup>200</sup> Aquileia: unpublished; Poetovio, Savaria: BEZECZKY 1987, No. 316–317 and 320–321; Carnuntum: GRÜNEWALD 1983, Pl. 44, No. 1; Flavia Solva: SAKL-OBERTHALER 1994, 15–16 No. 45–47 Pl. 10.

<sup>201</sup> Considering the Moesian amphorae, BIJELAJAC (Anm. 131) 96–98 and 125 finds it possible that there was a local production in Viminacium.

<sup>202</sup> S. J. KEAY, Late Roman Amphorae in the Western Mediterranean. BAR Internat. Ser. 196, 1984, 212–219, A–M.

<sup>203</sup> BEZECZKY 1987, 77 No. 313 Pl. 12.

<sup>204</sup> The rim is the same as that of the Ostia Fig. 165, MANACORDA 1977, 213.

<sup>205</sup> MANACORDA 1977, 211–220; RILEY 1979, 228; KEAY (Anm. 202) 215; E. RODRÍGUEZ-ALMEIDA, Canna Micipsarum (Iuven. V, 89). In: A. MASTINO (ed.), L’Africa romana. Atti dell’VIII convegno di studio Cagliari, 14–16 dicembre 1990 (Sassari 1991) 576; MARTIN-KILCHER 1994, 449.



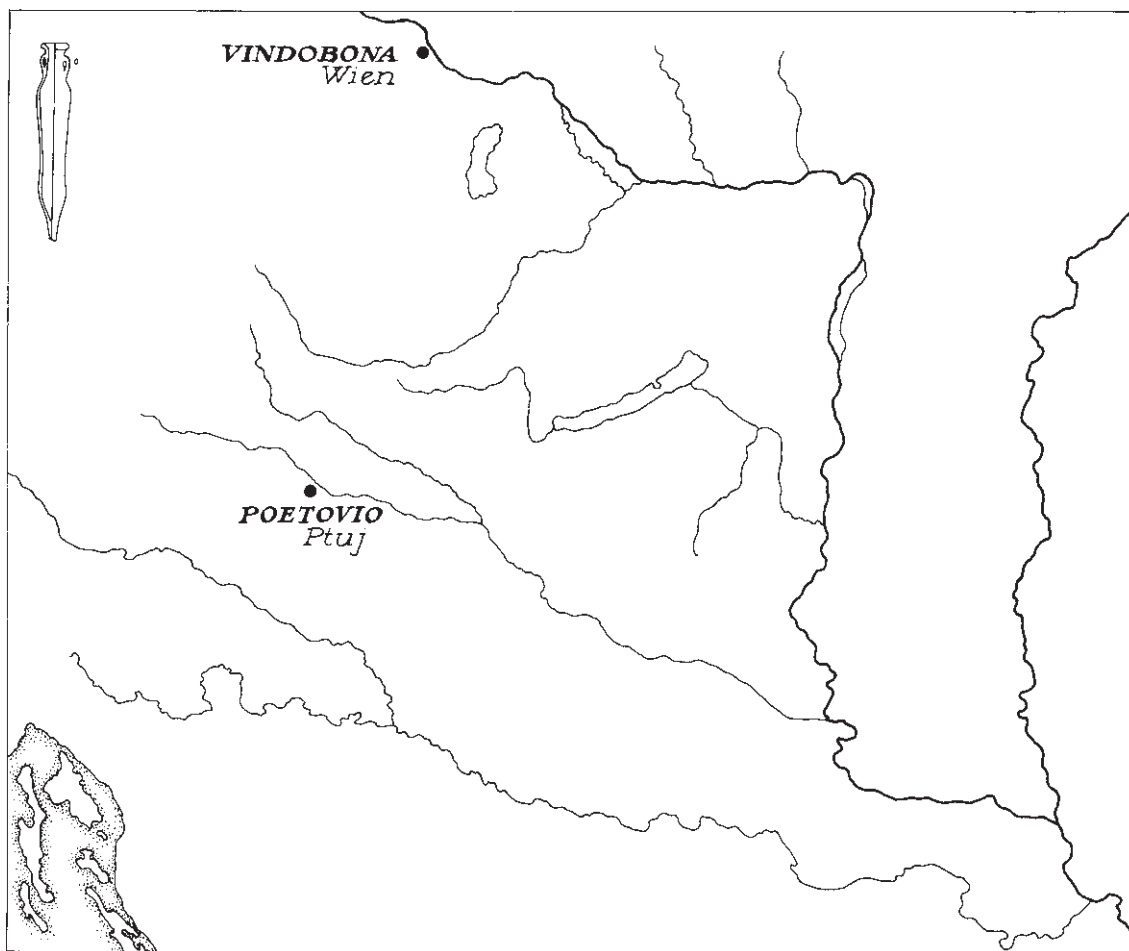


Fig. 16: The distribution of Spatheion amphorae in Pannonia.

## 17. Miscellaneous

There are a few interesting amphorae, the types of which have not been described yet. The area of production can be approximately identified on the basis of the petrological analysis.

### 17.1 North Italian amphorae (Plate 16, Cat. no. 110, 114; Plate 17, Cat. no. 122, 123)

The members of this group have similar petrological characteristics as the Schörgendorfer 558 and the Porto Recanati amphorae.

Cat. no. 110 (see R. SAUER I, WA46/98) was found in the *canabae*. The rim and handle fragments are fired hard, with light red colour. The rim is short, curved with a large diameter (17 cm). The handles that have a circular cross-section reach the body immediately under the rim. The petrological analysis classifies them as belonging to the Porto Recanati type, Fabric "Aa" (see R. SAUER).

Cat. no. 114 (see R. SAUER I, WA47/98) is a base fragment, found at the *canabae*. The petrological analysis shows its fabric to belong to the Porto Recanati type fired at a "high temperature" (see R. SAUER).

Cat. no. 122 (see R. SAUER I, WA52/98) is a handle fragment, with no chronological data, found at the civil town. It is fired hard, its colour is light red. On the surface, it has quartz and limestone. The cross-section of the handle is circular. The fabric resembles that of the Schörgendorfer 558 and Porto Recanati amphorae. The production site is unknown.

Cat. no. 123 (see R. SAUER I, WA53/98) is an amphora fragment found in the Vindobona cemetery in 1910. There is a ring between the curved rim and the conical neck. The handles reach the body under the rim. They are attached to the upper part of the body. The body is much wider than the neck. It resembles two distinct types: the rim is like those of the Dressel 8 type, while the neck and handles are like those of the Dressel 6B type. From a petrological point of view, it is identical with the "Porto Recanati" type.

Cat. no. 124 (see R. SAUER I, WA54/98) is a body and base fragment coming from the same cemetery as the previous one. Its form resembles that of the "Porto Recanati" amphorae. This was confirmed by the petrological analysis.

### 17.2 Aegean amphorae (Plate 14, Cat. no. 107; Plate 16, Cat. no. 112 and 120)

(Amphorae from Asia Minor)

The diminutive fragments do not allow the description of their forms. Their fabric is quite similar. They probably come from the same region, perhaps even the same workshop.

Cat. no. 107 (see R. SAUER I, WA50/98) is a small base fragment, found at the *canabae*. Its layer is dated to the second or third century. It has moderate frequency of inclusions (14%). It is illsorted, the average size of the inclusions is about 0.3 mm, the maximum 0.7 mm. Some of the quartz and limestone grains are rounded. The origin cannot be established, but it possibly comes from Asia Minor or Ionia.

Cat. no. 112 (see R. SAUER I, WA49/98) is a rim fragment, found at the *canabae*, in a layer dated to the second century A.D. The diameter of the curved rim is fairly large (20.5 cm). Its colour is reddish brown. The frequency of the inclusions is common (16%), the average size of the inclusions is 0.6 mm, the maximum 1.7 mm. The origin cannot be established, but it seems likely that it comes from Asia Minor.

Cat. no. 120 (see R. SAUER I, WA51/98) is a body fragment from the civil town, from an upper, mixed layer. The graffito was cut after firing, probably in Latin (... VAL...). The microscopic analysis pointed out that the frequency of inclusions is common (14%). The average size of the inclusions is about 0.2 mm, the maximum 3.2 mm. The origin cannot be established, but it seems likely that it comes from Asia Minor (compare the petrological results Cat. no. 107 and 120).

### 17.3 North African or Spanish amphora (Plate 16, Cat. no. 111)

Cat. no. 111 (see R. SAUER I, WA48/98) is a rim fragment, found at the *canabae*, in a second century layer. The rim resembles the African amphora rims. Its diameter is fairly large (21 cm). On the basis of the petrological analysis, it can be North African or Spanish. Since there are no materials to compare, the origin cannot be established. The proportion of the heavy minerals is quite characteristic. The colour of the well-fired rim is yellowish red, the surface is pale brown. It shows a number of rounded, light grey grains of quartz. The frequency of inclusions are common (27%), the average size of the inclusions is 0.5 mm, the maximum 0.9 mm. The grains of quartz are sub-rounded.

### Discussion

Although relatively few amphorae have been found in Pannonia, they help us assessing the food imports of the province. The distribution of the amphorae in the northern provinces of the Empire corresponds to the appearance of the troops. The population of Gallia, Raetia and Germania became acquainted with Roman food in the period of Julius Caesar. In Noricum and Pannonia, the same thing happened only between the Augustan and Claudian periods. Magdalensberg is an exception. The Italian merchants and soldiers who settled here imported wine, oil and fish sauces from the mid-first century B.C. When compared with the western provinces, Noricum and Pannonia started transporting foodstuffs from the Mediterranean relatively late.

The amphorae found in Vindobona represent the consumption of the province fairly well. They are almost the same as the amphorae in Carnuntum. There is a greater concentration of certain products where the troops were stationed over an extended period of time or where the retired Roman soldiers settled. In those regions which were occupied first (between the Drava and Sava rivers, and in the Amber Route settlements) there are even late republican and Augustan amphorae. The north-western part of the province, which was bordered by the Danube, became an organic part of the Empire only gradually. This is clearly evidenced by the amphorae and their stamps. The military control over the regions of the Amber Route became gradually loose, and the troops and the legions were redeployed on the Danube. A significant portion of the amphorae can be dated to the first century and the early second century AD. There are sporadic finds of later storage vessels. They show that the trading route was still in use. From the end of the first century and the beginning of the second century, the number of the amphorae in the settlements of the Danube limes grows. The number of the storage vessel decreases, and almost all the amphorae contained wine. There are many late Roman amphorae in the region between the Drava and Sava rivers until the fall of the province.

The fact that the Vindobona excavations produced up with few amphorae suggests two things. On the one hand, there were few people who were willing and able to afford the expensive imported foodstuffs. On the other hand, these are delicacies signalling good taste. It is well-known that – beside other foodstuffs – wine and oil were included in the diet of the military. Large quantities of cheap wine were probably not transported in amphorae. In addition, there might have been local production in the region of Carnuntum. The diet of the troops varied from region to region, especially after local people were admitted into their ranks. Some of the foodstuffs required by the official diet were produced on the territory (*prata legionis*) of the camp. They had animals to provide meat, milk and cheese. The Danube gave them a variety of river fish which should not be confused with the special, spicy fish sauces which were imported from Southern Spain and which were the basis of several recipes. Olive oil was not indispensable for the local taste, and was replaced by animal fat. The Celtic people may have been quite happy without green or black olives. Wine was imported from Northern Italy (Veneto and Forlimpopoli), from Campania, from Southern Italy (Paestum, Calabria, Sicily). However, wines even from Tarraconensis, Rhodes, and Knidos found their way to Vindobona. In early times, olives and olive oil were imported from the nearby Istria and Northern Italy. Later the Istrian oil was replaced by the product of Baetica. Even such a delicacy as dried date and figs had a consumer in Vindobona. Both Vindobona and Carnuntum purchased their food in Aquileia.

The investigation of the ethnic composition of the troops might help solve a number of questions. In the first half of the first century AD, the inhabitants of Pannonia were admitted only into the auxiliary troops. The first relevant piece of information comes from the period after the great Pannonian war. Tiberius set up eight troops from the conquered tribe of Breuci who were very active during the war, and sent them away from the Province. From the second half of the century, the auxiliary army was continually relying on local people. At that time only Roman citizens served in the legions. More and more members of the Boius tribe received citizenship as early as the period of Augustus and Tiberius. Later, during Claudius and especially under the Flavians, the process

accelerated in the western parts of Pannonia. From the second century the local people were admitted into the legions in growing numbers, and finally it was they who made up the army. The commanders were always Italian, Roman soldiers both in the legions and in the auxiliary army.

There were many Italian soldiers in both the legions and in the auxiliary army at the end of the first century and at the beginning of the second century in Vindobona. A number of Italian merchants made profit out of this when the new defense system was created. They and their representatives came from Northern Italy. The special wine (from Italy, Rhodes, Knidos) and fish sauce and olive shipments can be dated to this period. However, the soldiers who came from the region and lived there with their families did not need these foodstuffs. Only the commanders ordered wine and oil from abroad. It is characteristic of the whole of Pannonia in late Roman times that the import of foodstuffs from the Mediterranean declined. There was significant import of wine and oil only in Southern Pannonia (Poetovio, Sirmium).

View Roman Amphora Research Papers on Academia.edu for free. The amphorae were used as a container for the transport by sea. The most widespread amphoric type in the interprovincial trade was the Dressel 20, amphora that could contain about 70 kg. and whose production was extended from the first to the third century AD. To date, there are more than ninety potteries known along the Guadalquivir river that produced this amphora. Download 607 Roman Amphora Stock Photos for FREE or amazingly low rates! New users enjoy 60% OFF. 113,834,631 stock photos online. An amphora on a white background Large set of amphora from different angles isolated on white. Background Amphora. An amphora on a white background Roman vase.