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First evidences for western Greek amphorae produced at Selinus

Introduction

The issue of the existence of a local production of transport amphorae, intended for the trade of food surplus,¹ represents one of the key questions in order to a better understand the economic development of western Greek colonies. Specifically, Selinunte's agricultural vocation is undoubted and a particular role can be certainly attributed to the large-scale production in its wheat-yielding territory, mentioned also by the ancient sources and illustrated on 5th-century tetradrachms.² However, in antiquity, the transport of grain was usually not conducted using transport amphorae, but textile receptacles which leave no material record. Due to the lack of any systematic field survey in the hinterland³ and the rareness of archaeobotanic studies,⁴ no data are currently at our disposal for hypothesis on a further agrarian exploitation of Selinunte's ample chora, for instance, by the cultivation of olive plants or grapevines. Furthermore and apart from an earlier archaeometric study (see ch. 1), no attempt has been made so far to identify a local production of Greek amphorae.⁵

1. Previous archaeometric research

First evidences for local production of western Greek amphorae⁶ in Sicily's westernmost colony are provided by an archaeometric contribution published in 2006: petrographic and chemical analyses of 42 western Greek and Punic amphorae, kiln wasters and tiles have allowed for the definition of two local fabrics.⁷ Specifically, eight samples taken from 5th-century B.C.E. 'Ionian Massaliote' and 'Pseudo-Chian' amphorae have been attributed to the finer fabric I, while the bulk of the Punic amphorae represents the coarser fabric II.⁸ Fabric I shows a homogeneous matrix characterized by the presence of numerous, calcareous microfossils or their marks, whereas the natural temper consists of very fine sand of mostly quartzite composition. This fabric matched perfectly the archaeometric fingerprint of the presumably local reference samples (kiln wasters and tiles) and clay samples taken from outcrops located in the vicinity of Selinunte.

In 2016, a second paper focused specifically on the clayey raw materials used by Selinunte's potters⁹ and a third, almost contemporaneous study better defined the archaeological¹⁰ and

* Institut für Klassische Archäologie, Universität Wien. The present research has been funded by the Austria Science Fund (FWF: P 30030-G25: "Trade of western Greek amphorae from Himera's perspective"). Special thanks are due to S. Gallagher for his critical input during the correction phase of the English paper. The composition of figures 1-2 is due R. Lampl (Universität Wien).

1 For this topic, see in detail Sourisseau 2011, 147.

2 For a recent synthesis, see De Angelis 2019, 41-2; recently, see also Bentz 2017, 36.

3 Bentz 2017, 34-6.

4 At present, the only published data refer to 80 samples taken from the German excavations on the Manuzza hill which show the dominance of free-threshing wheat among the cereals, followed by barley. The most frequent legumes were lentils and bitter vetch, furthermore remains of olives have been identified: Stika et al. 2008.

5 For first archaeological-archaeometric studies of the Punic series: Fourmont 2013; Bechtold 2015; Bechtold and Schmidt 2015; Montana and Randazzo 2015.

6 For this term, see Sacchetti 2012, 39-48; Sourisseau 2011, 173-229 and Gassner 2003, 173-219, all with further references.

7 Azzaro et al. 2006. All of the analyzed samples are of unspecified provenance and lack graphical documentation.

8 Azzaro et al. 2006, 222-23.

9 Montana et al. 2018a.

10 Fourmont 2013; Bechtold 2015, 82-8.

archaeometric¹¹ markers of the local, late-4th and first half of the 3rd-century B.C.E. production of Punic amphorae. Finally, 55 ceramic samples taken from fine and coarse wares and transport amphorae unearthed in the area of the agora of Selinunte have been submitted for X-ray fluorescence analysis (P-ED-RFA).¹² Specifically, one 'Pseudo-Chian' amphora has been attributed to a local fabric.¹³

2. The kerameikoi of Selinus

One of the most significant archaeological discoveries of the last decade is represented by the identification, by the means of geomagnetic prospections and excavations, of the largest 'industrial quarter' ever unearthed in a Greek city. Selinunte's kerameikos is located at its eastern outskirts, in the river Cotone valley, but inside the urban fortification. It was active from the mid-6th century B.C.E. until the Carthaginian destruction in 409 B.C.E.¹⁴ Current research suggests that during the Archaic period production was limited to figural terracotta, while after a general restructuring of the whole quarter at the beginning of the 5th century B.C.E. the industrial output included ceramic building materials, coarse- and fine wares, and apparently also transport amphorae.¹⁵

Apart from still inedited productive evidences during the early Archaic period from the agora on the Manuzza plain¹⁶, a second, important pottery- and metal workshop area and several kilns have been excavated on the acropolis, in block FF1 North.¹⁷ The archaeological stratigraphy documents the end of the productive activities after the Roman attack in 250 B.C.E., while its beginning can be roughly placed in the course of the (later?) 4th B.C.E.¹⁸ Ceramic finds outline the array of products: coarse¹⁹- and fine wares, transport amphorae and figural terracotta. Finally, further archaeological evidences unearthed in blocks FF1 and EE2 testify for the existence of productive structures also in this area already during the Archaic period.²⁰

3. Western Greek amphorae produced at Selinus

The present research takes lead from a selection of seven western Greek amphorae fragments yielded by the American-Italian excavations in the major urban sanctuary on the acropolis of

11 Montana and Randazzo 2015, 140-46.

12 For preliminary results, see Helfert 2017.

13 Helfert 2017, 114 sample MH-SP59.

14 The most recent synthesis in Bentz 2019 with earlier references. For an in-depth discussion of spatial and quantitative aspects related to the industrial output of Selinunte's kerameikos, see Bentz 2017.

15 Most recent, see Bentz 2017, 27 "Da alle Arten von Keramik im Töpferviertel von Selinunt gebrannt wurden..."; previously, Bentz et al. 2016, 69, even if it becomes not clear if all of the finds discussed in this contribution can be referred to local productions. Problematic appears also the statement made in Bentz et al. 2013, 84-5 "...Teile von Amphoren westgriechischen und graeco-italischen Typs mit Brennfehlern..", given that the upper part of the vessel illustrated in fig. 13 (SL 31453) refers to a specific type of domestic amphora apparently very characteristic of regional, second-half of the 4th-early 3rd century B.C.E. deposits (Bechtold (forthcoming), cat. 213). Furthermore, a local production of Graeco-Italic amphorae would contradict the presumed, final abandonment of the industrial area after the destruction in 409 B.C.E.

16 Bentz et al. 2019, 131; Bentz 2017, 38, note 114: unpublished data.

17 Most recent, see Fourmont 2019 with earlier references.

18 M. Fourmont insists in the beginning of pottery production in block FF1 North shortly after 409 B.C.E. (Fourmont 2019; Montana et al. 2018b) or, previously, after the mid-4th century B.C.E. (Fourmont 2013, 26). In our opinion, the so far published material evidences cannot be pre-dated to the early Hellenistic period, at this regard, see also Bechtold 2015a, 87-8.

19 For a specific, very recent archaeometric research on a selection of 37 overfired samples: Montana et al. 2018b.

20 Fourmont 2019, 184; Fourmont 2013, 5-6.

Selinunte (area of temples B and R).²¹ Macroscopically, this group (tab. 1), denominated SEL-A-4,²² strongly resembled the local coarse ware fabric already defined by previous research²³ and was though suspected to represent a Selinuntinian production.

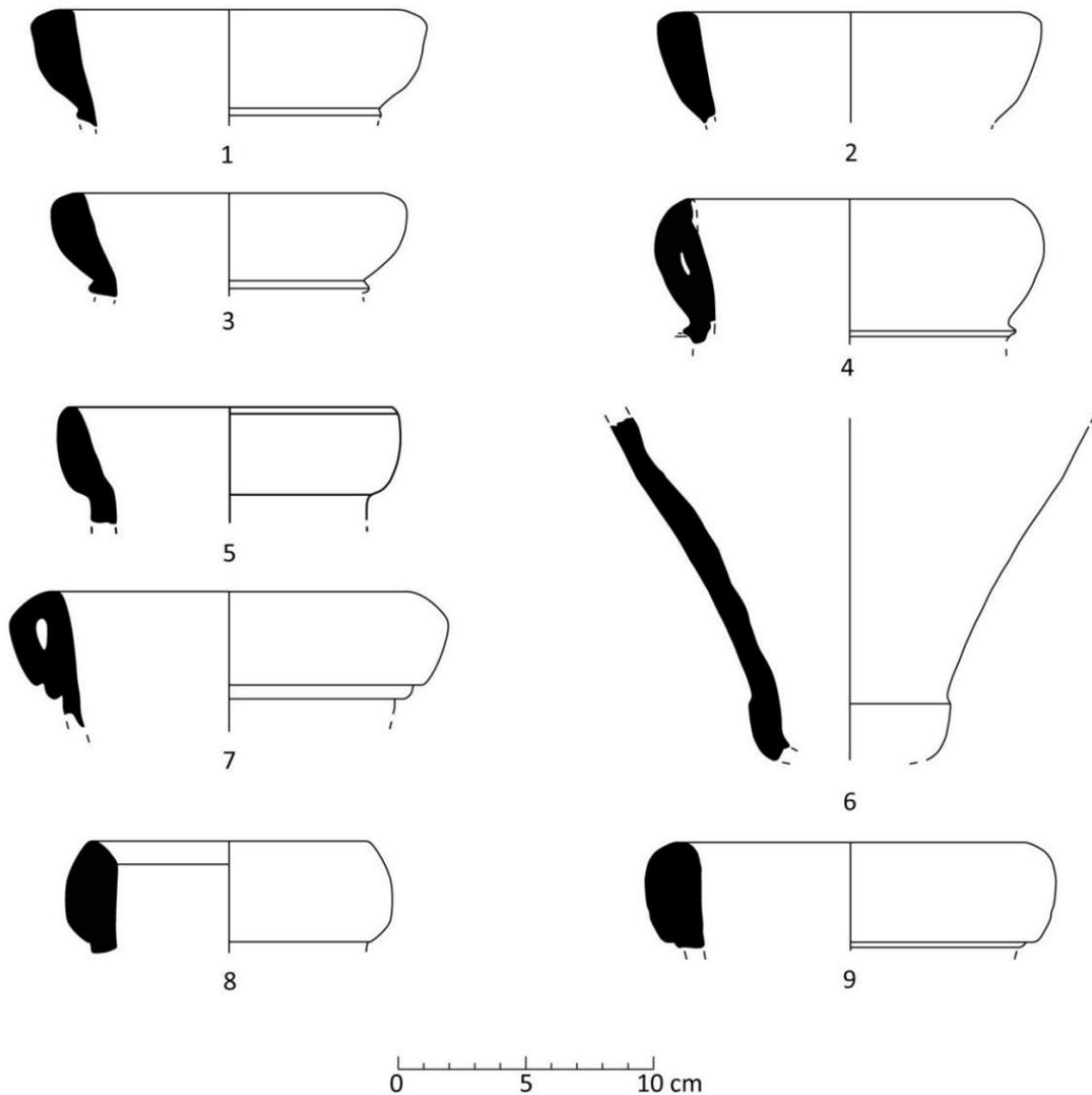


Fig. 1. Western Greek amphorae produced at Selinus. *Randform 7*: 1. M 154/30 2. M 154/126 3. M 154/150 4. M 154/210 *Randform 6*: 5. M 154/141 Unspecified type: 6. M 154/155 *Randform 3*: 7. M 165/80 *Randform 2*: 8. M 119/142. 9. M 119/266.

From a morphological point of view, five items of almost vertical, elongated, semi-ovoid rims underlined by a marked ridge (fig. 1,1-4) refer to Gassner's *Randform 7* highly characteristic of the southern Campanian area.²⁴ In the regional context, close comparisons can be found among the local, later-5th and first half of the 4th-century B.C.E. amphorae series of close Agrigento²⁵ and

21 Excavations of the University of New York (IFA) and the Università degli Studi di Milano. I am very grateful to C. Marconi, director of this joined research, for the opportunity to study the amphorae material.

22 In detail, see Ferlito 2020.

23 Bechtold and Schmidt 2015, 7, 12.

24 Gassner 2003, 181-82, fig. 91; 213, tab. 22.

25 Bechtold 2020b; Amico 2020, cat. 5.7.

Gela²⁶ on Sicily's southern coast. Very similar rims are documented, however, also among the late classical amphorae productions of the northwestern Sicilian town of Himera²⁷. One rim fragment shows a rather almond-shaped profile (fig. 1,5) close to Gassner's *Randform* 6, emblematic of the southern Calabrian series of the later-5th and first half of the 4th-century B.C.E.²⁸ with a nice morphological comparison from Mozia.²⁹ Unfortunately, almost all of the items were found as residuals in early Hellenistic leveling layers or fills mostly of temple R, an exception being made for the only knob-shaped peg (fig. 1,6), yielded in a context of the last third of the 5th century B.C.E.

Currently, excavations at Selinunte itself have not yielded evidences for the hypothesis of a local amphorae series dating to the later 6th or first half of the 5th century B.C.E. Nevertheless, earlier archaeometric research (see above, ch. 1) included an unspecified number of 'Ionian-Massaliote' and 'Pseudo-Chian' amphorae which should correspond to Gassner's late archaic-early classical *Randform* 3 and the late classical shape *Randform* 7³⁰. The existence of an earlier local series seems now to be reinforced by the identification of a small selection of fragments of possible Selinuntian fabric found at Pantelleria and Segesta which show massive, semi-ovoid rims with (fig. 1,7) or without (fig. 1,8-9) ridge close to Gassner's *Randformen* 3 and 2.³¹ Regrettably, all of these items appear to be decontextualized.

4. On-going archaeometric research on western Greek amphorae produced at Selinus

Six fragments selected from the supposed local group of late classical amphorae found at Selinunte and one late 6th-early 5th century B.C.E. fragment of hypothesized Selinuntian origin from Pantelleria have been submitted for petrographic analysis, with one fragment undergoing additional chemical analysis (tab. 1).³² As a preliminary result, all of the items appear to be compatible with the archaeometric fingerprint of the raw materials utilized for ancient local pottery production³³ and match the finer fabric I defined within the scope of the previous study, typical of the Greek-styled amphorae.³⁴ Further research will specifically focus on the definition of archaeometric markers differentiating the local productions of Selinunte and Agrigento which both make use of the raw materials of the 'Marnoso-Arenacea del Belice' formation.³⁵

5. Preliminary observations on Selinus' production of western Greek amphorae

The present, combined, archaeological-archaeometric research allows for the reliable identification of a local series of western Greek amphorae manufactured in fabric SEL-A-4. Currently, the clearest evidences are available for a late classical group, mainly composed by fragments with *Randform* 7 (tab. 1). Almost identical rims occur in the later 5th-century B.C.E. local productions of Himera, Gela and Agrigento. At this latter site, however, the shape is likely to continue also during the first

26 Spagnolo 2018, 288-90, fig. 5: form Gela II documented for the last quarter of the 5th century B.C.E.

27 Bechtold et al. 2019, 9-10, fig. 6.

28 For the type: Gassner 2003, 181-82, fig. 91; 213, tab. 22; for its distribution in the southern-central Mediterranean: Bechtold 2013a, 55-8.

29 Nigro 2005, 326-27, pl. XCVI, MC.04.849/1.

30 Gassner 2003, 180, tab. 10. One more possibly local, first-half of the 5th century B.C.E. fragment close to Gassner's *Randform* 2 has been published from the excavations at the small eastern city gate: Mertens 2003, 323-24, fig. 385, SL 3772b.

31 Gassner 2003, 180-82, fig. 91.

32 Within the frame of the project mentioned in note *, thin-section petrography at the polarizing microscope and chemical analysis (ICP-MS and ICP/OES) have been conducted by G. Montana (DiSTem, University of Palermo) and L. Randazzo (DiBEST, Università della Calabria) to whom I am very grateful for the permission to anticipate some of their forthcoming results.

33 Montana et al. 2018a.

34 Azzaro et al. 2006.

35 Montana et al. 2011, 78-81.

half of the 4th century B.C.E. (see above, ch. 3). Unfortunately, the stratigraphical provenances of the items found in the Italian-American excavations on the acropolis do not provide secure evidences for a dating of this Selinuntinian group *before* or *after* the city's destruction in 409 B.C.E. A peg fragment (fig. 1,6) from a deposit pre-dating the catastrophe documents, in any case, the existence of a local amphora production of the advanced 5th century B.C.E.

Site of discovery	FACEM inv.	Site inv.	Type	Fabric FACEM	Archaeometry	Published	Fig.
Selinunte, acropolian sanctuary	154/30	TB saggio H US 5 P09.83 SEL 33690	<i>Randform 7</i>	SEL-A-4	petrography	Bechtold 2020c, fig. 4,7	1,1
Selinunte, acropolian sanctuary	154/126	TR saggio O US 13 P12.185 SEL 41190	<i>Randform 7</i>	SEL-A-4	petrography	Bechtold 2020c, fig. 4,8	1,2
Selinunte, acropolian sanctuary	154/150	TR saggio P US 118 P13.120 SEL 42066	<i>Randform 7</i>	SEL-A-4	petrography	Bechtold 2020c, fig. 4,9a-b	1,3
Selinunte, acropolian sanctuary	154/210	TR saggio Q US 206 P17.24 SEL 43290	<i>Randform 7</i>	SEL-A-4	petrography		1,4
Selinunte, acropolian sanctuary	154/215	TR saggio Q US 206 P17.179 SEL 46229	<i>Randform 7</i>	SEL-A-4			
Selinunte, acropolian sanctuary	154/141	TR saggio P US 111 P13.105 SEL 42051	<i>Randform 6</i>	SEL-A-4	Petrography, chemistry		1,5
Selinunte, acropolian sanctuary	154/155	TR saggio O US 33 P12.208 SEL 42079	Non id.	SEL-A-4	petrography		1,6
Segesta, Grotta Vanella dump	165/80	SG 15893	<i>Randform 3</i>	SEL-A-4		de Cesare et al. 2020, fig. 4,10	1,7
Pantelleria, survey	119/142	PN 04 ACR RIC UT 130.1-2	<i>Randform 2</i>	SEL-A-4	petrography	Bechtold 2013b, 488, pl. 34, cat. 104	1,8
Pantelleria, urban area	119/266	PN 08 ACR X 9376-10	<i>Randform 2</i>	SEL-A-4			1,9

Tab. 1. Synopsis of data related to illustrated, western Greek amphorae produced at Selinunte. Items indicated in bold are published in the database of FACEM.

Recent archaeological³⁶ and historical research³⁷ contributes to an increasing understanding of the dynamics of the re-occupation of Selinunte as a sequel of the treaty between Syracuse and Carthage in 405 B.C.E. Most probably, during the first half of the 4th century B.C.E. a mixed population, including a strong Greek component, faced a rather precarious period of life,³⁸ determined by continuous armed conflicts between the two hegemonies and a presumably strong earthquake

36 For recent overviews on 4th-century B.C.E. Selinunte: Chiarenza 2018-2019, 28; Greco 2018, 104-6; Mertens 2015 all with earlier references. For a more critical approach: Russenberger 2015, 1134 who claims the – still missing – publication of the ceramic materials related to the archaeological evidences attributed to the late 5th-first half of the 4th century B.C.E.

37 For an excellent historical overview on the city's life after 409 B.C.E.: De Vido 2018.

38 Mertens 2015, 379-80.

around the mid-4th century B.C.E.³⁹ This seismic event is also indicated by M. Fourmont⁴⁰ as a probable terminus post quem for the beginning of pottery production in block FF1 North.

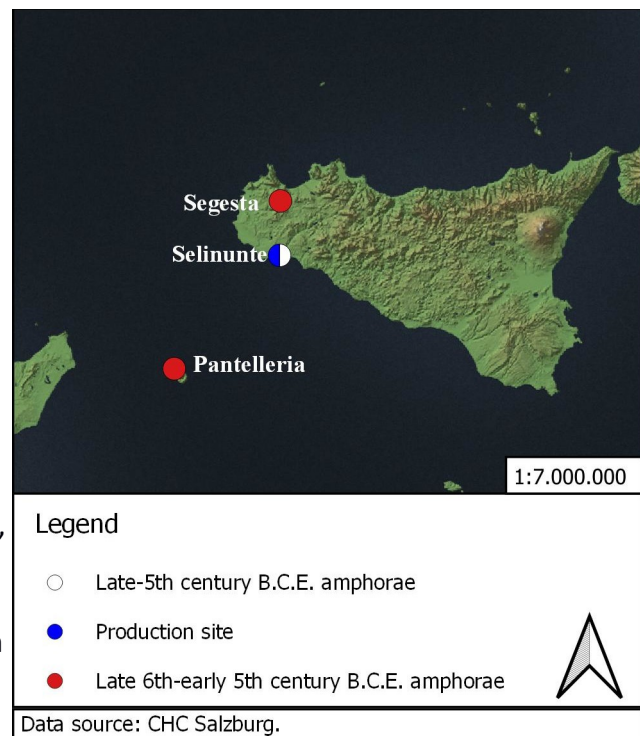
Moving back to the chronology of the local amphorae group with *Randform 7*, in our opinion, the archaeological and historic data outlined above hint rather at an attribution of this series to pre-409 B.C.E. Selinunte. In fact, none of the hitherto-identified workshop areas seems to have been active in the course of the *first* half of the 4th century B.C.E. and the question of a local pottery production during this period remains open.

Fig. 2. The distribution of western Greek amphorae produced at Selinus outside the production site.

Another outstanding issue is represented by feature and extent of a local, late-6th and earlier 5th-century B.C.E. series, so far documented by a very few fragments found outside Selinunte (tab. 1, fig. 2). Our on-going research on Sicilian productions of western Greek amphorae has already given evidence, for the late Archaic period, for the genesis of a flourishing regional amphorae koiné with local productions at Himera, Solunto and/or Palermo, Agrigento⁴¹, Gela,⁴² and, interestingly enough, also at the Indigenous settlements of Entella and probable Monte Iato in the valleys of the rivers Belice and Iato.⁴³ Within the wider frame of economic growth and wealth documented for large parts of late archaic Sicily, the hypothesis of a local amphora production of Selinunte seems very plausible.

Two more aspects of the Selinuntinian series should be briefly discussed:

- 1) The morphological choice of the late archaic *Randformen 2-3* is in perfect harmony with the regional and supra-regional typological 'language' attested for many Greek *apoikai* of southern Italy and Sicily and has been related to an overall increase of the agricultural surplus, most probably vine.⁴⁴ Also the late classical *Randform 7* represents the typical expression of late-5th or earlier 4th century B.C.E. amphorae series namely of Sicily's southern coast and follows of a period of probably limited, regional amphorae distribution.⁴⁵
- 2) First and still very weak evidences for the circulation of the local series⁴⁶ testify for the documentation of a few Selinuntian late archaic amphorae in non-Greek contexts at



39 Greco 2018, 104.

40 Fourmont 2013, 26.

41 Bechtold 2020c, ch. 2.2.

42 Spagnolo 2018, 284-87.

43 For these new evidences: Corretti and Michelini 2020.

44 For this topic, see recently Bechtold et al. 2019, 13.

45 Bechtold et al. 2019, 13-4.

46 The still extremely fragmentary approach to this issue, due to the present lack of a systematic, archaeological-archaeometric research in the local, Archaic-Classical period-ceramic production of Selinunte, is claimed also by M. Bentz (2017, 35).

Cossyra and Segesta. The presence of this class in a couple of urban deposits from Cossyra and among the 'Grotta Vanella dump', related to the main urban sanctuary of Segesta, might hint at both commercial and/or personal relations between Sicily's westernmost Greek colony and the chiefs of non-Hellenic communities.⁴⁷ Highly emblematic in this regards seems also the absence, among ca. 560 western Greek amphorae yielded by the necropoleis of Himera, of vessels imported from Selinunte.⁴⁸

Concluding and based on the admittedly still limited data, the new amphorae evidences suggest Selinunte's prosperity during the Archaic-Classical period⁴⁹ should *not* be attributed to a large-scale trade of agricultural commodities transported in amphorae, an idea which seems to underline the importance of grain cultivation in the colony's chora. Nevertheless, Selinunte somehow followed the supra-regional trend in setting up a local 5th-century B.C.E. western Greek amphorae series. As an hypothesis, we might wonder if Selinuntian vine (?) amphorae were mainly destined to serve non-Hellenic consumption sites located in the Punic and native areas of influence. Further research in amphorae fabric identification at western Sicilian sites is needed to understand, whether one of the colony's economic strategies attempted to take advantage of its historical, special relationship with its non-Greek neighbor communities of this cross-border region in Sicily's West.⁵⁰

47 For an in-depth analysis of the possible significance of Greek amphorae from ritual and urban, non-Hellenic contexts, see de Cesare et al. 2020, 370-73.

48 For the on-going study of this large assemblage, see note *. The provenance study of all of the items, based on archaeological and archaeometric methods, has already been mostly concluded. For the quantitative incidences of Sicilian amphorae, see Bechtold 2020c, ch. 3, fig. 5b.

49 Highly interesting in this regard is the assumed, privileged role of the kerameikos of 5th-century B.C.E. Selinunte which might have given employment to about 15%-25% of the population, see Bentz 2017, 36.

50 For new insights into privileged relations between Selinunte and its Phoenician-Punic neighbors, see Orsingher et al. 2020. For the city's presumably tight contacts with western Sicilian-native communities, see most recent Spatafora 2018, 183-84 with earlier references.

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