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VORWORT DER REDAKTION

Der 27. RCRF-Kongress fand vom 19. bis zum 26. September 2010 im Nationalmuseum in Belgrad statt.
Thema des Kongresses war: „Late Roman and Early Byzantine Pottery: the end or continuity of Roman production?“.

Von den anlässlich des Kongresses präsentierten Postern und Vorträgen wurden folgende nicht publiziert:

M. Bergamini, P. Comodi & I. Faga	Scoppieto: La produzione di vasi a pareti sottili
D. Bernal Casasola, M. Lara Medina & J. Vargas Girón	Roman clay fishing weights in Hispania. Recent research on typology and chronology
A. Biernacki & E. Klenina	Red slip ware from *Novae (Moesia Secunda):* 4th–5th local production and imports
M. Casalini	Circolazione ceramica a Roma tra l eta delle invasione e la riconquista bizantina. Nuovi dati dai contesti delle pendici nord orientali del Palatino
Sv. Conrad	Pottery of the second half of the 3rd century from *Romuliana*
T. Cvjetićanin	Late Roman pottery in Diocese Dacia: overview, problems and phenomena
M. Daszkiewicz & H. Hamel	Roman pottery from Baalbek (Lebanon): provenance studies by laboratory analysis
J. Davidović	Late Roman burnished pottery from Srem
E. Doksanalti	The late Roman pottery from “the Late Roman House” in Knidos and the Knidian late Roman pottery
D. Dobreva	Late Roman amphorae on the Lower Danube: trade and continuity of the Roman production
D. Dobreva & G. Furlan	Progetto Aquileia: *Fondi ex Cossar*. Commercio e consume ad Aquileia. Analisi delle anfore tardoantiche alla luce di alcuni contesti
Kr. Domzalski	Late Roman light-coloured ware: tradition and innovation
P. Dyczek	Remarks on the so called legionary pottery
A. Jankowiak & F. Teichner	A household inventory of a *Mirobrigensis celticus*
G. Kabakchieva	Spätrömische Keramik in den Provinzen *Dacia Ripensis* und *Moesia Secunda*
T. Kowal & J. Reclaw	Scientific Investigations – Program EU – Central Europe: The Danube Limes project
J. Krajsek	Late Roman pottery from *Municipium Claudium Celeia*
J. Leidwanger	Economic crisis and non market exchange: fabric diversity in the Late Roman 1 cargo amphoras from the 7th century shipwreck at Yassiada (Turkey)
T. Leleković	Pottery from the necropoleis of *Mursa* (1st–4th centuries)
B. Liesen	First century fine ware production at Xanten (Germany)
R. Palma	La ceramica dipinta di Schedia (Egitto)
D. Paraschiv, G. Nutu & M. Iacob	La ceramique romaine d’*Argamum (Moesia Inferior)*
S. Petković	Late Roman pottery from tower 19 of the the later fortification of *Romuliana*
P. Puppo	Ceramiche comuni di VI–VII sec. d.C. nella Sicilia occidentale: produzioni regionali ed importazioni dall Africa settentrionale
D. Radicević	Early Byzantine pottery from Liška Ćava, near Guča (Western Serbia)
D. Ratković	The territory of Serbia in Roman times
Chr. Schauer	Pottery of the late Roman and early Byzantine periods in Olympia

Bei der Korrektur und Durchsicht der Artikel stand mir das *editorial committee* zur Seite. Ganz besonders danke ich Philip Kenrick für die zuverlässige Unterstützung und Dieter Imhäuser (ars) für die gute und freundschaftliche Zusammenarbeit bei Satz und Layout.

Die Zitierweise wurde den Richtlinien der Römisch-Germanischen Kommission des Deutschen Archäologischen Instituts angeglichen (Ber. RGK 71, 1990, 973–998 und Ber. RGK 73, 1992, 478–540).

Susanne Biegert

Andrei Opaiț & Dorel Paraschiv

RARE AMPHORA FINDS IN THE CITY AND TERRITORY OF *(L)IBIDA* (1ST–6TH CENTURIES AD)*

Known in scholarly literature since the end of the 19th century, this large, fortified town partially covered by the village of Slava Rusă (see map fig. 1 in the article of M. Mocanu in this volume) was not extensively excavated until the beginning of this century. It was tentatively identified by V. Pârvan as *polis Ibida*,[1] a town briefly mentioned by Procopius as one of those repaired by Justinian (*De aed.* IV,7). A. Aricescu further identified it as *Libida*, *Libidium* or *Libidina*,[2] based on a short passage from Theophylactus Simocatta[3], which discusses *Libidion polin*.

Limited excavations took place here in 1918 during the First World War under the direction of a Bulgarian officer known as Iconomof. These were followed by the excavations of G. G. Mateescu[4] in 1926, G. Ştefan[5] in 1953, and A. Opaiț[6] in 1987. Many attempts to complete a plan of this large ancient town have been undertaken, including those made by P. Polonic[7] in 1897, R. Netzhammer[8] in 1908, and, most accurately, by A. S. Ştefan[9] in 1977 (based on aerial photographs).

By correlating epigraphic information with the results of these preliminary excavations and topographical observations it is now possible to construct a holistic image of this imposing town of three gates and 30 towers, all set within a plan of 24 hectares through which a river runs east to west. Located in the north-central part of the province of *Scythia* and surrounded by forested hills, the town held a dominant position in the defensive system of the province. According to preliminary data obtained in 1987, seven levels have been identified on the site: the first three date to early Roman times, and the fourth dates to between the 4th century and the beginning of the 7th century AD. The beginnings of the construction of the massive fortifications date most likely to the Tetrarchic period (Licinius and Constantine the Great).

Beginning in 2001 an extensive program of excavation was begun both *intra* and *extra muros*, revealing the western gate and two towers. In addition, rescue excavations took place in the city's necropolis and territory[10]. The vast majority of pottery belongs to the late Roman-early Byzantine period. Amphorae of types LRA 1 and LRA 2 dominate the whole ceramic assemblage. However, among the canonical shapes of these two types are some outstanding examples, such as an amphora neck of a predecessor of LRA 1, and a LRA 2 amphora fragment with a greyish-black fabric, completely unlike any of the well-known fabrics of this type. A rarity also is the occurrence of an east Pontic amphora fragment. The early Roman period is represented by three layers identified immediately to the west of the precinct, in the front of tower no 8, and by graves that belong to a vast necropolis identified west of the city. Here, not surprisingly, the dominant amphora type belongs to the well-known type of Heraclea Pontica. However, what is a surprise is the occurrence, for the first time in Dobrudja, of some rare amphorae that originate in the Levant (perhaps in the Tyre-Golan area) and the Aegean region (predecessors of LRA 3). These discoveries date between the middle and the last quarter of the first century AD, a period that is not well-defined in the Dobrudja area, which makes them even more important.

The amphora finds will be presented according to their areas of origin.

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* Due to the limited printing space allotted to papers of RCRF we decided to split this article into two parts.

1 V. Pârvan, Ulmetum I. Descoperirile primei campanii de săpături din vara anului 1911. An. Acad. Române. Memoriile Secț. Istor. 34/2, 1912, 497–607.

2 A. Aricescu, Despre numele antic al aşezării de la Slava Rusă. Bul. Mon. Istor. 40/3, 1971, 58–60.

3 Theophylactus Simocatta, Historiae (Bonn 1834), cited in Fontes historiae Daco-romaniae II (Bucharest 1970) 534.

4 R. Vulpe, În amintirea lui G. G. Mateescu. Analele Dobrogei 11, 1930, 123–126.

5 G. Ştefan et al., Şantierul arheologic Histria (r. Histria, reg. Constanța). Stud. şi Cerc. Istor. Veche 5/1–2, 1954, 69–122.

6 A. Opaiț, O săpătură de salvare în oraşul antic Ibida. Stud. și Cerc. Istor. Veche și Arh. 42/1–2, 1991, 21–56.

7 P. Polonic, Raportul asupra cercetărilor din Dobrogea pe linia Carana-suf-Babadag, 11 noiembrie 1897. In: Archive Gr. Tocilescu. Cetăți din interiorul Dobrogei, Archive P. Polonic, Biblioteca Academiei Române.

8 R. Netzhammer, Din România. Incursiuni prin această țară şi istoria ei 1 (Bucharest 2010) 326–331 (translation by G. Guțu: R. Netzhammer, Aus Rumänien I [Einsiedeln 1909]).

9 A. S. Ştefan, Cetatea romană de la Slava Rusă (Libida?). Cercetările aerofotografice şi apărarea patrimoniului arheologic. Rev. Muz. şi Mon. Mon. Istor. 46, 1977, 3–22.

10 M. Iacob, La circulation monétaire à Ibida, Scythie Mineure (IVe–Ve siècles). In: Proceedings of the 3rd International Numismatic Congress in Croatia, Pula, October 2001 (Pula 2002) 61– 1; L. Mihăilescu-Bîrliba, Résultats préliminaires des fouilles d'Ibida, secteur Extra Muros. Studia Antiqua et Archaeologica 9, 2003, 329–336 ; S. Stanc, Studiul arheozoologic al materialuluii prelevat de la Slava Rusă, Peuce N.S. 2 (15), 2004, 311–328; D. Paraschiv, La céramique romaine tardive de (L) Ibida (Scythie Mineure, Romanie). Considérations préliminaires. In: S. Menchelli/S. Santoro/ M. Pasquinucci/G. Guiducci, LRCW 3. IIIrd International Conference on Late Roman Coarse Wares and Amphorae in the Mediterranean: Archaeology and Archaeometry. Comparison between Western and Eastern Mediterranean. BAR Internat. Ser. 2185 (Oxford 2010).

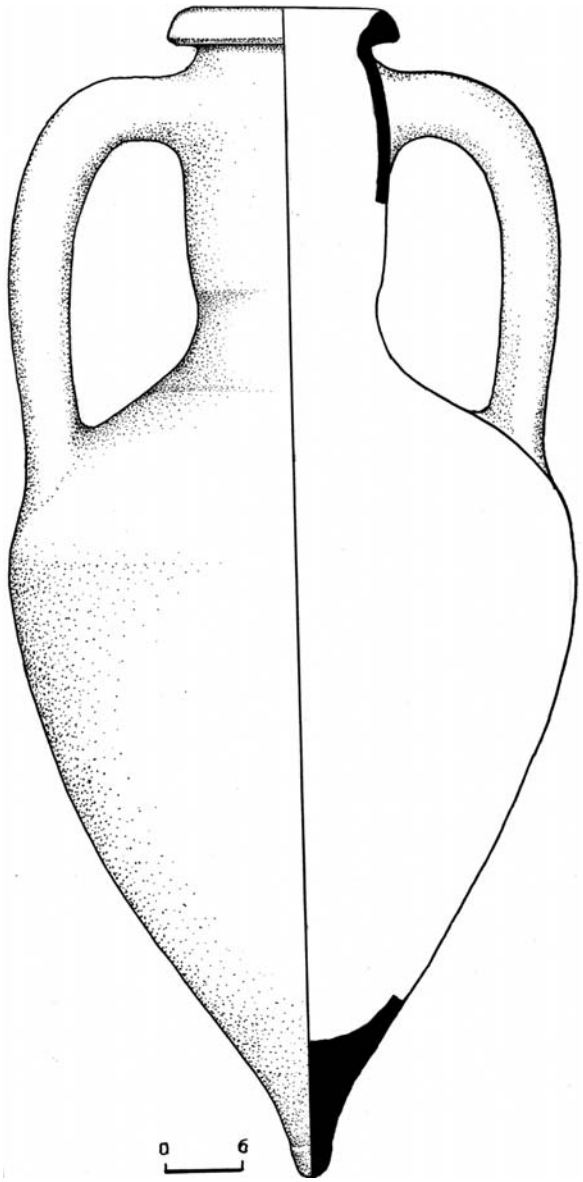


Fig. 1. Rădulescu type 4c/Opaiț 1987b type III. Straja (Dobrudja). – Scale 1:6.

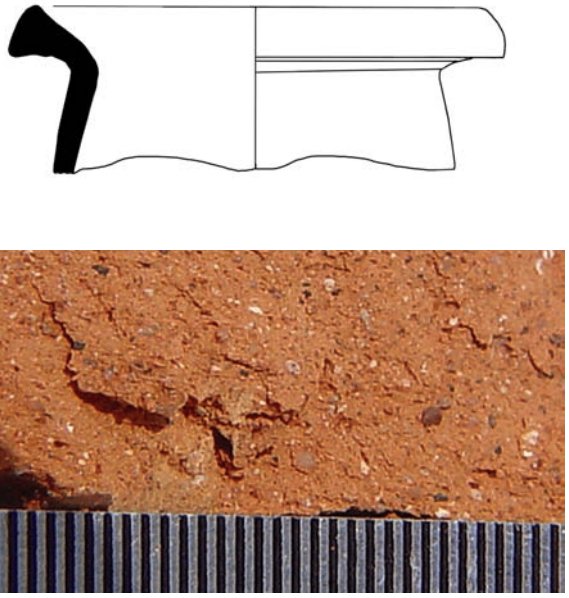


Fig. 2. Rădulescu type 4c/Opaiț 1987b type III. (L)Ibida. South Pontic variant (?). – Drawing scale 1:3.

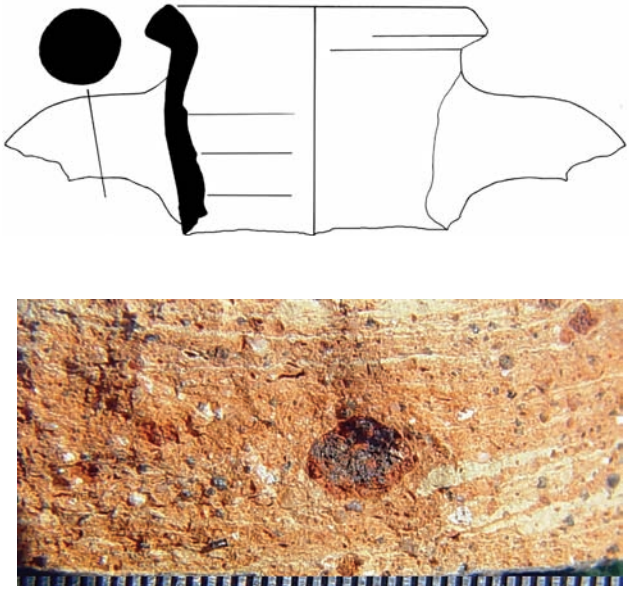


Fig. 3. Rădulescu type 4c/Opaiț 1987b type III. (L)Ibida. East Pontic variant (?). – Drawing scale 1:3.

Pontic amphorae

Rădulescu type 4c/Opaiț 1987 type III

The amphora fragments belong to the large vessel category.[11] The wide mouth has a thick rim pulled to the exterior, slightly convex at its external side; the neck is swollen with deep traces of finger impressions at the upper handle attachment. Sometimes a line is incised on the exterior of the neck at the upper handle attachment.

The handles are massive and rounded in cross section. The body is ovoid and ends in a large sturdy spike (**fig. 1**)

Some complete examples have been found in Dobrudja at Straja[12] and Barboşi [13], while in the Crimea it occurs at Chersonesos[14]. The rim diameter varies between 14.8 and 18 cm., the maximum diameter between 41 and 50 cm, and the height between 95.6 and 99 cm. The mathematical

[11] Rădulescu 1976, 103–104 tip 4b; pl. 4,2. 2a; A. Opaiț, Amfore romane de mare capacitate. Considerații tipologice. Stud. şi Cerc. Istor. Veche 38, 1987, 245–258.

[12] Ibid.

[13] The find, preserved in the Museum of History Galați, was discovered in a grave.

[14] S. F. Strjeletskiiy/T. N. Vysotskaya/L. A. Ryzhova/G. I. Jestkova. Naselenie okrugi hersonesa v pervoiy polovine I tysyacheletiya novoiy ery (po materialam nekropolya "Sovhoz No. 10"). Stratum 4, 2003–2004 (2005), 72–73 urn 117 pl. 8,6; 44.

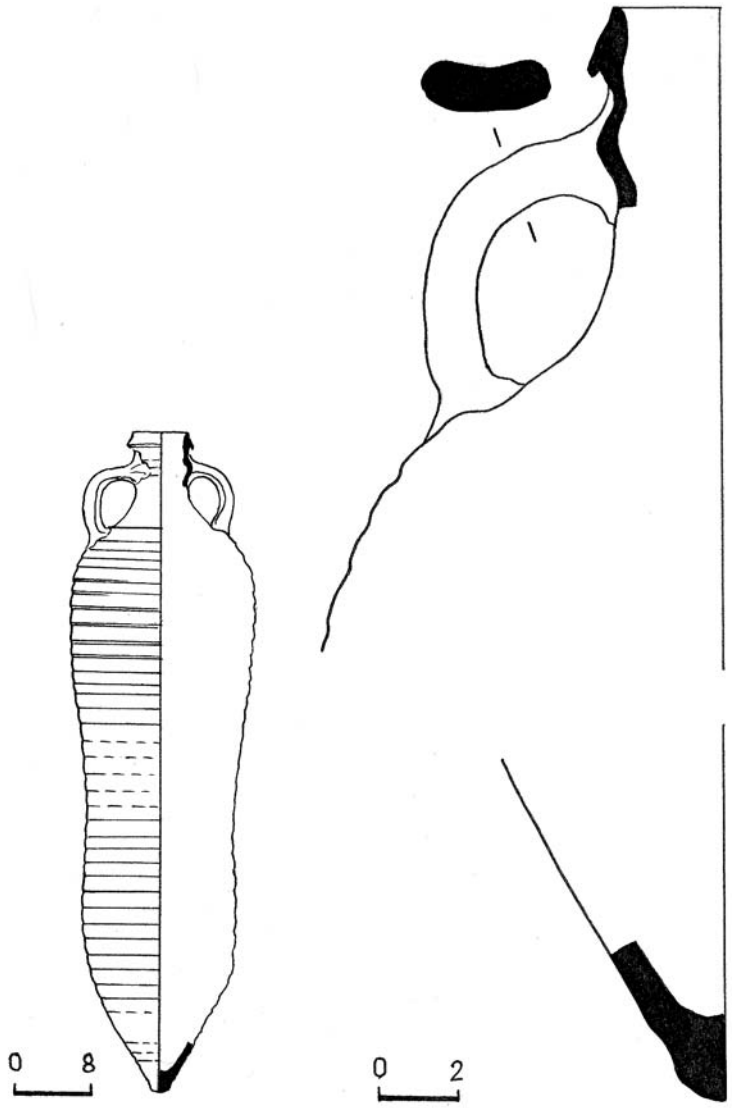


Fig. 4. Colchian amphora. Kassab Tezgör and Akkaya type C–E. Djurgoba (Crimea). – Scale 1:8; 1:2.

calculation of the vessel discovered at Straja has indicated a capacity of 51 litres. Fragments of these amphorae occur at Brad[15], Aegyssus[16], and (L)Ibida[17].

The fabric of this amphora occurs in two variants at (L)Ibida. The first, which is the most represented is hard, pinkish-brick (Munsel 2.5YR 6/6-5YR 6/8), with small, fine white (<0.05 mm), and brownish inclusions (iron oxides?) (**fig. 2a.b**). The origin of this fabric is unknown, but we do not exclude a south Pontic origin.

The second fabric is considered as being typical for the central and northern part of Colchis.[18] The color is mostly light red (2.5YR 6/6-6/8) with white clay pellets appearing as elongated streaks, ill-sorted iron rich inclusions, occasionally iron nodules, and white particles (limestone?) (**fig. 3a.b**).

The dating of this type is 1st century AD.

Colchian amphora type/Kassab Tezgör and Akkaya type C–E

The rim is thickened and triangular in section, bevelled to the exterior. A strong rib at the exterior separates the mouth from the cylindrical neck. The handles are loop-shaped and carelessly applied, flattened, and rectangular in section. The body is slender with a pronounced 'waist' at the middle and ends in a small cylindrical foot, as distinct from the walls of the base (**fig. 4**).

The rim fragment discovered at (L)Ibida has a rim diameter of 8 cm and a preserved height of 7.7. cm. (**fig. 5a**). It has been found in a level dated with a coin minted during the reign of Marcian.

This type has heights varying between 78 and 90 cm and maximum diameters between 22 and 32 cm.

Two variants were manufactured on the upper and lower coast of Colchis. By its morphology and fabric our fragment would seem to belong to a southern Colchian workshop.[19] It

[15] V. URSACHI, Zargidava. Cetatea dacică de la Brad. Bibl. Thracologica 10 (Bucharest 1995) pl. 182,4; 183,4; 24.
[16] Unpublished examples.
[17] Unpublished examples.
[18] TSETSKHLADZE/VNUKOV 1992, 381–383; VNUKOV 2006, 79–80.

[19] We will discuss these differences in detail in the ceramic chapter of the Bezymyannaya site that is forthcoming.

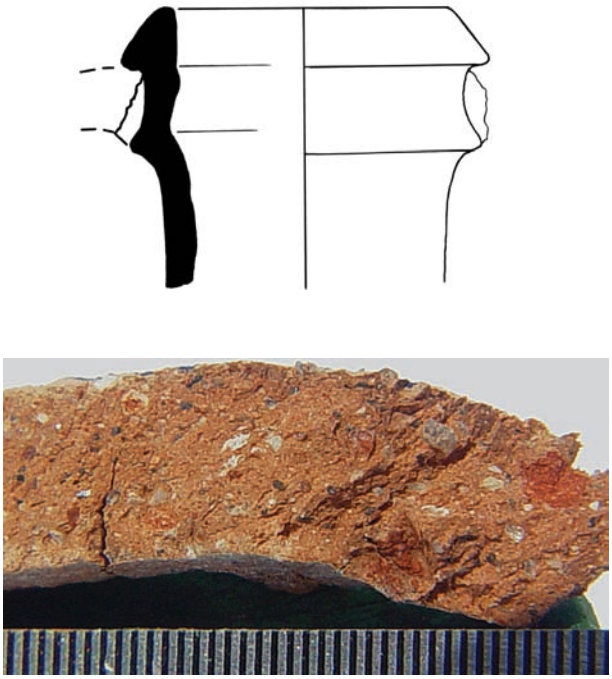


Fig. 5. Colchian amphora. Kassab Tezgör and Akkaya type C–E. (L)Ibida. – Drawing scale 1:2.

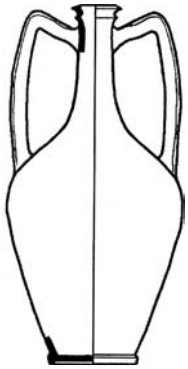


Fig. 6. Sinopean type. Vnukov Sin IV. Kara Tobe (Crimea) (after Vnukov 2003 fig. 60,244). – Scale 1:10.

is not abundant on the western cost of the Black Sea as it has been found only at Histria,[20] Tomi,[21] Murighiol,[22]Topraichioi[23] Capidava,[24] Sacidava,[25] and Tropaeum Traiani,[26] while on the Bulgarian coast it occurs at Messambria,[27] Apollonia,[28] and Odessos.[29] It is much more abundant in the Crimea, especially on the western part.

Many examples were discovered at Chersonesos[30]and Tiritake,[31] and on the southern coast at Samsun.[32] Other amphora fragments of this type have been found on the Syrian coast.[33]

The fabric has impressive quantities of pyroxenes and basaltic sand. The color varies from red (2.5YR 5/8 - 10R 5/8) to brown (10YR 5/3) and dark reddish brown (5YR 3/4) (**fig. 5b**). These inclusions are very similar to those found in Sinopean amphorae, and an origin in Trapezus is not excluded.[34]

Sinopean amphorae

1. Vnukov Sin IV

These vessels, due to their flat base can be considered as a Sinopean table amphora. Vnukov has identified two subtypes.[35] The amphora fragment discovered at (L)Ibida belongs to the first one. It has a broad, constricted rim separated by a ring from the long, narrow neck. It has an ovoid body and a false ring base (**fig. 6**). This subtype is dated between the early 1st and early 2nd centuries AD. A fragmentary example comes from the Chersonesan chora, Site 338.[36] The height varies between 43 and 57 cm, the maximum diameter between 24 and 28 cm and rim diameter between 6 and 10 cm.[37] Their capacity is about 8 litres, but occasionally some vessels can be bigger. The fabric is typical Sinopean. Only one rim fragment of this type has been found at (L)Ibida. The rim diameter is 7.5 cm and the preserved height is 3.7 cm (**fig.7a**).

20 S. Dimitriu/Vl. Zirra/E. Condurachi, Ceramica. In: Histria. Monogr. Arh. 1 (Bucharest 1954) 458 tip 6 fig. 386 (although the mouth is missing the shape of the body suggests a Colchean type); Scorpan 1977, 281 fig. 12,6.

21 Scorpan 1977, 281 fig.12,4–5.

22 Opaiț 1991a, 150 cat. no.129 pl. 22; F. Topoleanu, Ceramica romană şi romano-bizantină de la Halmyris (sec. I–VII d. Ch.) (Tulcea 2000) 157 cat. no.413 pl. 52.

23 Opaiț 1991b, 357 cat. no.83 pl. 33,4; the example is dated mid-5th century AD.

24 I. Opriș, Ceramica romană târzie şi paleobizantină de la Capidava în contextul descoperirilor de la Dunărea de Jos (sec. IV–VI p. Chr.) (Bucharest 2003) 84–85 cat. no. 173 pl. 29.

25 Scorpan 1975, 278 pl. 5,5,6.

26 I. Bogdan-Cătăniciu, Al. Barnea, Ceramica şi descoperirile mărunte. In: I. Barnea/A. Barnea/I. Bogdan-Cătăniciu/M. Mărgineanu-Cârstoiu/G. Papuc, Tropaeum Traiani I. Cetatea (Bucharest 1979) 187 fig. 164,3.9.

27 Kuzmanov 1985, 16 cat. no. 58.60, pl. 6.

28 Kuzmanov 1985, 16 cat. no.59 pl. 6.

29 Kuzmanov 1985, 16 cat. no. 62 pl. 6.

30 V. M. Zubar/A. V. Shevchenko/S. A. Lipavskiiy, Zapadyiiy nekropol' Hersonesa Tavricheskogo (materialy raskopok 1983–1985 gg). Katalog pogrebeniiy (Kiev 1989) 22–23 tomb 53 fig.16. M53.6 with a coin of Constantine or one of his sons that can be dated during the period of 306–361; V. M. Zubar/A. V. Shevchenko/S. A. Lipavskiiy, Raskopki gruntogo nekropolya Hersonesa za Zapadnymi oboronitel'nymi stenkami v 1986–1988 gg. In: Arheologiya. Nekropol Hersonesa Tavricheskogo. Materialy i Issledovaniya (Kiev 1990) 15 tomb 85 fig. 11,5.

31 V. F. Gaidukevich, Raskopki Tiritaki v 1935–1938 gg. Mat. i Issled. Arkh. SSSR 25, 1952, 149.

32 D. Kassab Tezgör/M. Akkaya, Les amphores 'Pseudo-Colchiennes' du musée de Samsun. Anatolia Antiqua 8, 2000, 121–141.

33 D. Kassab Tezgör/M. Touma, Amphores exportées de Mer Noir en Syrie du Nord. Anatolia Antiqua 9, 2001, 112 fig.12.

34 Tsetskhladze/Vnukov 1992, 380–83; Vnukov 2006, 45; 75–85; S. Y. Vnukov, Problems of "brown clay" (Colchian). Amphora studies. Typology, chronology, production centres, distribution. In: D. Kassab Tezgör/N. Inaishvili (eds.), PATABS I. Production and trade of amphorae in the Black Sea. Actes de la Table-Ronde internationale de Batoumi et Trabzon, 27–29 Avril 2006. Varia Anatolica 21 (Paris 2010) 31.

35 Vnukov 2003, 147–156 type Sin IV; S. Y. Vnukov, Pan-Roman Amphora Types Produced in the Black Sea Region. In: J. Eiring/J. Lund (eds.), Transport amphorae and trade in the Eastern Mediterranean. Acts of the international colloquium at the Danish Institute at Athens, September 26–29, 2002 (Aarhus 2004) 412–413.

36 L. Kovalevskaja/T. Sarnowski, La vaisselle des habitants d'une maison rurale de l'époque romaine dans la chôra de Chersonèse Taurique. Acta RCRF 38, 2003, 232 fig. 3,7.

37 Vnukov 2003, 149.

The main inclusions of Sinopean amphora fabrics have a volcanic origin (rock fragments, plagioclase and pyroxene).[38] All these inclusions can be found not only in the so-called "black-sand" present on many beaches of the Pontic shore in the Sinopean area, but also in the local clay beds. This black pyroxene-basalt sand was the main bonding agent of Sinopean amphorae. The same clay beds also contain calcite, which plays an important role in the firing process. During the Early Roman period the firing temperature was lower and the calcite was not completely decomposed and contributed to obtaining a yellow-greenish color (5Y 8/1-8/3) (**fig.7b**).

2. Tezgör Type D Snp II

This form has a rim which is only slightly thickened and bent towards the exterior, not fully rounded. The body tapers from the shoulders to the rounded base; ribbing cover the vessel from the neck to the lower part of the body (**fig.8**).

The (L)Ibida fragment has a rim diameter of 6 cm, a handle diameter of 3.2/1.9 cm, and a preserved height of 9 cm (**fig.9**).

Usually, the height of this type varies between 59 and 67 cm and the maximum diameter between 19 and 27 cm.

The capacity varies between 6 and 7 litres*.

At Demirci the form is dated to the second half of the 6th century.[39]

The amphora neck fragment belongs to a Sinopean type well-known on the southern[40] and northern[41] coasts of the Black Sea. Traces of pitch inside amphorae of this type recovered from the sea suggest wine as the main content.[42]

Variant of carrot amphora type

The carrot amphora type is one of the most common vessels in the Pontic area during the 4th century AD. Recently, it has received considerable attention from Romanian,[43] Bulgarian,[44] Russian[45], German,[46] and French[47] specialists.

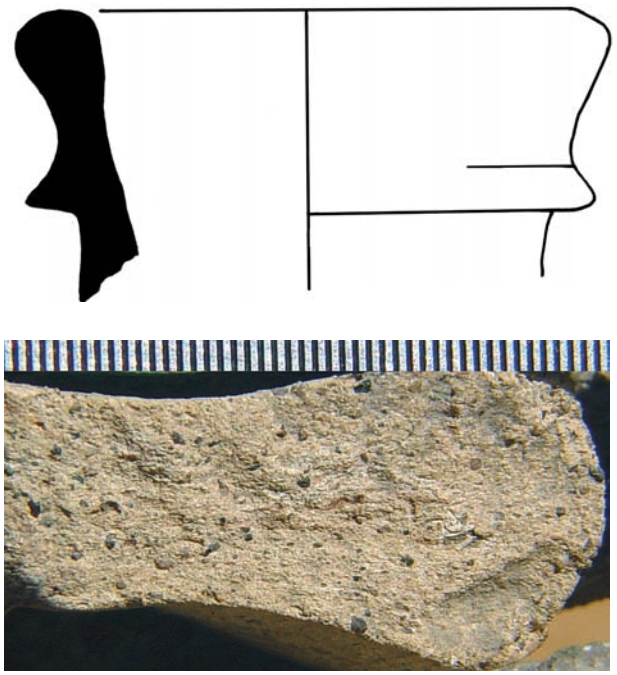


Fig. 7. Sinopean type. Vnukov Sin IV. (L)Ibida. – Drawing scale 1:10.

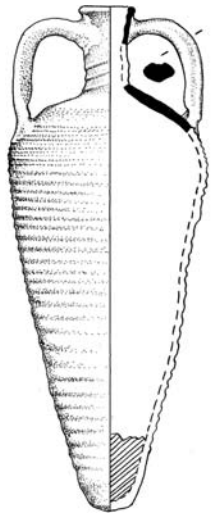


Fig. 8. Sinopean type. Tezgör type D Snp II (after TEZGÖR ET AL. 2003 no.19). – Scale 1:10.

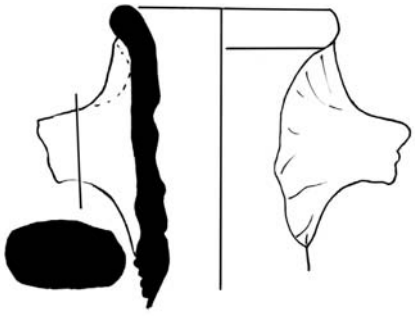


Fig. 9. Sinopean type. Tezgör type D Snp II (L)Ibida. – Scale 1:2.

38 I. K. WHITBREAD, Greek Transport Amphorae. A Petrological and Archaeological Study. British School Athens Fitch Labo. Occ. Paper 4 (Athens 1995) 238.

39 KASSAB TEZGÖR 2010, 136–137.

40 Y. GARLAN/D. KASSAB TEZGÖR, Prospection d'ateliers d'amphores et de céramiques de Sinope. Anatolia Antiqua 4, 1996, 331; KASSAB TEZGÖR ET AL. 2003, 177–178; KASSAB TEZGÖR 2010, 135 pl. 20,2.7.

41 L. A. GOLOFAST, Steklo Rannevizantijskovo Hersonesa. Mat. Arh. Istor. Etnogr.Tavrii 8, 2001, 119–120 complex 26 fig.79,1; complete amphorae of this type, rescued from the bay of Chersonesos, are preserved in the museum of Chersonesos storeroom; it preserves traces of pitch inside.

42 KASSAB TEZGÖR ET ALII 2003, 177–178 nos. 18–19.

43 RĂDULESCU 1976, 107–108 pl. 10,1–4; SCORPAN 1977, 283 figs. 23; 41,4–7; OPAIŢ 2004, 29–30 pl. 9,2–3; D. PARASCHIV, Amfore romane şi romano-bizantine în zona Dunării de Jos (sec. I–VII p. Chr.) (Iaşi 2006) 28–33 pl. 6–7.

44 KUZMANOV 1985, 17 types 10–11 pl. 7,63–67.

45 I. B. ZEEST, Keramicheskaya tara Bospora (Moscow 1960) 120 type 100 pl. 39,100; V. Y., YUROCHKIN/V. G. ZUBAREV, 2001; Kompleks s monetami IV veka iz raskopok gorodishcha Belinskoe. Drevnosti Bospora 4, 2001, 460-461; O. SHAROV, Keramichesiiy kompleks nekropolya Chatyr-Dag. Hronologiya kompleksov s rimskimi importami. (St. Petersburg 2007) 99–191.

46 B. BÖTTGER, Die Gefäßkeramik aus dem Kastell Iatrus. In: Iatrus-Krivina: Spätantike Befestigung und Frühmittelalterliche Siedlung an der unteren Donau 2. Ergebnisse der Ausgrabungen 1966–1973 (Berlin 1982) 44–45 type I–6 pl. 21.

47 KASSAB TEZGÖR 2010, 128–134 type C pl.16–19; 23–24; 26–30; 37–39; 41–46.

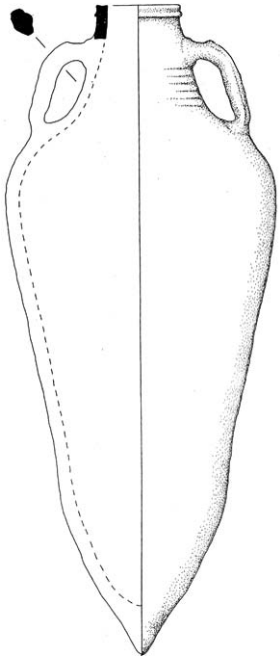


Fig. 10. Sinopean, carrot type (after Garlan/Tezgör 1996 fig 9). – Scale 1:10.

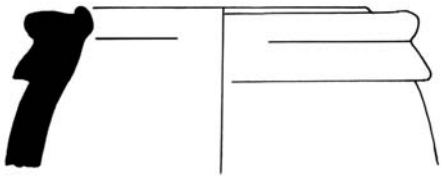


Fig. 11. Sinopean, carrot type. (L)Ibida – Drawing scale 1:2.

The rim is large and nearly rectangular in cross section, with the top and the external side having wide, shallow grooves; in many instances the internal side of the rim is pulled toward the interior, creating a small internal concavity. The handles are parallel to the truncated conical neck and are ovoid in section, with a central rib. Shallow grooves are visible on the neck and conical body (**fig. 10**).

Our amphora rim is identical to the Sinopean variant in all the morphological characteristics. The rim diameter is 10.4 cm and the preserved height is 4.5 cm (**fig. 11a**). The fabric is hard with a hackly fracture. Ill-sorted inclusions of abundant angular and sub-angular opaque quartz, sparse to common flecks of golden mica, sparse calcareous material, common brownish-black inclusions (iron minerals?). The color is reddish-brown 5YR 5/4 to yellowish red 5YR 5/6 (**fig. 11b**). A south Pontic origin is not excluded.

East Mediterranean amphorae

This area of the Mediterranean produced a large number of amphora types, many of them still unidentified. As an elaborated amphorae typology does not yet exist for this region, the order of their presentation is purely arbitrary. Most likely, the first group of amphorae were manufactured in the Aegean area, carrying famous vintages and olive oil. A second group, much less represented, came from the Levant probably carrying olive oil.

1st century AD subtype of Agora F 65

One neatly turned amphora foot, by its morphology, belongs to the same group of vessels discovered in the Athenian agora, F65.[48] The foot diameter is 7.4 cm and the preserved height is 6.7 cm. (**fig. 12a**). However, this foot is narrower than the 1st century BC F 65, but larger than the end of the 2nd century AD J46[49] and, consequently, can be dated to the 1st century AD. This dating is also supported by the context of discovery as our example comes from a grave dated with a coin minted during the reign of Nero.

The fabric is fine, with a hackly fracture, well-sorted inclusions, rich in silver mica, and common to sparse crystalline and yellow-brown quartz. The exterior is covered by a brownish paint that has left drips on the foot (**fig. 12b**). Most likely this amphora represents the predecessor of a subtype manufactured around the Pergamum area and not Ephesus.

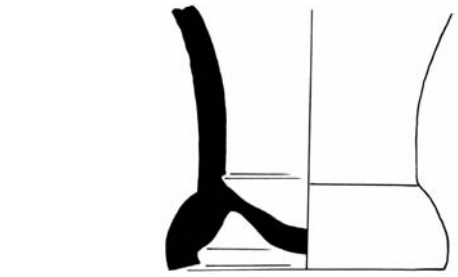
Peacock and Williams Class 50-early subtype

This is a rare amphora not only at (L)Ibida but also in the whole Roman Empire. The (L)Ibida example is hard to parallel as this type seems to be manufactured for a long period, from the 1st through the 4th centuries AD, and minor morphological differences are visible especially in the shape of the rim and neck. In addition, at least two subtypes, with the same shape of the body but different rims and fabrics were manufactured at the same time which makes it difficult to define them when the rim is missing.

The rim of our example is pulled horizontally to the exterior like a brim, slightly bevelled, while a prominent rib separates the mouth from the neck; the handles are attached just under this rib whereas the neck is slightly narrowing to the lower part (**fig. 13a**).

The rim diameter is 15 cm, and the preserved height is 7 cm.

[48] Robinson 1959, 17 pl. 2,41.
[49] Ibid. 55–56 pl. 11,41.



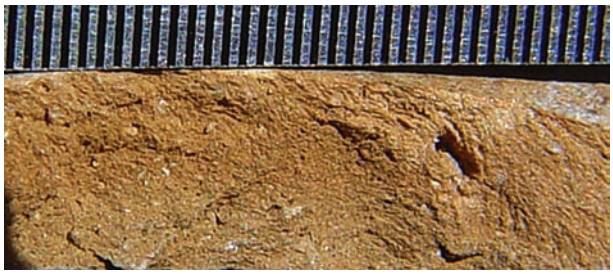
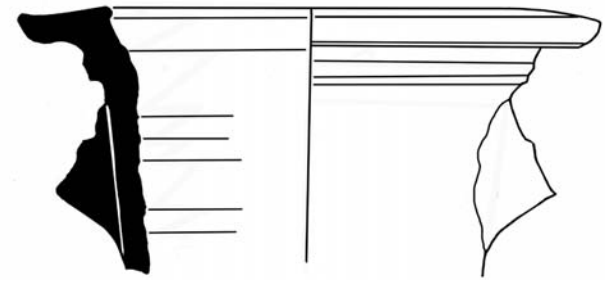


Fig. 12. Agora F 65-variant. (L)Ibida. – Drawing scale 1:2.



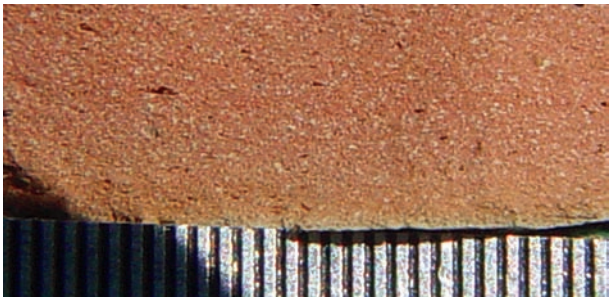


Fig. 13. Peacock/Williams class 50–early Roman variant. (L)Ibida. – Drawing scale 1:2.

The fabric is very hard and compact with a fine broken section, and abundant tiny white (<0.03mm) inclusions (calcareous material, foraminifera?) that have left some elongated voids; the color is pink (5YR 7/4) to reddish yellow (5YR 6/6). The surface is covered by a whitish (5Y 8/1) skin (**fig. 13b**).

The best parallel is provided by an amphora discovered in the sea and preserved in the Kythera museum. However, the rim is more bevelled at its top, the handles are flattened with a prominent rib, the shoulder is abrupt and the body is slender, spindle-shaped and ends in a massive spike. The rim diameter is 17.4 cm, with a maximum diameter of 20 cm and the height is 79.5 cm. (**fig. 14**). These dimensions are quite similar to those of another amphora discovered in the Athenian Kerameikos.[50] Böttger suggests a dating to the mid-third century but, as the rim is broken, it is difficult to be certain about this. Upper amphora parts of this variant with brim-shaped rim have been discovered in Dacia at Tibiscum and Colonia Apulensis,[51]and in Moesia Superior at the fortress of Diana.[52]

Another upper amphora part of this form comes from Viminacium.[53] It has a flaring neck but the rim is flattened and thickened with arched handles attached to the rim and neck. A similar amphora with thickened, trapezoidal rim was discovered in Moesia Inferior at Fântânele, but its fabric is very rich in angular quartz.[54] Other similar amphorae with a reddish-buff fabric and creamish outer surface come from Chalk, Caerleon, and Colchester in England;[55] Avenches[56] and Augst[57] in Switzerland, and at Vienne[58]and Anthée[59] in France; they are all dated from the 3rd through the 4th centuries AD. The general shape of late Roman amphorae show that this type did not change too much over three centuries of manufacturing. However, noticeable differences include a rounded and not angular transition from shoulder to body, other amphorae have a T-shaped rim while another variant has a trapezoidal rim. Also the bottom is flat or sharp.[60]

50 B. BÖTTGER. Die Kaiserzeitlichen und spätantiken amphoren aus dem Kerameikos. Mitt. DAI Athen 107, 1992, 349–350; 374 cat. no.77 fig. 3,12 pl.102,2; its dimensions are: height 72 cm, maximum diameter 19 cm.

51 A. ARDEŢ, Amforele din Dacia Romană (Timişoara 2006) 76-77 pl. 10,92–93; it was considered as Gauloise type 5 by the author.

52 Personal observations in the site storeroom; the two examples from Diana have two distinct rims and fabrics. One has a brim-shaped like rim and a pinkish (5YR 7/4) fabric with whitish skin, identical to our example, while the second has a thickened rim with a reddish yellow (7.5YR 7/8) very rich in silver mica and covered by a very pale brown skin (10YR 8/3-8/4). These differences point to two distinct workshops.

53 BJELAJAC 1996, 83–84 fig. 29 (regarded as a LRA 7).

54 The example is on display in the Histria museum.

55 D. P. S. PEACOCK, Late Roman amphorae from Chalk near Gravesend, Kent. In: J. Dore/K. Greene (eds.), Roman pottery studies in Britain and Beyond. BAR Internat. Ser. 30 (Oxford 1977) 298–299 fig. 23,1; D. P. S. PEACOCK/D. F. WILLIAMS, Amphorae and the Roman Economy. An Introductory Guide (London1986) 200–201; R. P. SYMONDS/S. WADE, The Roman pottery from excavations at Colchester 1971–1985. Colchester Arch. Rep. 10 8Colchester 1999) 140 fig. 3,10; 207–210.

56 P. BALDACCI, Importazioni cisalpine e produzione apula. In: Recherches sur les amphores romaines. Coll. École Française Rome 10, 1972, 7–28 fig.11.

57 S. MARTIN-KILCHER, Die römischen Amphoren aus Augst und Kaiseraugst. Ein Beitrag zur römischen Handels- und Kulturgeschichte 2: Die Amphoren für Wein, Fischsauce, Südfrüchte (Gruppen 2–24) und Gesamtauswertung (Augst 1994), 440 form 53 fig.198,5.

58 C. GODARD, Quatre niveaux d'abandon de la ville de Vienne (Isère): éléments pour la chronologie des céramiques de la fin du IIe siècle et du IIIe siècle après J.-C. SFECAG Actes Congrès Rouen (Marseille 1995) 294 fig. 34.

59 F. VILVORDER/R. P. SYMONDS/S. REKK, Les amphores orientales en Gaulle septentrionale et au sud-est de la Grand Bretagne. Acta RCRF 36, 2000, 484 fig. 3,4.

60 We do not know if the bottom of the Kythera example is empty or full of sand and shells.

Fig. 14. Peacock/Williams class 50–early Roman variant. Kythera (courtesy of the Archaeological Museum of Kythera). – Scale 1:10; 1:2.

The fabrics of our example, and of those from England, are not the same perhaps due to differences in time and, most likely, diverse workshops. More detailed work needs to be done before we have a more complete picture of this rare amphora type.

Lebanese (Tyrian?) amphora type

This is another extremely rare amphora type for the Pontic area. The mouth is quite large, with a diameter of 13.2 cm and a prominent ledge inside; the handles are massive, slightly longitudinally ribbed at the exterior, narrowing and becoming thinner to its lower part; their diameter varies between 6.2/2.8 and 4.8/2 cm. The heavily ridged neck flares towards the body **(fig. 15a)**.

The fabric is fairly consistent as both the *(L)Ibida* and *Topraichioi* examples show; it is hard, and compact, with abundant white, calcareous particles; however, the former has a light yellowish brown exterior (10YR 6/4) and gray interior (10YR 5/1) while the latter is more light brown (7.5YR 6/4) to reddish yellow (7.5YR 6/6) (Fig.21). These small differences in color are probably insignificant as they might be due to firing conditions (**fig. 15b**).

The find is difficult to parallel as amphorae of this Levantine type have not been researched in detail. The only exceptions are the recent Reynolds studies, but his examples belong to a different variant manufactured at Beirut.[61] Our find is somehow different from the Beirut examples as the latter represent a local imitation of the famous Koan wine

[61] Reynolds 2000, 388–390; 394 cat. 41–42 fig. 8,41–42.

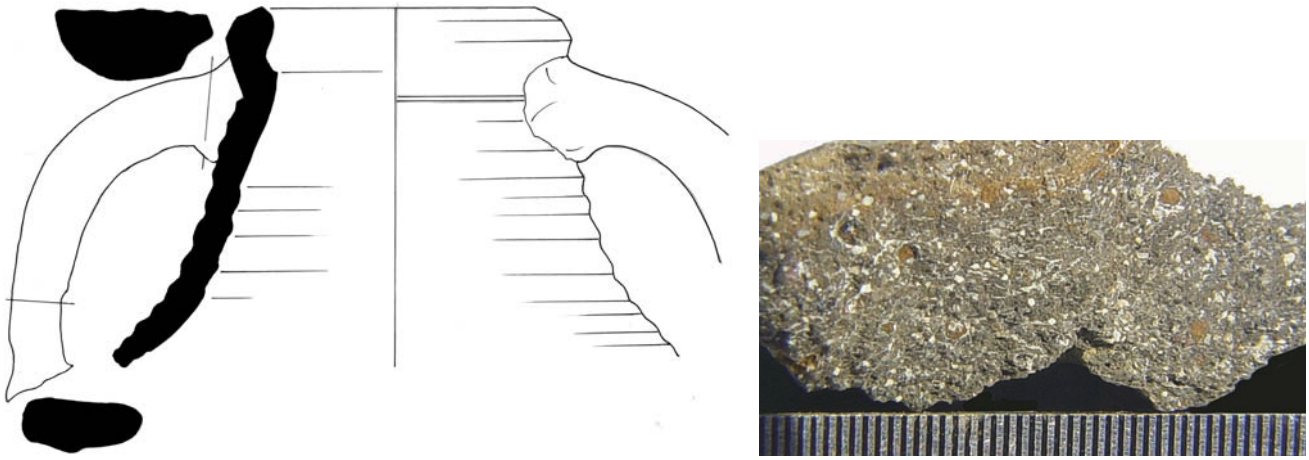


Fig. 15. Levantine (Tyre?). (L)Ibida. – Drawing scale 1:3.

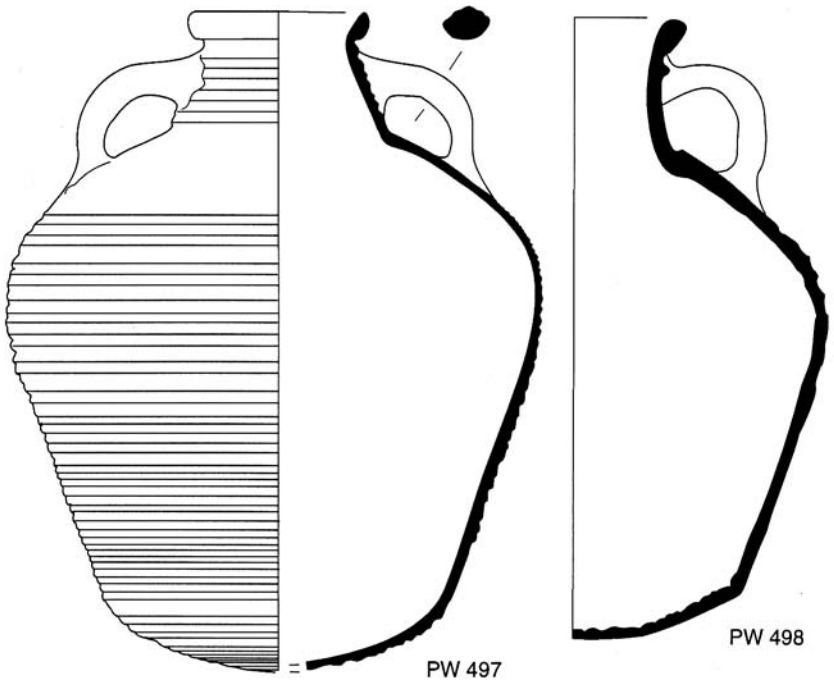


Fig. 16. Tel Anafa (after Berlin 1997 pl. 60). – Scale 2:5.

amphorae, their neck being cylindrical and handle pseudo-bifid in cross section. However, the flaring rim does share the internal ledge that suggests a shared *koiné* for these amphorae. Reynolds also presents some Tyrian fragments but these finds belong to a cylindrical amphora,[62] with a thickened rim, and a "salmon-orange" fabric.

A similar truncated conical, heavily ribbed neck, "puffy" rim, strap handles, and ribbed globular body are the attributes of an early Roman regional amphora discovered in large quantities at Anafa (**fig. 16**).[63] The Anafa and *(L)Ibida* jars have in common the everted, 'puffy' lip, although the latter has a prominent ledge inside of it, similar to the Beirut rims, a truncated conical, ridged neck, and a strap handle; shallow longitudinal ribs occur at the upper part of the handle.

The shape of this type did not evolve too much as some finds of the 4th century discovered at *Iatrus* (Bulgaria) (**fig. 17**),[64]

[62] Reynolds 2000, 390; 394 cat. 44–45 fig. 8,44–45; an almost complete example has been published by J. W. Hayes, The Hellenistic and Roman pottery. Paphos III (Nicosia 1991) 195, fig. 39,29.

[63] A. Berlin, The Plain Wares. In: S. C. Herbert (ed.), Tel Anafa II, i: The Hellenistic and Roman Pottery. Journal Roman Arch. Suppl. 10,2,1 (Ann Arbor 1997) 152; 158 pl. 60 PW 497–498.

[64] B. Böttger, Die Gefäßkeramik aus dem Kastell Iatrus. In: Iatrus-Krivina. Spätantike Befestigung und Frühmittelalterliche Siedlung an der unteren Donau 2. Ergebnisse der Ausgrabungen 1966–1973 (Berlin 1982) 47–48 type II-2 pl. 23,276.

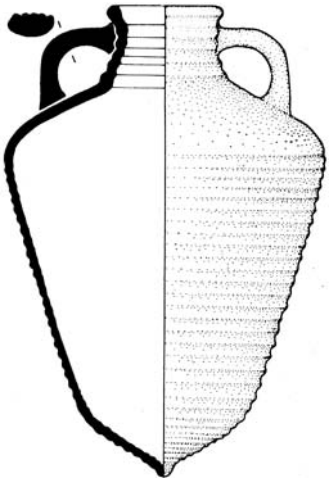
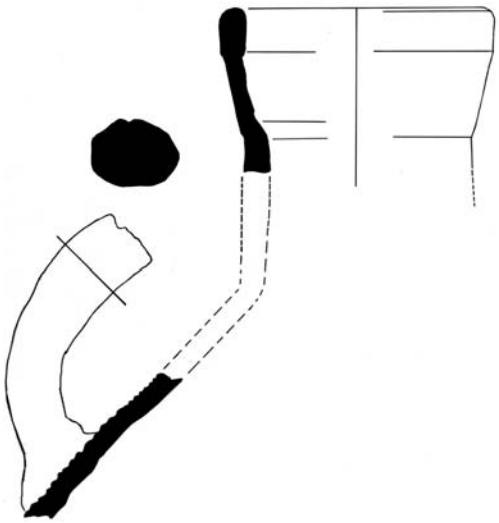


Fig. 17. *Iatrus* (after Böttger 1982 pl. 23,276). – Scale 1:8.



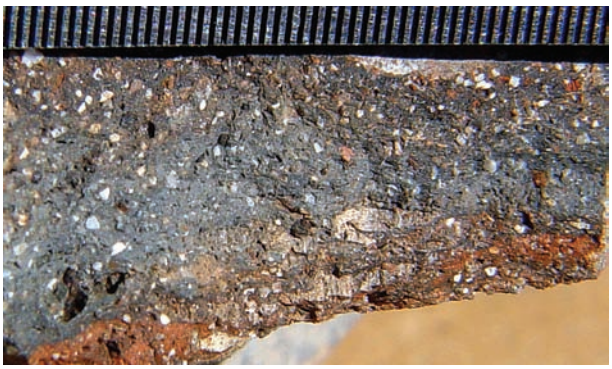


Fig. 18. Levantine (LRA 2 variant?). *(L)Ibida*. – Drawing scale 1:3.

Topraichioi and *Troesmis* (Dobrudja),[65] and in the south at Quasrawet[66] attest; the rim also has an internal ledge, the neck is conical and the body ovoid, heavily ribbed, but ending in a more conical base.

The archaeological context of the *(L)Ibida* example indicates an early Roman date, perhaps towards the end of the first century AD.

The origin of this type is difficult to assert with confidence. As we have seen, its morphological characteristics have many common features with some local jars manufactured in the Beirut-Tyre-Golan area. Its presence at *(L)Ibida* is particularly interesting if we take into account other discoveries that came from this area, such as some glass plates manufactured at Tyre.[67] Another important discovery made at *(L)Ibida*, which may be correlated with our amphora type, is a fragmentary military diploma that suggests the presence of *cohors I Tyriorum sagittariorum* at *(L)Ibida*.[68]We can infer, therefore, from the presence of these archaeological documents, that trade connections between *(L)Ibida* and the Tyre area may have been facilitated by the military presence, the only entity that disposed of the necessary logistics, authority and financial means.

Lebanese (Tyrian?) LRA 2 variant

Fragments of an upper amphora part discovered at *(L)Ibida* show a conspicuous fabric resemblance with the previous find of an early Roman date. That was the reason to assume a similar origin. However, the morphological characteristics belong to one of the most canonical amphora type of the 6th–7th centuries AD.

The mouth is funnel-shaped with a diameter of 11 cm; it is slightly thickened at the interior lip, separated internally and externally by a small inset; the neck is conical and probably slightly truncated. It has wide shoulders which have fine, combed striations and the handles are oval, slightly grooved with a flattened interior. The handle is ovoid in cross section with a diameter of 3.4/2.4 cm (**fig. 18a**).

The morphological features point to a late LRA 2 subtype, dated perhaps to the beginning of the 7th century AD, the best parallel being amphorae discovered in the Yassi Ada shipwreck,[69] and also on Samos.[70]

If the petrographic analysis can confirm the similarity of these two fabrics, we will have an important proof of the continuity of a Levantine centre for at least six centuries and of its strong trade ties with the west Pontic area (**fig. 18b**).

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65 Opaiț 1991, 220 type E IV pl. 26,4; Opaiț 2004, 24–25 pl.13,2.

66 P. Arthur/E. D. Oren. The North Sinai Survey and the Evidence of Transport Amphorae for Roman and Byzantine Trading Patterns. Journal Roman Arch. 11, 1998, 201 fig. 7,2.

67 We are grateful for this information to C. Chiriac and S. P. Botan.

68 L. Mihăilescu-Bîrliba, Un nouveau diplôme militaire de Mésie Inférieure. Dacia N.S. 52, 2008, 206.

69 F. H. Van Doorninck Jr., The Cargo Amphorae on the 7th Century Yassi Ada and 11th Century Serçe Limani Shipwrecks: Two Examples of a Reuse of Byzantine Amphorae as Transport Jars. In: V. Déroche/J.-M. Speiser (eds.), Recherches sur la céramique byzantine. Bull. Corr. Hellénique Suppl. 18 (Paris 1989) fig. 1,13.

70 W. Hautumm, Studien zu Amphoren der spätrömischen und frühbyzantinischen Zeit (Fulda 1981) 185 cat. 12; 188 cat. 19 fig. 32; 41.

David Williams

Petrological analysis of the Lebanese amphora types

Introduction

In view of the apparent fabric similarities between two *(L)Ibida* amphorae thought on typological grounds to have been made in the Beirut-Tyre area but separated in date by some six centuries, a small programme of petrological analysis was undertaken on both vessels: the 1st century AD Lebanese (Tyrian?) amphora type and the later Lebanese (Tyrian?) LRA 2 variant. The aim of the analysis was to sufficiently characterize both fabrics in order to see how similar they might be, while at the same time to see if any useful comments might be made regarding the likely origins of these vessels. Accordingly, a small sample was detached from each, examined firstly in the hand-specimen with the aid of a stereo microscope [× 20] and then thin-sectioned for a detailed study under a petrological microscope.

In the hand-specimen, both sherds are hard and gritty to the touch and contain much white limestone and quartz, grains of which protrude through the surfaces. By eye, the size-range of these inclusions in the 1st century AD vessel are slightly smaller than for those in the 6/7th century AD vessel.

Petrology

1st century AD Lebanese (Tyrian?) amphora type

Thin sectioning shows an isotropic clay matrix containing frequent pieces of cryptocrystalline limestone, or voids with reaction rims which once held this material, together with monocrystalline grains of quartz. Both sets of inclusions are well-sorted and fairly well-rounded, generally under 0.40mm in size, and fairly evenly scattered throughout the clay matrix. Also present are a few discrete grains of pyroxene and plagioclase feldspar and a few small pieces of basaltic rock, together with some disaggregated opaque iron oxide.

6th/7th century Lebanese (Tyrian?) LRA 2 variant.

Thin sectioning shows an isotropic clay matrix with a groundmass of silt-sized quartz grains. Also present are frequent sub-angular monocrystalline grains of quartz and, to a lesser degree, pieces of cryptocrystalline limestone, both ill-sorted and ranging up to 0.80mm in size. Quartzite can also be seen, together with a few discrete grains of plagioclase feldspar and pyroxene, a large crystal of microcline feldspar, one or two small pieces of basaltic and ultra-basic rock and some disaggregated opaque iron oxide.

Comments

In thin section, there are a number of fabric similarities between these two amphorae. For one thing, they both contain dominant inclusions of quartz and cryptocrystalline limestone. However, this in itself is not an uncommon feature in pottery from the eastern Mediterranean, where much of the geology is dominated by large formations of limestone-based rocks. Moreover, the size-range of both quartz and limestone is different between the two fabrics, making the later vessel somewhat coarser than the earlier one. In addition, the degree of rounding of the sand in the 1st century amphora suggests an aeolian or alluvial source, while in the 6th/7th amphora the shape of the quartz and limestone is more angular by comparison. This points to the two vessels either being made at different production centres or, if indeed they were made in the same area, at least using different clays/tempers. If a similar source region can be argued on typological grounds, it is possible that the time period between the manufacture of these two vessels may well account for this difference. It is interesting to note, however, that there are additional fabric similarities between the two amphorae when it comes to the accessory inclusions that are also found in the clay matrix. Both contain small pieces of basaltic rock and scattered grains of pyroxene and plagioclase feldspar. Presumably the latter minerals have derived from the original basalt outcrop.

The Beirut-Tyre-Golan area has been suggested above as a possible source for these two amphorae. Both cities are situated in coastal areas of recent Quaternary deposits, but with Cretaceous and Jurassic limestone rocks close at hand. Jurassic and Cretaceous basalts lie inland from the coast to the north of Beirut along the Western Mountain Range of Lebanon, while upper Cenozoic basalts lie some way inland to the east of Tyre in the Golan Heights region of Syria. Ophiolites are situated closer to the coast near Amrit in Syria. In recent work on Bronze Age and Roman pottery produced in the Beirut-Tyre area and further north along the coastal regions of Lebanon and Syria, the samples studied were all found to contain inclusions of bioclastic or fossil sand.[71] This is lacking in both of the *(L)Ibida* vessels as no distinct fossil material appears to be present in the slides. In addition, thin sections of 1st and 6th century AD Beirut amphorae are said to contain angular rock fragments of shale and siltstone,[72] both of which are again lacking in the two sections from *(L)Ibida*. If a Levantine source is to be sought for these two vessels then perhaps a region slightly inland of the coast is more of a possibility. The fragments of basalt and discrete grains of pyroxene and plagioclase in both slides suggests a source not far from an outcrop of basalt or ophiolitic complex, though this distance could be extended if the action of local rivers is taken into account in transporting igneous material away from the source area.

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[71] Reynolds 2000, 390; P. Reynolds, Levantine amphorae from Cilicia to Gaza: a typology and analysis of regional production trends from the 1st to 7th centuries. In: J. M. Esparraguerq/J. B. Garrigos/M.A. Ontiveros (eds.), LRCW I. BAR Internat. Ser. 1340 (Oxford 2005) 563; M. Ownby/J. Bourrian, The movement of middle Bronze Age transport jars. A provenance study based on petrographic and chemical analysis of Canaanite jars from Memphis, Egypt. In: P. S. Quinn (ed.), Interpreting silent artifacts: petrographic approaches to archaeological ceramics (Oxford 2009) 180.

[72] P. Reynolds, Pottery production and economic exchange in second century Berytus. Berytus 43, 1997–1998, 62.

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