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# TILES AND AMPHORAE IN THE ROMAN PROVINCE OF DALMATIA: EVIDENCE OF STAMPS (POSTER)

*Ana Konestra, Anamarija Kurilić, Goranka Lipovac Vrkljan*

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## INTRODUCTION

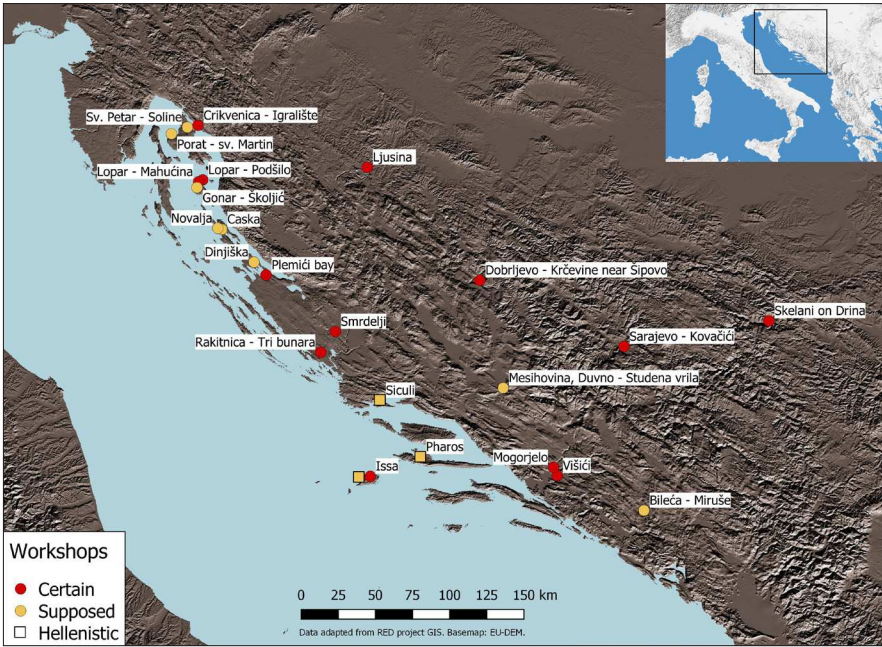
Archaeological investigations conducted in recent decades have provided valuable new insight into the production of ceramic building material, pottery and amphorae in the Roman province of Dalmatia<sup>1</sup>. Most of the recent research was conducted in the coastal area of Roman Dalmatia (mostly at its NW part, in the region of ancient Liburnia; **map 1**). In the most recent period (2014–2018) the research witnessed the first joint, systematic and interdisciplinary research project dedicated to the ceramic production in the province<sup>2</sup>. One of the most significant outcomes of the project is the first synthesis on the ceramic production in Dalmatia<sup>3</sup>, which has already become the reference work for the topic.

In this paper we shall concentrate on some select issues, such as a typology of workshops discovered so far, their statuses and markets, as well as stamps found in such sites (**tables 1-3**), their owners and their backgrounds, as well as their estates. We will also integrate the probable local stamps' lists and kilns' findspots in the interior of the province (**tables 1-3; map 1**).

## TYOLOGY OF WORKSHOPS

Until recently, local production was mostly inferred on the basis of stamps confined to a narrow local area. However, after the Crikvenica pottery workshop discovery in 2004 (**fig. 1**), several other pottery production sites were detected and/or researched in the NW coastal area of the province (**map 1**), coinciding almost exclusively with the territory of ancient Liburnia. It seems, so far, that the kilns present at these sites were all of the same type (Cuomo di Caprio II/b)<sup>4</sup>, unlike the interior where the kilns belonged to either Cuomo di Caprio II/a, II/b or II/c type (**map 1**)<sup>5</sup>.

- 1 See Lipovac Vrkljan *et al.* 2018 for a bibliographic overview.
- 2 *RED – Roman Economy in Dalmatia: production, distribution and demand in the light of pottery workshops* project led by G. Lipovac Vrkljan and funded by the Croatian Science Foundation, IP-11-2013-3973.
- 3 Lipovac Vrkljan & Konestra, ed. 2018.
- 4 Lipovac Vrkljan & Konestra 2018, 16.
- 5 Silajdžić 2018, 234-235 (types II/b and II/c), 237 (type II/a).



Map 1. Eastern Adriatic Hellenistic and Roman ceramic production sites (Data adapted from RED project GIS; basemap: EU DEM)



Fig. 1. A kiln from Crikvenica workshop (photo by D. Pelić).

According to some authors, some of the workshops could have been, as it seems, directly associated with settlements: stamps BISTVES<sup>6</sup> and DOCL<sup>7</sup> are considered to be produced in workshops connected with the municipal administration (presumably regarding the municipal land property?), similar as products of some workshops with no registered stamps<sup>8</sup>. The DALMATIA workshop was perhaps connected with the government<sup>9</sup>, while there were several workshops organized in military camps (**table 3**), as in Smrdelji within the territory of the legionary camp in Burnum (see *infra*). Others were most probably connected with the private estates.

With that in mind, the authors propose two models of the production organisation in Liburnia<sup>10</sup>:

- 1) production that was organised within the estate, with the estate's own resources (e.g. in Crikvenica: DE SALT // SEX MTLI MAX; **fig. 2**);
- 2) production that was organised separately from other estate business, in an *officina* (perhaps run by someone other than the estate owner but possibly still relying on the estate's resources?) (e.g. in the Plemići Bay: see *infra*)<sup>11</sup>.

Such data, along with the layout and organisation of the production features in Crikvenica workshop and the quantity of wasters (**fig. 4**) found at the Plemići Bay, indicate that these were large, proto-industrial production centres, with complex production organisation, and a wide and diversified output. The two here illustrated examples are also paradigmatic as they are so far the only ones in Dalmatia with stamps bearing clear indication of estate provenience, stating its type as well. In addition, the stamps attributed to the Plemići Bay estate production<sup>12</sup> may be the only ones within the local provincial pottery production to indicate a *locatio-conductio* relationship between the estate owner(s) and *offinatores*. It seems that the production in the Plemići Bay was performed at a place named after either an anthroponym or toponym – Zedes<sup>13</sup>, which perhaps may be linked with the (original) owner of the estate<sup>14</sup>, where during a longer period of time several different *offinatores* run the production (L. Tettius De(---), T. Gallius(?) Fitus(?) and perhaps also Muttienus, for which cf. here, n. 14). In addition, there is another stamp that perhaps can also be connected with the southern Liburnia (MODESTI. A; **table 2, n. 32**), due to its limited distribution, as well as to

6 Škegro 1991, 231; cf. Silajdžić 2018, 233, n. 8; both with earlier bibliography.

7 Škegro 1999, 259, n. 68. However, this stamp is rather controversial because there are no scholarly reliable information relating to its find and appearance; the only original publication of its find (Bešić *et al.* 1967, 167) is quite sceptical of it: "... **insufficiently verified information** about the existence of a tiles workshop with a stamp *Docl* – probably relating to the city of Doclea – the square bricks of which were **allegedly** found in Spuž" (translated and emphasised by A. Kurilić).

8 Cf. workshop in Krčevine (site Dobrljevo) near Šipovo (Silajdžić 2018, 241-242). For a list of (presumed) municipal *officinae* see Škegro 2006, 161.

9 Wilkes 1969, 501-502.

10 Liburnia has been chosen for a case-study because it is the best researched region of the province and can thus procure enough relevant data.

11 The possibility of other models of production remains open, as so far no data or indications point to them.

12 EX OF L. TETTI DE. ZEDES (**fig. 3**) and MVTTIENI from the Plemići Bay, and [-]X̄ŌF. T G[-] F̄i[-] // ZEDESTI (= [E]x̄ of(ficina) T(iti) G[al(li)?] F̄i[ti?]) // Zedesti(s?) from Nin.

13 These are the first attestations of the name in the Roman world. Presently it is difficult to detect whether it was a place name or a personal name, and whether it was used here in adjectival form (*Zedesti* or perhaps *Zedestis* = Zedes', belonging to Zedes) or in the Ablative case (*Zedesti* = from Zedes' [sc. property or land or similar]). We would like to express our warmest gratitude to Dr. Zvonko Liović (University of Zadar, Department of Classical Philology) for all his assistance relating to this name.

14 On the other hand, perhaps the owner of the estate was Muttienus (registered on the stamp MVTTIENI) (cf. Lipovac Vrkljan & Konestra 2018, 24), and Zedes would be solely – as previously stated – the toponym of the production site.



some morphological and epigraphical features, although such attribution remains doubtful as similar stamps (MODESTI and L. MO[---]) were found in northern Italy and interpreted as originating from their local *figlinae*<sup>15</sup>.

Very confined distribution of locally produced ceramic goods indicates that they were mostly intended to either satisfy the needs of the estate and/or for local markets<sup>16</sup>, and not for a trade with more distant areas. Nevertheless, recent finds of Crikvenica produced amphorae at Aquileia (Canale Anfora site)<sup>17</sup> do indicate that, perhaps sporadic and indirect, commerce outside of the Liburnian region should not be *a priori* excluded.



Fig. 2. Tile with a Crikvenica production stamp  
DE SALT SEX MTLI MAX (photo by M. Gregl).



Fig. 3. Tile with a Plemić Bay production stamp  
EX OF L. TETTI DE. ZEDES (photo by M. Ilkić).



Fig. 4. Wasters from the Plemić Bay (photo by M. Ilkić).

15 See bibliography in Table 2, n. 32, and Cipriano & Mazzochin 2007, 638-639, 644, 670.

16 Lipovac Vrkljan & Konestra 2018, 23; Kurilić 2016, 382f.; Konestra *et al.* 2020.

17 Gaddi & Maggi 2017, 278, fig. 27, 28; Maggi 2018.

## STAMPS (TABLES 1-3)

**Tables 1-3** show stamps from local workshops and/or production centres in Dalmatia<sup>18</sup>. Unfortunately, only rarely stamps and kilns have been discovered at the same site, so workshops/production centres have not yet been identified with certainty for most of the stamped goods. It has been taken as the established fact that the tiles production in Dalmatia began with the military fabrication in the mid-1st century AD and that the civilian manufacture started a bit later, towards the end of the 1st century<sup>19</sup>. However, recent research has shown that tile production in civilian milieu started much earlier than in the military, already in the last decades of the 1st century BC (see *infra* and **table 2, n. 1-3**).

Due to the rather well established history of individual military units' movements<sup>20</sup>, military stamps (**table 3**) are much easier to identify and date than the civilian, which probably contributed to the above stated opinion on the chronological primacy of military production. The first military production centre in Dalmatia that scholars were able to identify was Burnum, where – at the site Smrdelji, south of the legionary camp – three kilns and tiles stamped LEG XI C P F were discovered<sup>21</sup>. In addition to this military unit, stamps of seven other units were identified up to now (LEG IIII FF, LEG VII CPF, LEG VIII AVG, LEG XIII GEM, COH I BELG, COH III ALP and COH VIII VOL) testifying that the military units produced building material – mostly, but not exclusively, for their own needs – at least from the mid-1st century AD<sup>22</sup>. Two legions that made permanent Dalmatian garrison were Leg. VII (C P F) and Leg. XI (C P F). It is commonly accepted that they arrived in Illyricum prior to the Pannonian-Dalmatian Uprising (6-9 AD), and that their respective permanent legionary camps in Tilurium and Burnum were built either during the uprising or immediately after it<sup>23</sup>. However, although numerous epigraphic monuments confirm the presence of their soldiers during the first half of the 1st century AD, there are no stamps – either in their respective camps or elsewhere – prior to 42 AD when both legions received the honorary title *Claudia Pia Fidelis* (C P F)<sup>24</sup>.

Most of the military tiles were produced in Burnum, which is not surprising since legions and some auxiliary units stayed there throughout the entire 1st century AD, unlike *Tilurium* which in mid-1st century transformed into the auxiliary camp after the withdrawal of the Seventh legion. When the last legion left Burnum at the end of the 1st century or at the beginning of the 2nd, production continued – in smaller scale – by auxiliary units (Coh. VIII vol. c. R., Coh. III Alp. and Coh. I Belg.) that formed the garrison of Dalmatia throughout the 2nd and 3rd centuries BC<sup>25</sup>.

18 Some “stamps” have been excluded from lists because they were either not stamps but graffiti (such as SAT [*CIL*, III, 13340.12] and IVL COD [Fiala & Patsch 1895, 280]; for both being identified as stamps see e.g. Škegro 1991, 230; Silajdžić 2018, 233, n. 8) or were stamps on ceramic vessels, such as ΓΛΙ//ΚΩΝ, a stamp on a big ceramic vessel (possibly a dolium?) (Patsch 1914, 186; erroneously included among brick stamps in, e.g., Škegro 1991, 230). We have also excluded a stamp initially read as [---] ZVRI (a fragment from Tivat; *CIL*, III, 3214.19; cf. Škegro 1999, 256), because the reading was later amended and connected with the already known stamp P. LVRI FIRMI (*CIL*, III, p. 2328.178 ad *CIL*, III, 3214.19), which we follow in our Table 2 (n. 17).

19 See, e.g., Škegro 2006, 160-16; Pedišić & Podrug 2008, 100; Juras & Jurković Pešić 2016, 57.

20 For legionary and auxiliary units in Dalmatia see, e.g., Wilkes 1969, 92-120, 135-144.

21 Lipovac Vrkljan & Konestra 2018, 14 (with references to earlier bibliography).

22 Škegro 2006, 160-161; Tončinić 2009, 1454; Miletić 2011, 264.

23 See Tončinić 2011, 9 for the former opinion and Miletić 2011, 364 for the latter; cf. also Wilkes 1969, 92-98.

24 Cf. Miletić 2011, 264; Tončinić 2009, 1454.

25 Cf. Tončinić 2009, 1456; see also in Table 3.

Military workshops occasionally supplied some civilian settlements (such as Aequum, Asseria, and some others). It is still difficult to interpret in which circumstances military workshops distributed their products to civilian customers, but most probably they were either performing some building activities there or solely supplied with their products customers of these settlements<sup>26</sup>.

However, same as in the other parts of the Roman world, the majority of other tile stamps that are connected to the local production record persons. Most of these persons cannot be identified with people attested in any historical sources, either literary or epigraphic. Rare exceptions are stamps from Caska on the Island of Pag<sup>27</sup>. One stamp (CAESAR III COS; **fig. 5**) mentions Octavian, future Emperor Augustus, when he held the consulate for the third time, together with Marc Antony in 31 BC<sup>28</sup>. Another two stamps from Caska read SEX. APPVLEIO COS (used both on tiles and amphorae) and M. IVNIO SILANO (amphora; **fig. 6**)<sup>29</sup>. Sextus Appuleius from the former stamp can most probably be identified with *Sex. Appuleius Sex. f. Sex. n.*, consul of 29 BC and governor of Illyricum in 8 BC. His colleague in the consulate was Octavian, to whom he was closely related because his mother was Octavian's half-sister<sup>30</sup>. Marcus Iunius Silanus from the latter stamp was most probably another Augustus' colleague in the consulate (cos. 25 BC), although another homonymous consul (cos. AD 19) might also be considered<sup>31</sup>. In April of 2019, during the test excavations in Caska<sup>32</sup>, another fragment of a tile, this time with a stamp LIBON[---], was found (**fig. 7**). The stamp is of similar features as the previous three and also – at least according to the preliminary research – has not been attested anywhere else. The stamp has not yet been published due to its recent discovery, so it is still too soon to propose any definite conclusions as to whose name was written in it; perhaps we may think of some men from the *gens Scribonia*, perhaps of *L. Scribonius Libo, L. f.*, consul of 34 BC (together with Marc Antony), who was Octavian's brother-in-law and who was stationed in Illyricum in 49 BC<sup>33</sup>. These are the only consular stamps in Dalmatia, and although they partly correspond with the production period of the so-called *tegulae Veleiates* (which were in use at a very confined territory of *ager Veleias* during most of the 1st century BC [76–9 BC]), they differ both in stamp features and palaeography: while stamps of *tegulae Veleiates* are square with text divided in several lines (up to four)<sup>34</sup>, stamps on tiles from Caska – as far as we can observe at the present state of research – are placed within a rectangular cartouche in a single line. Paleographically, stamps from Caska are more delicate than the majority of *tegulae Veleiates*<sup>35</sup>. Lastly, texts of the latter commonly bring *officinator's* name(s) and names of the consular couple, while tile stamps from Caska bring – judging by the entirely preserved stamps – solely the name(s) of a single consul, with no mention of *officinator*. It seems very plausible that all the stamped tiles from Caska, which are almost exclusively confined to this site, can be linked with intensive building activities in the Caska Bay where

26 Cf. Tončinić 2009, 1456; Tončinić *et al.* 2011, 363–364.

27 For Roman remains in Caska see Oštarić & Kurilić 2013, 216, 230–239; Grisonic 2017, 68–71.

28 Kurilić 2016, 379–381.

29 Amphorae stamps from Caska are so far the only known stamps on amphorae of supposed eastern Adriatic production applied to a non-Lamboglia 2 type (for the latter see Cambi 1991).

30 Kurilić 2016, 382. A stamp that most probably belongs to the same *Sex. Appuleius* was recently found in Pannonia, on a tile fragment excavated in Roman Siscia (cf. Miletić Čakširan 2019, 255, 257).

31 Grisonic 2017, 74–75.

32 Protective test excavations lead by Dr Anamarija Kurilić were conducted from 15th to 25th of April 2019 on the cadastral parcel n. 1943/15 (cadastral municipality of Novalja) prior to planned building activities, because the parcel is situated within the archaeologically protected area. Roman architectural remains were unearthed in the southernmost part of the parcel, and this fragment was found within the rubble next to a Roman wall. Results of excavations have not yet been published.

33 Münzer 1921.

34 Cf. Carini 2014, 127 (with valuable references to earlier relevant bibliography).

35 Cf. Kurilić 2016, 381–382.



Fig. 5. Stamp CAESAR III COS from Caska (Cissa) (photo by A. Kurilić).



Fig. 6. Stamp M. IVNIO SILANO from Caska (Cissa) (photo by T. Seguin/CC/Cissa Antiqua 2015) and its calque (made by N. Lete/Gearheo d.o.o, courtesy of N. Lete).



Fig. 7. Stamp LIBON[---] from Caska (Cissa) (photo by A. Kurilić).



the senatorial Calpurnii Pisones had their estate<sup>36</sup>. Consequently, it seems reasonable to assume that the workshop that produced the above described goods was owned by them. However, text from *Senatus consultum de Cnaeo Pisone patre* – Senate’s decision in the trial of senior Cn. Calpurnius Piso (cos. 7 BC) and his associates, which was recently discovered in distant Baetica – points out towards another possibility: that initially it was the estate owned by Octavian, which he gave away – with some other estates he possessed in Illyricum – to this very Cn. Calpurnius Piso<sup>37</sup>, who was the paternal uncle of Calpurnia who set up three votive altars in Caska<sup>38</sup>. One of the punishments decreed by the Senate was that the estates in Illyricum which were presented to Cn. Piso by Octavian should be returned to Octavian’s heir, Emperor Tiberius. Thus, if the property in Caska was indeed one of these estates, that would mean that after 20 AD, when the *Senatus consultum* was issued, the estate became an Imperial possession<sup>39</sup>.

Attempts were made to identify SEX. MTILLIVS (sic!) MAX(IMVS) from Crikvenica stamps. Since the first publication the *nomen gentilicium* was restored in *M(e)tillius*, an otherwise unattested variant of the name *Metilius*. Scarce evidence of that name has shown that the *Metilii* were an influential family attested in southern Italy, so it was thought that perhaps the *saltus* owner from Crikvenica was related to them. Such reading of Maximus’ abbreviated *nomen gentile* remained unchallenged, but recently it has been suggested that the name should rather read M(u)tillius<sup>40</sup>. That name, in either of its variants (*Mutilius* / *Mutillius*) occurs with greater frequency than *Metilius*, and, more importantly, it is known – unlike *Metilius* – from both Liburnia (Varvaria, Nedinum and Scardona) and North Italian cities, Aquileia in particular, with which Liburnian cities traditionally had had good ties. The Aquileian *Mutil(l)ii* belonged to the municipal aristocracy and entered the senatorial order<sup>41</sup>. Excellent example of such good connections between Aquileia and Liburnia can be found in the Island of Ilovik (placed along the important maritime route along the Eastern Adriatic coast, not very far from Crikvenica) where another municipal magistrate from Aquileia had his estate<sup>42</sup>. Another example testifying to close links of Liburnian communities with Aquileia can be found in *Iader*, where *Cossutia*, a distinguished woman from Aquileia, who was *flaminica Divae Faustinae* in both cities, set up a statue base in honour of Diva Faustina<sup>43</sup>.

36 For the Calpurnii Pisones in Caska see Wilkes 1969, 199-200, 331 (for the Calpurnii in Liburnia and Dalmatia see pp. 210-211, 213, 305-306, 331); cf. Kurilić 2016, 383; Grisonic 2017, 70. Calpurnii had their estates in the neighbouring Histria (Tenth Italian region), where a number of imperial and other senatorial estates are known (cf. Starac 1999, 53-54, 58-59, 72-73, 77-79, 85-87), unlike much larger Dalmatia where these are still virtually unknown (cf. Wilkes 1969, where there are no mentions of either, except for those owned by Calpurnii and perhaps for another one owned by Caecinae; see pp. 331-332, 392).

37 *SCPP*, 83-89: “uti(que) bona Cn. Pisonis patris publicarentur excepto saltu, qui esset in Illyrico; eum saltum placere Ti. Caesari Augusto principi nostro, cuius a patre divo Aug(usto) Cn. Pisoni patri donatus erat, reddi, (...)” (“that the property of the elder Cn. Piso be confiscated, with the exception of the **lands which were in Illyricum**; THAT it was ((the Senate’s)) pleasure THAT **these lands be returned to Ti. Caesar Augustus** our princeps, **by whose father the deified Augustus they had been presented to the elder Cn. Piso** (...)”) (Latin text and English translation by Potter & Damon 1999, 26-27; emphasised by authors).

38 *Calpurnia L. Pisonis aug. f. Cn. Pisonis neptis*: *AE* 1964, 270; *AE* 1949, 199a-b. Cf. Grisonic 2017, 70 (with earlier literature).

39 This issue is too complex to be analysed here in greater depth and shall be dealt with elsewhere by A. Kurilić.

40 Pietruszka & Wypijewski 2016; see also Konestra *et al.* 2020.

41 Pietruszka & Wypijewski 2016, 283-285.

42 Kurilić & Serventi 2015, 224ff.

43 Cf. Kurilić & Štefanac 2019, 82ff.

It is still very difficult to identify persons mentioned by stamps from the Plemići Bay. Two of them were most certainly *officinatores*: it seems that one was *L. Tettius De(--)*<sup>44</sup>, while the names of the other (from the tile from Nin; see here, n. 12; **table 1, n. 3**) are severely damaged, so only his praenomen – Titus – is certain. However, there are some indications that his *nomen gentilicium* was perhaps abbreviated to GAL (perhaps for Gallius?) and cognomen to FIT (for *Fitus*)<sup>45</sup>, but we have to wait for a better preserved stamp to be found in order to verify (or not) this conjecture. Perhaps this future discovery will shed more light too to the final part of these two stamps (*Zedes/Zedesti*) so it would be clearer what was meant by it (see *supra*, esp. notes 13-14).

Third person mentioned in stamps from the Plemići Bay is named by the *nomen gentilicium* only – *Muttienus* (**table 1, n. 4**). This name is confined almost exclusively to Italy with greatest concentration in its *Regio II* (Apulia et Calabria)<sup>46</sup>, and is absent from most of the provinces, with the sole exception of Dalmatia where it appears in an inscription from Senia<sup>47</sup>, that was set up by a freedwoman *Muttiena Maxima* to her deceased husband *L. Calpurnius Maximus*. Due to the rarity of the name, it is reasonable to assume that there could be a link between the *Muttieni* from Senia and the stamp from the Plemići Bay, perhaps as land-owners or *officinatores* (cf. *supra*, n. 14).

## CHRONOLOGY

As has already been shown, until the recent discoveries from Caska it has been generally accepted that the military production of tiles preceded the private ones<sup>48</sup>. The stamps from Caska, however, indicate the late 1st century BC (30s BC) as the period in which their production of stamped goods started, reversing the chronological order and putting the private production prior to the military one<sup>49</sup>. Beginning of the production in Crikvenica is more difficult to determine, but the evidence has shown that its major output lasted through 1st-2nd century AD, with the possibility of an earlier onset of production as testified by numismatic finds (starting from Tiberius, 15-16 AD) and 14C dates<sup>50</sup>. Similarly, finds from the

- 44 Up to now his cognomen has been tentatively interpreted as DESEDES (cf. e.g. Kusik 2020, 164), but a punctuation mark after DE and another stamp with ZEDES in it (table 1, n. 3) speak in favour of separating DE from ZEDES; thus, his cognomen, abbreviated to DE, might have been Demetrius or Dexter – just to mention some of the more common names starting with De- which are present in Dalmatia (Alföldy 1969, 186-187) – or some other (see list of names starting with De- from Western provinces in OPEL, II, 94-99).
- 45 From all of the *gentilicia* starting in Gal- in OPEL (II, 159-160) and Alföldy (1969, 87) Gallius has been chosen because of its high frequency and its presence in Dalmatia. *Cognomina* starting in Fit- are much rarer and OPEL (II, 143) lists only three names, none of which are present in Dalmatia: Fiteles, Fittio and Fitus. *Fitus* seemed to fit best to the text layout of the stamp.
- 46 Search of the *EDR* (Epigraphic Database Rome, accessed 30/8/2020) turned up 24 inscriptions from Italy mentioning *Muttieni* (12 of which are from *Regio II*); one of these is from Pola in Histria (*CIL*, V, 8139) where one member of that gens was a *duumvir*. Cf. Kusik 2020, 159.
- 47 ILug 2899. Search of the EDH (Epigraphic Database Heidelberg, accessed 30/8/2020) confirms the data from OPEL (III, 92) and Alföldy (1969, 101). Cf. Kusik 2020, 159.
- 48 Cf. e.g. Pedišić & Podrug 2008, 100; Juras & Jurković Pešić 2016, 57; Silajdžić 2018, 233, n. 6.
- 49 Cf. Lipovac Vrkljan & Konestra 2018, 14, 25.
- 50 Lipovac Vrkljan & Konestra 2018, 24f.; Ilkić 2018; cf. Škegro 1991, 222; Pietruszka & Wypijewski 2016, n. 29 at p. 285; Konestra *et al.* 2020.

Plemići Bay, such as an Augustan coin (c. 25 BC)<sup>51</sup>, could indicate an equally early organisation of this estate as well.

More substantial production seems to have generally lasted no later than the 2nd century AD, while smaller workshops, such as the ones in Podšilo-Lopar on the Island of Rab or Rakitnica (Vodice), might perhaps indicate later, small scale production, just as it is supposed for most of the kilns in the province's hinterland<sup>52</sup>, though much more data is needed to fully understand these developments. Production revival in some areas can be observed in 3rd–4th centuries, as in Salona during the construction of the Diocletian's Palace<sup>53</sup> or in Ljusina and Mogorjelo in the provincial interior<sup>54</sup>.

In any case, early production onset of especially tiles and other building materials is indicative of an equally early onset of Roman rural estates, and thus the organisation of rural areas along with that of the urban ones<sup>55</sup>, which does not, as it would now seem, differ much from the chronology of adjacent regions, such as Histria (Italian Tenth region), where senatorial estates (similar to the estate in Caska) occur as early as Augustan times<sup>56</sup>. It also points to a skilful appropriation of local resources and, in some cases, good knowledge of the market's needs. In fact, when known, production seems to favour areas rich with natural resources, primarily clay<sup>57</sup>, while the distribution of larger scale workshops shows a capillary, though local/regional presence<sup>58</sup>. Also, foreign investment would seem to be detectable by analysis of stamps<sup>59</sup> and the sheer notion that Roman style ceramics were not produced within the late Iron Ages communities, just as no autochthonous shape was established within the repertoire of so far studied local productions<sup>60</sup>. Finally, newly collected data indicates that civilian and military production were fully detached and developed autonomously, notwithstanding their mutual trade and/or building activities performed by military personnel (e.g. finds of military stamps in Asseria and Salona and finds of civilian tiles in Burnum<sup>61</sup>).

51 Ilkić 2017, 106.

52 Škegro 1991, 222–223.

53 Wilkes 1969, 502.

54 Silajdžić 2018, 238–239 (Ljusina), 243 (Mogorjelo).

55 Cf. Derks 2011, 107–108 for Western provinces.

56 Kompare 2015, 114; Marion & Tassaux 2020.

57 Konestra & Lipovac Vrkljan 2018, 134–136; Lipovac Vrkljan & Konestra 2018, 25–28; Silajdžić 2018, 233; Pedišić & Podrug 2008, 104–105.

58 Konestra *et al.* forthcoming; cf. Pedišić & Podrug 2008, 104.

59 Cf. Wilkes 1969: 501. Although we lack firm evidence of foreign, presumably Italic origin for the majority of persons involved in local Dalmatian production, there are no such doubts about the senatorial Calpurnii Pisones from Caska. Italic origin of estate owners and/or *officinatores* is very plausible during the early stages of the Roman rule because the *villae rusticae* were complete novelty in the province, introduced by the Romans, which had changed as the Romanisation process progressed, so more and more local owners and/or *officinatores* may be expected in successive centuries.

60 Konestra & Lipovac Vrkljan 2018, 137.

61 Kurzmann 2005, 410, 413; Miletić 2011, 266, 273–274.

## CONCLUSION

Our knowledge on ceramics and pottery production in the Roman province of Dalmatia has recently been enriched thanks to the discovery of several workshops and new tile stamps, through re-evaluation of known data and dedicated studies of the product's typologies<sup>62</sup>. Though tile stamps, formerly the only testimony of provincial ceramic building material production, had in the past received great attention<sup>63</sup>, reassessing them in light of the aforementioned new data allowed us to propose several new interpretations and conclusions. These were aided by the so far only attested locally produced stamped amphorae discovered at Caska.

Firstly, a correlation of several stamps with confirmed workshop or presumed production locations allowed to determine the predominance of rural (estate) production versus the military one or even – for now still questionable – municipal. In some cases, it also allowed to propose a chronological phasing in workshop's existence. Such data offers plenty of information not only on the industry, but also on estates' organisation and their economy, and ownership.

Secondly, thanks to new stamps' discovery, a more detailed chronological seriation was possible, leading to the conclusion that private, civilian production must have preceded military ones, i.e. its setup can be dated to as early as pre-Augustan times. Consequently, the two productions should be regarded as detached, both from the point of view of their setup and industry development, the military one being later, and except for rare cases, solely devoted to internal consumption. Similar conclusions may be extended to the identified pottery production within the same milieu. On the other hand, finds of locally produced stamped amphorae confirm the production of both tiles and amphorae (and the associated foodstuffs) within the same estates, as already confirmed for the *saltus* at Crikvenica, and singled out for some adjacent regions, such as Histria<sup>64</sup>.

Finally, an indirect consequence of new stamp discoveries is the emergence of the possibility of senatorial or imperial estates being present in the province, more precisely in Liburnia. Interestingly, their onset could potentially be very early, i.e. before the division of Illyricum in two new provinces – Dalmatia and Pannonia (c. 10 AD) –, indicating a very early organisation of rural estates in the province, just as a keen interest of the Roman elite in acquiring land in the mentioned region.

62 Ožanić Roguljić 2012; Kurilić 2016; Grisonic 2017; Lipovac Vrkljan & Konestra 2018; Silajdžić 2018; Konestra *et al.* 2020.

63 See bibliography in Tables 1-3.

64 Lipovac Vrkljan & Konestra 2018, 28-30; Kompare 2015; Bulić & Koncani Uhač 2020, 74. For *Regio X* cf. Nonnis 1999, 85-86.

## TABLES 1-3

Table 1. Tile stamps associated with verified workshops.

Nr.	Tile stamps	Workshops/ Dating	Find spots	References
1	DE SALT̄ // SEX M̄TIL̄LĪ M̄AX (De salt(u) // Sex(ti) M(u)tilli Max(imi))	CRIKVENICA / 1st-2nd century	- CAPE MADONA (off the Island of Lošinj) - CICKINI (Island of Krkk) - CRIKVENICA - PREKO (Island of Ugljan) - SENIA (Senj) - SOLINE BAY (Island of Krkk) - TARSATICA (Rijeka)	Wilkes 1969, 501; 1979, 70; Jurjević 2010, 57-80; Lipovac Vrkljan 2009, 310; 2011, 8; Starac, R. 1990, 221- 222; Škegro 1999, 255.
2	EX. OF. L. TĚTĚ DE. ZEDES (Ex of(ficina) L(uci) Tetti De() (fundo?) Zedes(tis) or Ex of(ficina) L(uci) Tetti de Zedes)	PLEMIĆI BAY (near Ražanac)/1st- 2nd century	- AENONA (Nin) - CLAMBETAE(?) (Cvijina gradina near Kruševo) - PLEMIĆI BAY (near Ražanac) - IADER (Zadar)	Parica & Ilkić 2017, 105; Kusik 2020, 164.
3	[-]X̄ OF. T G[- -] F̄![- -] // ZEDESTI ([E]x̄ of(ficina) T(iti) G[al(li)?] F̄! [ti?]) // (fundo?) Zedesti(s?)	PLEMIĆI BAY (near Ražanac)?/ 1st- 2nd century	- AENONA (Nin) (Holly Cross church)	Kusik 2020, 166.
4	MVTTIENĪ	PLEMIĆI BAY (near Ražanac) / 1st-2nd century	- AENONA (Nin) - ARGYRUNTUM - CLAMBETAE(?) (Cvijina gradina, near Kruševo) - IADER (Zadar) - PLEMIĆI BAY (near Ražanac) - unknown (Liburnia?) - in Archaeological Museum Zadar) - unknown (Liburnia?) - (Archaeological Museum Split)	CIL, III, 10186.15; Bulić 1885, 109; Wilkes 1979, 70-71; Škegro 1999, 255; Parica & Ilkić 2017, 105; Juras & Jurković Pešić 2017, 61; Kusik 2020, 159.



*Table 2. Tile stamps associated with presumed local workshops and/or locally distributed.*

Stamps are here presented in two groups: I. tiles with consular dates, and II. other civilian stamps – not listed in the first group or in Table 1.

Stamps are listed in the alphabetical order of a nomen gentilicium or of a cognomen if gentilicium is lacking; after that follow the fragmentary stamps that could not have been attributed with certainty to any onomastic element (alphabetically, according to the first preserved letter).

Nr.	Tile stamps	Possible workshop location / Dating	Find spots	References
1	LIBON[---] (Libo[ne co(n)s(ule)])(?)	CISSA (Caska, Island of Pag)(?) / perhaps 34 BC	- CISSA (Caska, Island of Pag)	Unpublished.
2	[C]AESAR III COS ([C]aesar(e) (tertium) co(n)s(ule))	CISSA (Caska, Island of Pag)(?) / 31 BC	- CISSA (Caska, Island of Pag)	Kurilić 2011, 411-412; 2016, 377-379; Grisonic 2017, 72-73.
3	SEX APPVLEIO. COS (Sex(to) Appuleio co(n)s(ule))	CISSA (Caska, Island of Pag)(?) / most probably 29 BC	- CISSA (Caska, Island of Pag) - MIRINE (Roman aqueduct Kolan-Caska, Island of Pag) - perhaps also AENONA (Zaton) (?)	Grisonic 2017, 72; Juras & Jurković Pešić 2017, 65-66 with earlier bibliography.
4	AV(?) or X(?)		- MALI MOŠUNJ near Vitez	Škegro 1991, 231; Silajdžić 2018, 233, n. 8 with earlier bibliography.
5	BISTVES	BUGOJNO(?) / 2nd and early 3rd century(?)	BUGOJNO	Škegro 1991, 231 with earlier bibliography.
6	BYRRI		- BIBINJE (near Zadar) - SALONA area	Juras & Jurković Pešić 2017, 64 with earlier bibliography.

Nr.	Tile stamps	Possible workshop location / Dating	Find spots	References
7	CENR	GRČINE(?)	- GRČINE–Potoci, close to Mostar	Škegro 1991, 229 with earlier bibliography; Silajdžić 2018, 233, n. 8.
8	P. COIEDI		- AENONA (Nin) - IADER (Zadar) or its vicinity - CLAMBETAE(?) (Kruševo near Obrovac)	Kusik 2020, 156–157 with earlier bibliography.
9	CONSTA[---]	KOVAČIĆI (Sarajevo)(?) or in the wider Sarajevo area(?) / 3rd century(?)	SARAJEVO (Kovačići and former cemetery Vasiljeva Bašča)	Škegro 1991, 230; Silajdžić 2018, 236–237 with earlier bibliography.
10	[?] CRESC[---] ([?] Cresce[nti?])		- ASSERIA (Podgrađe near Benkovac)	Juras & Jurković Pešić 2017, 66.
11	DALMATIA / DALMATIA	SALONA(?)	- DIOCLETIAN'S PALACE (Split) - SALONA	CIL, III, 10183.16 + p. 2328.178; Wilkes 1979, 71.
12	DOCL(?)	DOCLEA(?)	- DOCLEA (near Podgorica)	Bešić et al. 1967, 167; cf. Škegro 1999, 259.
13	M. EVPROPES		- SALONA - SALONA or TRAGURIUM - unknown (central Dalmatia?) – in Archaeological Museum Split - unknown (Liburnia?) – in Archaeological Museum Zadar)	CIL, III, 3214.5; Juras & Jurković Pešić 2017, 64, with earlier bibliography.
14	M. IPPOLITVS	SALONA(?)	- SALONA	Wilkes 1969, 501.
15	IVNI[-]A // [- -] ENAE	GRČINE(?)	- GRČINE near Potoci, close to Mostar	Patsch 1904, 264–265.
16	AISINO[-?] or [-?]ONISIV(?)		- ISLAND OF ŽIRJE	Pedišić & Podrug 2008, 101.

Nr.	Tile stamps	Possible workshop location / Dating	Find spots	References
17	P. LVRI FIRMI	RISINIUM (?)	- RISINIUM - TIVAT (Boka Kotorska)	CIL, III, 10183.31; CIL, III, 3214.19 + p. 2328.178; Wilkes 1969, 502.
18	M. LVTASIVS	SALONA(?)	- SALONA	Wilkes 1969, 501.
19	L. MALTINI ABASCANTI	SALONA? / 1st century AD	- IADER (Zadar) - PROBOJ near Ljubuški - SALONA	CIL, III, 3214.9 + p. 2328.19; Wilkes 1969, 501-502; Škegro 1991, 230; Pedišić & Podrug 2008: 103; Juras & Jurković Pešić 2017, 60-61.
20	NIMIXAM (Maximin(i))	KOVAČIĆI (Sarajevo) (?) or in the wider Sarajevo area? / 3rd century(?)	SARAJEVO (Kovačići and former cemetery Vasiljeva Bašča)	Škegro 1991, 230; Silajdžić 2018, 235-237 with earlier bibliography.
21	PAR	/ 1st century AD(?)	- DUBRAVICE (near Skradin)	Pedišić & Podrug 2008, 100-101.
22	SALONIANI (Saloniani(?) or Saloniana(?))	SALONA(?)	- RIDER (Danilo near Šibenik) - SALONA	Pedišić & Podrug 2008, 101-102 with earlier bibliography.
23	SERVILIA	STOLAC(?)	- PODGRAD (Stolac)	Patsch 1904, 284 (CIL, III, 15114.2).
24	SONIAN		- RIDER (Danilo near Šibenik)	Pedišić & Podrug 2008, 101.
25	TRÁGVLAE		- AENONA (Nin) - ASSERIA (Podgrađe near Benkovac) - IADER (Zadar) - POLAČA (between Benkovac and Biograd) - unknown (Liburnia?) – in Archaeological Museum Zadar)	Juras & Jurković Pešić 2017, 61-62, with earlier bibliography.

Nr.	Tile stamps	Possible workshop location / Dating	Find spots	References
26	VRSACI		- IADER (Zadar) - SALONA(?) (Kaštel Novi, between Solin and Tragurium) - SALONA area	CIL, III, 14336; Juras & Jurković Pešić 2017, 64-65, with earlier bibliography.
27	M VĪB. C[---]		- KREHIN-GRADAC near Mostar	Patsch 1904, 282; Škegro 1991, 230.
28	VOLV[---]		- VARVARIA (Bribir near Skradin) - unknown (Archaeological Museum Split)	Pedišić & Podrug 2008, 101 with earlier bibliography.
29	[?]CAI. LI[---]	GRČINE(?)	- GRČINE near Potoci, close to Mostar	Patsch 1904, 264-265; cf. Škegro 1991, 229.-
30	[---]NĒ	GRČINE(?)	- GRČINE near Potoci, close to Mostar	Patsch 1904, 264-265; cf. Škegro 1991, 229.
31	[---]NIVS[?] or [---]MIVS[?]	DOMAVIA (Srebrenica) area(?)	- DOMAVIA (Srebrenica)	Silajdžić 2018, 233, n. 8 with earlier bibliography.
32	MODESTI. A		- AENONA (Nin) - IADER (Zadar) - VEGIUM (Drvišica near Karlobag)	Matijašić 1989, 67; Škegro 1999, 256; Pedišić & Podrug 2008, 103; Juras & Jurković Pešić 2017, 60-61.

*Table 3. Stamps of military units  
(data compiled after Tončinić 2009, 1447-1456; Tončinić et al. 2011, 361-365;  
Škegro 1991, 224; cf. also Miletić 2011, 264-271)*

Nr.	Tile stamp	Production site / Dating	Find spots
1	LEG VII C P F	TILURIUM(?) / post 42 AD to c. 56 AD (or little later)	AEQUUM
			TILURIUM TILURIUM(?)
			Unknown (Sinj area?)
2	LEG XI C P F	BURNUM – at Smrdelji / post 42 AD to c. 68/69 AD	BURNUM
			SALONA
			TILURIUM TILURIUM(?)
			VARVARIA and surroundings
3	LEG IIII F F	BURNUM(?) / c. 70 to 86 AD	ANDETRIUM
			ASSERIA
			BIGESTE (?) Vitina (by Bigeste)
			BURNUM
			PROMONA
			SALONA
			TILURIUM TILURIUM(?)
			Unknown
4	LEG VIII AVG	BURNUM(?) / of not certain stay – perhaps c. 86–118 AD	ASSERIA
			BURNUM
			BIGESTE VITINA (by Bigeste)
			DELMINIUM
			GRADNIĆI by Čitluk (near Mostar)
			Unknown



Nr.	Tile stamp	Production site / Dating	Find spots
5	L XIII G (L(egionis) XIII G(eminae))		CRKVINA near Velika Kladuša
6	COH VIII VOL C R	TILURIUM(?) / mid 2nd - mid 3rd cent. AD(?)	AEQUUM
			ANDETRIUM
			BIGESTE
			SALONA and its ager
			SALONA(?)
			TILURIUM
			Unknown (Sinj area?)
7	COH III ALP	unknwnown production centre / 2nd cent. AD(?)	TILURIUM TILURIUM(?)
8	COH I BELG		BIGESTE

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