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serie nouă



**IX/2023**

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ISSN 2457 – 3809

ISSN – L 2457 – 3809

<https://cicsaunibuc.wordpress.com/revista/revista-online>

In memoriam

LIGIAE BÂRZU

(1930-2003)

archaeologist and professor

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# A brief discussion about the circulation of North-Italic *Firmalampen* marks found in Roman Dobrudja

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<https://www.doi.org/10.31178/cicsa.2023.9.5>

**Abstract:** Regarding ancient clay lamps, one can only be impressed by the variety and creativity involved in certain types. Out of the numerous types of lamps that have been discovered and catalogued during past centuries, one particular category sparks interest in those who research the activity of this industry, and that is *Firmalampen*. This paper aims to start a new discussion regarding some aspects around the presence of this special type of lamps in ancient Dobrudja, part of the province of *Moesia Inferior*, mainly about the circulation of the North-Italic marks in this region, the trade and the local production. By comparison with other parts of the Empire, we can acknowledge some potential regional particularities and preferences of the population towards a widely spread product.

**Keywords:** Firmalampen, Moesia Inferior, Roman trade, pottery workshops, stamps.

## Introduction

Known in the scientific literature as *Firmalampen*, the ancient lamps with producer's mark on them represent a special category of lighting tools. The engraving of potter's name on the base of the lamp is first recorded on second century BC Greek lamps,<sup>1</sup> but this phenomenon became increasingly more popular on the Roman lamps, especially in the first three centuries AD.<sup>2</sup> The Roman craftsmen used to mark their products in different ways, serving today as a good indicator for the place of origin of these goods.

*Firmalampen*, the name originally used by O. Fischbach to describe the lamps with the manufacturer's name,<sup>3</sup> are today generally associated with the lamps classified by S. Loeschcke in types IX and X, the typology developed for the discoveries from Vindonissa.<sup>4</sup> From the thicker

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<sup>1</sup> Howland 1958, 214-220.

<sup>2</sup> Aubert 1994, 303.

<sup>3</sup> Fischbach 1896, 10-11.

<sup>4</sup> For a detailed overview see Loeschcke 1919, 255-272.

*CICSA JOURNAL online*, NS, 9/ 2023 ; <https://www.doi.org/10.31178/cicsa.2023.9.5>

walls of these two types of lamps that could prevent spillage<sup>5</sup> and the shape that enabled multiple pieces to be stacked one on top of each other, we can assume that, in their production, the emphasis was put on functionality, so the utilitarian character was more representative for *Firmalampen* rather than the stylistic one. Nevertheless, the iconographic repertoire of the depictions on the discus is still fascinating and diverse, with religious, political, social, anthropomorphic, zoological and vegetal patterns.

The production of *Firmalampen* started in the first century AD, in *Regio VII Aemilia*, in the workshops near *Mutina* (nowadays Modena) in the north of Italian peninsula.<sup>6</sup> *Regio VII Aemilia* was an important production center, with a high crafting activity, being the Italic region with the most pottery kilns discovered, at this moment.<sup>7</sup> The North-Italic workshops are amongst the most successful Early Roman pottery workshops, producing a multitude of high-quality products, with a large diffusion of traded goods. As evidence for the reputation that *Mutina* had in the pottery domain, there are some special types of marks which, along the producer's name, refer to the production center of *Mutina*, by using the phrase *MVTINA FECIT* (made in *Mutina*) in different forms.<sup>8</sup>

Lamps of this type circulated between the first and the fourth centuries AD,<sup>9</sup> being produced in workshops (called *officinae*) in Northern Italy. Following that, the production has expanded through branches, operated by agents (called *institores*), or through copies made by potters who acknowledged and took advantage of the popularity of the original marks, which certifies the importance of the stamps in the commercial and social context. The peak of production and commercialization of these lamps coincides with a rapid expansion of the Roman Empire, precisely the first two centuries AD, thus the provinces formed by Roman conquests have represented a new market for pottery producers. At the same time, the annexation of new territories translates into a good opportunity for new *officinae*.

Another factor that has contributed to a facile spread of *Firmalampen* is the manufacturing technique. These were made in moulds, a process which permitted a fast, standardized and, most importantly, qualitative production, as well as a quantitative potential much greater than hand

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<sup>5</sup> Frecer 2015, 109.

<sup>6</sup> Labate 2017a, 224-225.

<sup>7</sup> Cuomo di Caprio 1971, 443-457.

<sup>8</sup> For other variations of this expression see Labate 2017b, 235-236.

<sup>9</sup> Chrzanowski 2020, 216.

making or wheel-throwing. This technique of lamp making, alongside territorial expansion and development of commercial routes, resulted in an imperial scale industry, of which ramifications are now being reconstituted by archaeological research. Like other pottery products, oil lamps are part of a large and complex system of production, trade and usage, a concrete example of the concept of *chaîne opératoire*.<sup>10</sup>

In the case of Dobrudja, there are several published studies that approach this subject, the most notable ones being that of C. Iconomu,<sup>11</sup> F. Topoleanu<sup>12</sup> and D. Elefterescu,<sup>13</sup> that were of great help for this approach. Fortunately, the recent research brought to light new discoveries,<sup>14</sup> and with that new pieces that enrich the current situation. By including those new finds, we can proceed in an actualization of previous works.

In this study, it will be also taken into consideration the discoveries made in the archaeological excavations from Barboși, Galați, in the south of Moldova, because even though it is located outside of Dobrudja, the Roman *castrum* of Barboși is relevant for a better understanding of distribution and usage of *Firmalampen*. Therefore, in the following, we will present the marks of certified North-Italic lamp producers discovered in Dobrudja, in order to bring some considerations on the import and local production of *Firmalampen* in this region.

### **North-Italic marks found in Scythia Minor**

The territory between the Lower Danube and the Black Sea, *Scythia Minor* as described by Strabo, was an area of strategic interest for the Roman Empire. The Pontic cities came under Roman control in the 1<sup>st</sup> century BC through the campaign of Crassus, and the entire territory of *Scythia Minor* was integrated into the Empire during the reign of Vespasian, within the province of *Moesia*. Later, under emperor Domitian, the province of *Moesia* was divided into two, with Dobrudja becoming part of the newly created province of *Moesia Inferior*. After troops and colonists settled in the newly conquered region, military and civilian centers emerged and developed, laying the foundations for the new society. While initially imports of goods from the

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<sup>10</sup> Poblome, Malfitana, Lund 2012, 1-2.

<sup>11</sup> For *Firmalampen* in Dobrudja see Iconomu 1986, 29-45.

<sup>12</sup> For *Firmalampen* in Dobrudja see Topoleanu 2010, 151-188.

<sup>13</sup> For *Firmalampen* from *Durostorum-Ostrov* (Ferma 4) see Elefterescu 2016, 159-182.

<sup>14</sup> Chrzanovski 2020, 215-262; Topoleanu 2016, 63-116.



West of the empire could meet the needs of customers, especially those in the military, from the 2<sup>nd</sup> century AD onwards, local products began to dominate the market.

Unfortunately, the marks of North-Italic manufacturers discovered so far in Dobrudja are not as numerous and diverse as those of the other provinces,<sup>15</sup> mainly due to the lack of published material, but they still represent a very important source of information at a general level and a reference for the circulation of lamps in one of the Empire's peripheries. For the enumeration of the stamps found in Dobrudja, it will be considered not only the imported ones, but also the local products that bare the mark of the North-Italic producers. By including the local products, of which the vast majority is categorised as imitations made by potters unrelated to their Italic counterparts, we can start a discussion revolved around the subject of counterfeit marks.

Based on the published finds of *Firmalampen* from Dobrudja, we have chosen a lot of 345 pieces based on which we can draw some conclusions about the most common types of North-Italic *officinae* stamps, as well as the contexts in which most finds took place. Before presenting the results obtained, it should be noted that the number chosen does not claim to be the total number of finds but constitutes the majority of published material. Thus, among the North-Italic *Firmalampen* stamps attested by archaeological research in Dobrudja, both on imported and locally made lamps, we present the following:

#### *APOLAVSI*

Lamps with his stamp are found in Dobrudja through discoveries made at *Durostorum-Ostrov* (Ferma 4).<sup>16</sup> Apolaustus' mark circulated between the first two centuries AD but did not enjoy a popularity similar to that of other North-Italic producers<sup>17</sup>.

#### *ATIMETI*

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<sup>15</sup> For example, the case of the Dacian provinces, where *Firmalampen* are far more numerous than in Dobrudja, see below.

<sup>16</sup> Elefterescu 2016, 164; from now on in the text it will be referred as *Durostorum-Ostrov*, to differentiate between the point from Ferma 4 and the *castrum* of *Durostorum*, now in Silistra, Bulgaria.

<sup>17</sup> Gostar 1961, 27-28. Notable examples of more popular producers are Fortis, Strobilius, Octavius, Cassius etc., see below.

A lamp with the mark of Atimetus was discovered at Barboși, initially interpreted as a local imitation.<sup>18</sup> Possible workshops in Dacia<sup>19</sup> and Pannonia<sup>20</sup> are attributed to Atimetus. His stamp circulated between the 1<sup>st</sup> century and the first decades of the 2<sup>nd</sup> century AD.<sup>21</sup>

### *CAMPILI*

*Firmalampen* with his name appear in Dobruđja at *Durostorum-Ostrov*.<sup>22</sup> The lamps produced in the workshops of Campilius have a low numerical diffusion in the West.<sup>23</sup> His mark circulated between the 2<sup>nd</sup> and the beginning of the 3<sup>rd</sup> century.<sup>24</sup>

### *CASSI*

Lamps with Cassius' stamp have been found at *Dinogetia*,<sup>25</sup> *Durostorum-Ostrov*,<sup>26</sup> *Noviodunum*,<sup>27</sup> *Tomis*,<sup>28</sup> and at *Troesmis*.<sup>29</sup> Lamps bearing his stamp circulated between the 2<sup>nd</sup> and 3<sup>rd</sup> centuries AD.<sup>30</sup>

### *C. DESSI*

Of the lamps with his stamp in Dobruđja, only a small number have been found in *Durostorum-Ostrov*,<sup>31</sup> unlike in the rest of the Empire, where they enjoyed a notable spread.<sup>32</sup> The production of lamps with his stamp began in the 2<sup>nd</sup> century AD and continued until the beginning of the 4<sup>th</sup> century, making it one of the longest-lived *Firmalampen* marks circulating throughout the Empire,<sup>33</sup> alongside Fortis.

### *DECIMI/DECIM*

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<sup>18</sup> Sanie 1981, 164-165, no. 25; Tudor 1953, 479-481.

<sup>19</sup> Bocan, Neagu 2015, 126.

<sup>20</sup> Frecer 2015, 265.

<sup>21</sup> Gostar 1961, 28; Loeschcke 1919, 273-274.

<sup>22</sup> Elefterescu 2016, 167.

<sup>23</sup> Gostar 1961, 177-178.

<sup>24</sup> Buchi 1975, 16-17; Loeschcke 1919, 296.

<sup>25</sup> Iconomu 1986, 33.

<sup>26</sup> Elefterescu 2016, 168-170.

<sup>27</sup> Baumann 2009, 220, cat. no. 2.

<sup>28</sup> Iconomu 1986, 33.

<sup>29</sup> Opař 1980, 342.

<sup>30</sup> Buchi 1975, 19-21.

<sup>31</sup> Elefterescu 2016, 170.

<sup>32</sup> Gostar 1961, 178.

<sup>33</sup> Gostar 1961, 178.

His mark is present in Dobrudja through discoveries at *Durostorum-Ostrov*.<sup>34</sup> The location of Decimus' workshop is disputed (some researchers believe to originate from Northern Italy,<sup>35</sup> and some argue for a Pannonian origin<sup>36</sup>), the products seem to be more popular in the East of the empire than in the West.<sup>37</sup> Lamps with Decimus' stamp circulated between the late 2<sup>nd</sup> century and the 3<sup>rd</sup> century AD.<sup>38</sup>

#### *FAVOR/FAOR*

Lamps with the stamp of Favorianus are known from *Durostorum-Ostrov*<sup>39</sup> and *Tomis*.<sup>40</sup> His mark is dated between the 2<sup>nd</sup> and 3<sup>rd</sup> centuries AD.<sup>41</sup>

#### *FESTI*

The mark of Festus can be found on the lamps discovered at *Durostorum-Ostrov*.<sup>42</sup> It circulated between the second half of the 2<sup>nd</sup> century and the beginning of the 3<sup>rd</sup> century AD.<sup>43</sup>

#### *FORTIS*

His stamp is the most common in Dobrudja, as it is in the rest of the empire.<sup>44</sup> Being the most prolific producer of stamped lamps, his workshop was located at Savignano sul Panaro,<sup>45</sup> where a tegula with the inscription L. AEMILIVS/FORTIS<sup>46</sup> was discovered. Fortis is also the manufacturer credited with the invention of the Loeschcke X type.<sup>47</sup> Lamps bearing his name have been discovered at *Arrubium*,<sup>48</sup> Barboși,<sup>49</sup> *Carsium*,<sup>50</sup> *Dinogetia*,<sup>51</sup> *Durostorum-Ostrov*<sup>52</sup>

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<sup>34</sup> Elefterescu 2016, 170-171.

<sup>35</sup> Loeschcke 1919, 296.

<sup>36</sup> Gostar 1960, 189; Iványi 1935, 33.

<sup>37</sup> Elefterescu 2016, 170.

<sup>38</sup> Roman 2006, 60.

<sup>39</sup> Elefterescu 2016, 171.

<sup>40</sup> Iconomu 1986, 35.

<sup>41</sup> Roman 2006, 61-62.

<sup>42</sup> Elefterescu 2016, 171.

<sup>43</sup> Roman 2006, 63.

<sup>44</sup> Iconomu 1986, 36-37.

<sup>45</sup> Loeschcke 1919, 496.

<sup>46</sup> Buchi 1975, 65; Topoleanu 2010, 161.

<sup>47</sup> Topoleanu 2015, 83.

<sup>48</sup> Paraschiv 1997, 324.

<sup>49</sup> Iconomu 1986, 36.

<sup>50</sup> Nicolae 1994, 199-203, cat. nos. 2-3.

<sup>51</sup> Petolescu 1971, 665.

<sup>52</sup> Elefterescu 2016, 173-175.

and *Troesmis*.<sup>53</sup> The mark appeared at the end of the first century AD, and copies bearing his stamp have been discovered even in the 4<sup>th</sup> century.<sup>54</sup>

#### *IANVARI*

Lamps with the stamp of Ianuarius are found at Barboși,<sup>55</sup> *Durostorum-Ostrov*,<sup>56</sup> *Flaviana*,<sup>57</sup> *Noviodunum*,<sup>58</sup> and at *Tropaeum Traiani*.<sup>59</sup> After the discovery of several variants of the Ianuarius stamp in Dacia, and multiple pieces resembling the manufacture from the same mould<sup>60</sup> it is quite probable that there were workshops producing lamps with his mark in the Dacian provinces<sup>61</sup>. His mark circulated between the 2<sup>nd</sup> and 3<sup>rd</sup> centuries AD.<sup>62</sup>

#### *IEGIDI*

*Firmalampen* signed with the mark of Iegidus have been found at Barboși<sup>63</sup> and *Durostorum-Ostrov*.<sup>64</sup> The circulation of the stamp dates between the 2<sup>nd</sup> and 3<sup>rd</sup> centuries AD<sup>65</sup>.

#### *LVCIVS*

His stamp is found on lamps from *Durostorum-Ostrov*<sup>66</sup> and *Sacidava*.<sup>67</sup> Lucius' mark circulates between the 2<sup>nd</sup> and 3<sup>rd</sup> centuries AD.<sup>68</sup>

#### *LVPATI*

Lamps with Lupatius' stamp are known from, and *Durostorum-Ostrov*,<sup>69</sup> *Noviodunum*<sup>70</sup> and *Sacidava*.<sup>71</sup> These circulated between the early 2<sup>nd</sup> and the 3<sup>rd</sup> centuries AD<sup>72</sup>.

#### *NERI*

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<sup>53</sup> Topoleanu 2015, 81-83, cat. nos. 37-43.

<sup>54</sup> Čičikova 1974, 158; Topoleanu 2015, 83.

<sup>55</sup> Sanie 1981, 166, cat. no. 35.

<sup>56</sup> Elefterescu 2016, 175-176.

<sup>57</sup> Iconomu 1986, 37-38.

<sup>58</sup> Baumann 2009, 222, cat. no. 4.

<sup>59</sup> Iconomu 1986, 37.

<sup>60</sup> Topoleanu 2010, 166; Alicu 1994, 26.

<sup>61</sup> Bocan, Neagu 2015, 131-132; Gostar 1961, 183.

<sup>62</sup> Baumann 2009, 222.

<sup>63</sup> Sanie 1981, 166, cat. nos. 37-38.

<sup>64</sup> Elefterescu 2016, 176.

<sup>65</sup> Iconomu 1986, 38.

<sup>66</sup> Elefterescu 2016, 176.

<sup>67</sup> Scorpan 1973, 228.

<sup>68</sup> Roman 2006, 65-66.

<sup>69</sup> Elefterescu 2016, 176.

<sup>70</sup> Baumann 2009, 223, cat. no. 6.

<sup>71</sup> Scorpan 1973, 228.

<sup>72</sup> Gostar 1961, 184.

The Nerius' lamps are found at *Durostorum-Ostrov*.<sup>73</sup> They were produced by Nerius' workshops and circulated between the beginning of the 2<sup>nd</sup> century and the 3<sup>rd</sup> centuries AD.<sup>74</sup>

#### *OCTAVI*

Lamps with the mark of Octavius have been found at *Arrubium*,<sup>75</sup> Barboși,<sup>76</sup> *Durostorum-Ostrov*,<sup>77</sup> *Noviodunum*,<sup>78</sup> *Tomis*,<sup>79</sup> *Troesmis*.<sup>80</sup> They've circulated between the 1<sup>st</sup> and 2<sup>nd</sup> centuries AD.<sup>81</sup>

#### *PROCLI*

In Dobrudja, this mark is found at Barboși,<sup>82</sup> *Carsium*<sup>83</sup> and *Durostorum-Ostrov*.<sup>84</sup> The *officina* of Proculus/Proculinus was active in the 2<sup>nd</sup> century AD.<sup>85</sup>

#### *SEXTI*

His stamp appears on lamps from *Arrubium*<sup>86</sup>, *Durostorum-Ostrov*<sup>87</sup>, *Noviodunum*<sup>88</sup> and Poșta.<sup>89</sup> Lamps with his mark were produced throughout the 2<sup>nd</sup> century AD.<sup>90</sup>

#### *STROBILI*

Lamps with his mark have been discovered at *Durostorum-Ostrov*,<sup>91</sup> *Flaviana*,<sup>92</sup> *Tomis*<sup>93</sup> and *Troesmis*.<sup>94</sup> Although Strobilus is one of the most popular and widespread producers in Northern Italy, his stamp is rarely found in Dobrudja.<sup>95</sup> It circulated between the 1<sup>st</sup> and 3<sup>rd</sup> centuries AD.<sup>96</sup>

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<sup>73</sup> Elefterescu 2016, 176-177.

<sup>74</sup> Gostar 1961, 184-185.

<sup>75</sup> Paraschiv 1997, 324.

<sup>76</sup> Sanie 1981, 166-167, cat. nos. 39-40.

<sup>77</sup> Elefterescu 2016, 177.

<sup>78</sup> Baumann 2009, 223, cat. no. 7.

<sup>79</sup> Iconomu 1986, 39.

<sup>80</sup> Topoleanu 2015, 84, cat. no. 43.

<sup>81</sup> Elefterescu 2016, 177.

<sup>82</sup> Sanie 1981, 167, cat. no. 41.

<sup>83</sup> Nicolae 1994, 199, cat. no. 1.

<sup>84</sup> Elefterescu 2016, 178.

<sup>85</sup> Topoleanu 2010, 172.

<sup>86</sup> Iconomu 1986, 41.

<sup>87</sup> Elefterescu 2016, 179.

<sup>88</sup> Baumann 2009, 225, cat. no. 13a.

<sup>89</sup> Paraschiv, Nuțu 2012, 288, cat. no. 3.

<sup>90</sup> Gostar 1961, 186.

<sup>91</sup> Elefterescu 2016, 179-180.

<sup>92</sup> Iconomu 1967, cat. no. 188.

<sup>93</sup> Iconomu 1967, cat. no. 187.

<sup>94</sup> Topoleanu 2015, 84-85, cat. nos. 44-45.

<sup>95</sup> Iconomu 1986, 41.

<sup>96</sup> Gostar 1961, 186.

**VETTI**

His mark is attested in Dobruđja by discoveries at *Axiopolis*,<sup>97</sup> Barboși,<sup>98</sup> *Durostorum-Ostrov*<sup>99</sup> and *Tomis*.<sup>100</sup> Lamps signed by Vettius circulated between the 2<sup>nd</sup> and 3<sup>rd</sup> centuries AD.<sup>101</sup>

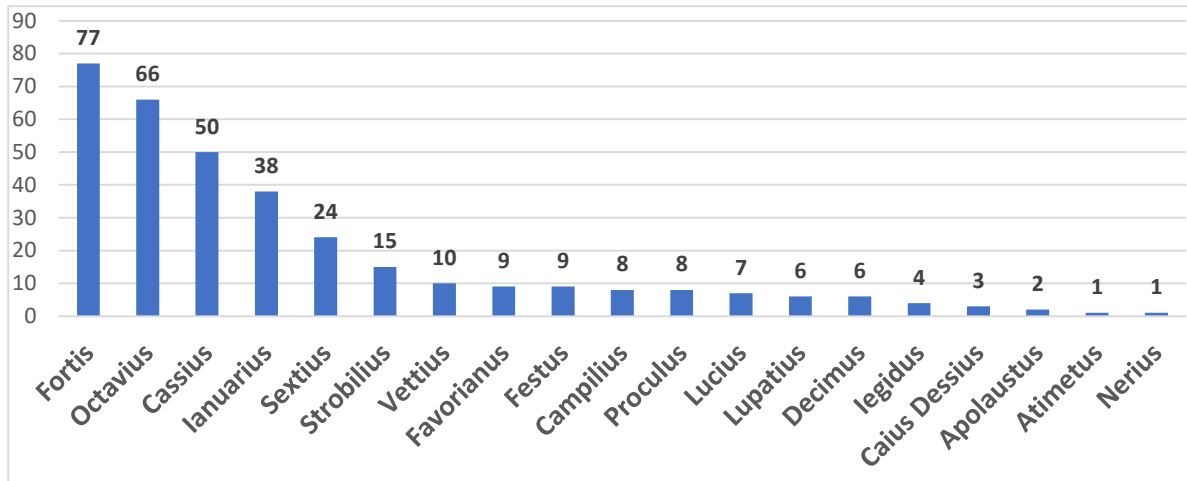


Table 1. The number of stamped lamps of each North-Italic *Firmalampen* producer found in Dobruđja.

**Considerations about the usage and trade of *Firmalampen***

H. Eckardt proposed a model for the contextual interpretation of lamps in Roman Britain as a manifestation of identity,<sup>102</sup> grouping the number of Loeschcke XI type oil lamps according to the spatial character in which they were used, establishing the following contextual categories: military sites, large urban centres, small urban centres and rural sites.<sup>103</sup> The model, as the author mentions, is intended to provide an overview of the cultural context in which they were used, but the attempt to compartmentalize these contexts entails some problems, such as a rigid analysis of a dynamic phenomenon, namely the interconnectedness of these categories. For example, the site of *Durostorum-Ostrov* (Ferma 4) is a civil settlement, but with a strong economic and social relationship to the military domain,<sup>104</sup> so we cannot fully dissociate the above-mentioned contexts from each other.

<sup>97</sup> Rădulescu 1975, 343.

<sup>98</sup> Sanie 1981, 167, cat. no. 43.

<sup>99</sup> Elefterescu 2016, 180.

<sup>100</sup> Iconomu 1986, 42.

<sup>101</sup> Gostar 1960, 187.

<sup>102</sup> Eckardt 2000, 8-21.

<sup>103</sup> Eckardt 2000, 9-10.

<sup>104</sup> Băltăc 2018, 211-222; Elefterescu 2016, 161; Mușețeanu, Elefterescu 2004, 95-142.

We will not use Eckardt's model of interpretation in the case of *Scythia Minor*, firstly because of the lack of a clear context for our pieces in question, and secondly, as we've already mentioned, this model has certain limitations in terms of understanding the circulation and usage of lamps. However, we will point out that the vast majority of *Firmalampen* oil lamps come from urban contexts.

Lamps are also a commonly found artefact category in ancient burials, as part of the grave goods. L. Chrzanowski presents in a study the popularity of *Firmalampen* in funerary contexts in the necropolises from south of France and from Slovenia, where they are found in varying proportions (between 45 and even 95%) of all lamps deposited in graves.<sup>105</sup> Compared to the situation in Dobrudja, the discrepancy is obvious. Of the 345 *Firmalampen* batch proposed for analysis, less than 3% come from burial contexts. They come from the graves of *Axiopolis*,<sup>106</sup> *Carsium*,<sup>107</sup> *Noviodunum*,<sup>108</sup> *Pošta*<sup>109</sup> and *Tomis*.<sup>110</sup>

Even if the actual number of *Firmalampen* in the *necropoleis* of Dobrudja must be higher, the difference compared to those in Western burials is still huge. Only the future research and the eventual publication of the results can give us a better picture of the real situation. This high contrast raises questions as to the nature of the reasons why we have such a low percentage of *Firmalampen* in funerary contexts for *Scythia Minor*. Is it possible that the Roman population of modern-day Slovenia perceived this type of lamp as grave goods with intrinsic value, unlike that of Dobrudja? Or perhaps the explanation has economic reasons behind it, namely that imported goods from the West would have cost more to transport, so that their usage was preferred rather than their deposition in graves?

A key element for the study of *Firmalampen* products is transport. Specifically, the way in which the oil lamps are traded over long distances, often in provinces far from the original production centre in Northern Italy. Since the lamps that bear the mark of the above-mentioned manufacturers were found throughout the Empire, determining the routes that made possible such a significant transport, in terms of distance and quantity of the products, it's a major aspect in the general understanding of the activity of this industry and its manifestation.

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<sup>105</sup> Chrzanowski 2020, 246-247, Table 4.

<sup>106</sup> Rădulescu 1975, 343.

<sup>107</sup> Nicolae 1994, 199, cat. no. 3.

<sup>108</sup> Baumann 2009, 220-223, cat. nos. 2, 4 and 6.

<sup>109</sup> Paraschiv, Nuțu 2012, 286, cat. no. 3.

<sup>110</sup> Ionomu 1967, 62, cat. no. 187.

In many scholarly works, the term ‘imports’ is often used for products made in a specific area, and then commercialized in other provinces or regions of the Roman Empire.<sup>111</sup> This terminology is used mainly from a compartmentalized approach to the subject at provincial level. Even if this term, ‘import’, is not necessarily in line with the Roman perspective, as pointed out by W. Harris,<sup>112</sup> we will keep on using the notion of ‘import’ to refer to the lamps that are found in *Moesia Inferior* but are produced in other provinces.

Throughout time various opinions have been expressed about the nature of long-distance transport of lamps in the Empire, and it still remains a topic for future debates. W. Harris argues that such transports would not have been economically feasible for several reasons, including the abundance of resources needed for manufacture, the ease with which they could be made, the cost of transport, etc.<sup>113</sup> In his view, the export of large quantities of *Firmalampen* from Northern Italy to other provinces, especially more remote ones, would not have been profitable, so most lamps would have to be made near where they were discovered. On the other hand, D. Bailey considers Harris' argument to be somewhat flawed in terms of how he approaches the subject, regarding long-distance trade as a frequent phenomenon.<sup>114</sup>

As D. Bailey points out in his critique of W. Harris' study, long-distance transport was made possible by sea and river routes,<sup>115</sup> and as such, the Roman economy benefited from the Empire's waterway network. The maritime trade of pottery goods is clearly attested by wrecks that also carried lamps, such as the one sunk near the Balearic Islands and containing lamps signed by Caius Clodius,<sup>116</sup> or the wreck on the Rhine,<sup>117</sup> which also carried plenty of *Firmalampen*, signed by both Italic and local Gallic manufacturers.<sup>118</sup> From Pliny the Elder we also have a written mention of the maritime transport of ceramic products from the workshops of *Mutina*, saying that they were traded ‘on land and sea’.<sup>119</sup> In the case of Dobrudja, the Danube River is an ideal environment for imports from the West.

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<sup>111</sup> Baumann 2009, 220; Chrzanovski 2020, 216; Elefterescu 2016, 178; Frecer 2015, 101; Topoleanu 2016, 64.

<sup>112</sup> Harris 1980, 126-145.

<sup>113</sup> Harris 1980, 133-136.

<sup>114</sup> Bailey 1987, 59-63.

<sup>115</sup> Bailey 1987, 61.

<sup>116</sup> Domergue 1966, 5-40.

<sup>117</sup> Arles-Rhône 3.

<sup>118</sup> Chrzanovski, Djaoui 2018, 55-198.

<sup>119</sup> Pliny the Elder, Book XXV, 161, pg. 379.



The main clientele of *Firmalampen*, especially when it comes to newly conquered territories, appears to be the military camps. A study based on the architecture and functionality of Roman military barracks indicates the use of artificial lighting instruments, as the natural light needed for the soldiers' daily activities would not have penetrated sufficiently into their rooms.<sup>120</sup> In order to procure a large quantity of lamps, there were two main ways of supplying the army: imports from the western market, or purchase from close, local manufacturers. At the same time, lamps imported into *Moesia Inferior* were also manufactured in the nearby provinces, mainly from the Dacian and Pannonian provinces, as well as *Moesia Superior*. In fact, the production of *Firmalampen* in the Dacian<sup>121</sup> and Pannonian<sup>122</sup> centres were much more active and well established than in *Moesia Inferior*.

In *Moesia Inferior*, during Early Roman period, were stationed the following legions: *Legio I Italica* (at *Novae*), *Legio V Macedonica* (at *Oescus* and *Troesmis*) and *Legio XI Claudia* (at *Durostorum*).<sup>123</sup> As there was no production to meet the needs in this region at the time of conquest, after the annexation of the territory in the middle of the 1<sup>st</sup> century, pottery from western imports was the majority until the end of the following century.<sup>124</sup> After the consolidation of Roman power in the region, provincial crafting workshops began to function and develop.<sup>125</sup>

A representative example is that of *Durostorum-Ostrov* (Ferma 4) point, which has by far the most specimens recorded in Dobrudja (see Table 2). In Ostrov, Constanța county, the *cannabae* of *Legio XI Claudia* have been identified and researched, a settlement with an intense craft activity, especially in the production of pottery. Among the products made in the workshops at *Durostorum-Ostrov* (Ferma 4) are also *Firmalampen* lamps stamped with the marks of the North-Italic manufacturers. Since the settlement operated in the vicinity of the legion's headquarters, the imitation of the marks by local artisans, who could therefore benefit financially from the presence of legionary troops, would have been an expected process, but the operation of branches should also be considered.

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<sup>120</sup> Petruț, Gui, Trîncă 2014, 66-88.

<sup>121</sup> For a detailed overview see Benea 2008, 301-340.

<sup>122</sup> For a detailed overview see Iványi 1935.

<sup>123</sup> For a detailed overview on the Roman army in *Moesia Inferior* see Matei-Popescu 2010, 35-163.

<sup>124</sup> Duch 2017, 189-195.

<sup>125</sup> For a detailed overview on the pottery workshops from *Moesia Inferior* see Nuțu 2019, 107-219.

Also, along with the above-mentioned legions, the Roman fleet (*Classis Flavia Moesica*), whose main headquarters was at *Noviodunum*,<sup>126</sup> was active in Lower Moesia. In addition to its military role, the Roman fleet also played an economic role in supervising the trade on the Danube River.<sup>127</sup> Consequently, it is to be expected that the fleet would have played a role in managing imports from the West, especially those aimed at military centres.

Places of <i>Firmalampen</i> discoveries	Number of pieces
<i>Durostorum</i> -Ostrov (Ferma 4)	294 pieces (85.22%)
Barboși	12 pieces (3.48%)
<i>Noviodunum</i>	8 pieces (2.32%)
<i>Troesmis</i>	7 pieces (2.02%)
<i>Tomis</i>	5 pieces (1.44%)
<i>Arrubium</i>	4 pieces (1.16%)
<i>Carsium</i>	4 pieces (1.16%)
<i>Dinogetia</i>	3 pieces (0.87%)
<i>Sacidava</i>	3 pieces (0.87%)
<i>Flaviana</i>	2 pieces (0.57%)
<i>Axiopolis</i>	1 piece (0.28%)
Poșta	1 piece (0.28%)
<i>Tropaeum Traiani</i>	1 piece (0.28%)

Table 2. *Firmalampen* discovered in Roman Dobrudja.

The fact that the vast majority of *Firmalampen* finds come from urban centers along or near the Danube River (Fig. 1) is another indicator of the likelihood of river transport. It is plausible to believe that, if not all of them, at least some of them also benefited from port facilities that would have facilitated the large transports of goods.<sup>128</sup> The wreck on the Rhine mentioned above is a significant example for the development of river trade, representing a small glimpse into the

<sup>126</sup> Bounegru, Zahariade 1996, 86-87; Matei 1991, 155; Matei-Popescu 2010, 245-257.

<sup>127</sup> Matei 1991, 146.

<sup>128</sup> Munteanu 2012, 213-218.

ancient trading routes. Chrzanovski is of the opinion that the imports of the lamps could have been concentrated in certain points and then redistributed in the area.<sup>129</sup> In this case, by having the headquarters of the fleet at *Noviodunum*, that was also a large commercial point, the transport and the eventual distribution to other centres could have been a possible scenario, considering the network of roads that connected the important urban settlements.

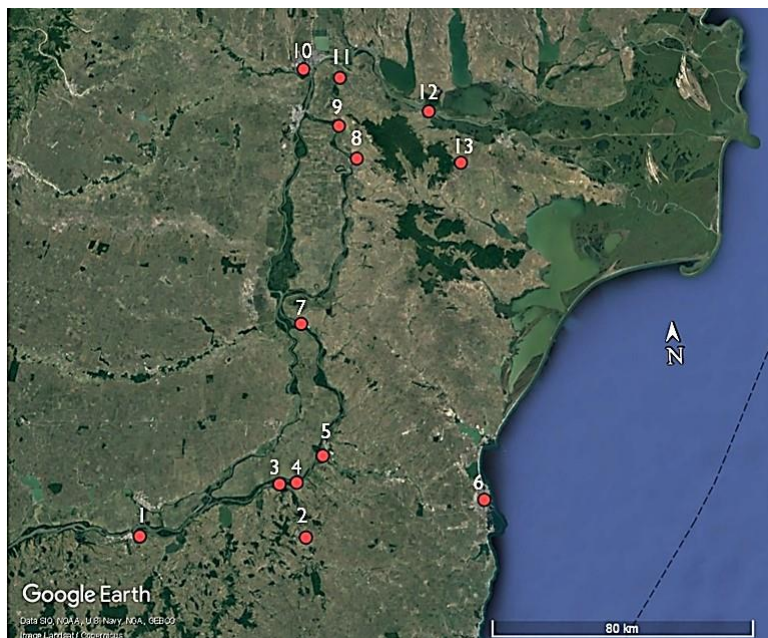


Fig. 1. Map with the approximate placement of *Firmalampen* discoveries in Dobrudja:

1- *Durostorum-Ostrov* (Ferma 4), 2- *Tropaeum Traiani*, 3- *Sacidava*, 4- *Flaviana*, 5- *Axiopolis*, 6- *Tomis*, 7- *Carsium*, 8- *Troesmis*, 9- *Arrubium*, 10- *Barboși castrum*, 11- *Dinogetia*, 12- *Noviodunum*, 13- *Poșta*

(Google Earth capture processed by the author).

Even under these favourable conditions, the number of *Firmalampen* in this area is still smaller than we would expect, especially compared to the other provinces. The lack of *Firmalampen* outside the Danube River line raises some question, mainly regarding the situation on the western shore of the Black Sea, in the Pontic cities. *Tomis* is the only city where *Firmalampen* have been published, at least now. Of course, the state of the research is, just as in the whole region, the main factor for our current knowledge. However, we cannot say the same for local producers, who seem to have a lot more success in this particular area.

Euctemon, a local lamp artisan, is the best example, being the most prolific local manufacturer. Having his *officina* at *Tomis*,<sup>130</sup> his lamps are spread all around Dobrudja, and he,

<sup>129</sup> Chrzanovski 2020, 242-246.

<sup>130</sup> Iconomu 2013, 91.

as opposed to his western counterparts, enjoyed a lot of popularity amongst the western shore of the Black Sea<sup>131</sup>. Euctemon is believed to have had some branches in *Moesia Inferior*, which can help us better understand the diffusion of the specimens, which could take place, at some extent, thanks to the agents of the branches.

The activity of the agents (*institores*) is also an important factor in the spread of *Firmalampen* in the provinces, as well as in the time frame of the circulation of stamped lamps. The term *institor* itself seems to have had two meanings at the time, it could be a person charged with the management of a business or land by an owner, especially his son or a freed slave, the other meaning being that of a peddler.<sup>132</sup> The management and functionality of the branches has also been regulated by laws, such as *actio institoria* and *actio exercitoria*.<sup>133</sup>

Determining the exact provenance of a lamp can be problematic for several reasons. Even if there are a number of criteria used to differentiate between imported and local products,<sup>134</sup> they are still likely to lead to erroneous conclusions. For example, one of the most widely used criteria for determining the western origin of *Firmalampen* lamps is the fabric quality, but C. Ionomu also points out that not all local products are of inferior quality, and not all original western products are of the best quality possible.<sup>135</sup> Thanks to modern technological advancements, new methods of differentiating between imported and local products are available, compositional analyses of the fabric can provide precise information, such as wavelength-dispersive X-ray fluorescence (WD-XRF) analyses.<sup>136</sup> However, in the absence of these types of analysis, the designation of a production centre can be somewhat problematic.

A possible landmark in this regard is the presence of possible indicators alongside the stamps of the original manufacturers. A good example is Fortis' mark which, being the most circulated both chronologically and spatially, it is logical to assume that both the originals and the imitations would have contributed to this statistic, as well as it being the stamp with the most variations out there. The way of spelling of Fortis' mark has several forms, and sometimes it is accompanied by particular letters.<sup>137</sup> The different letters associated with the manufacturer's mark

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<sup>131</sup> For Euctemon's activity see Croitoru, Diaconu 2019, 57-63; Ionomu 1986, 34; Rusu-Bolindeț 2010, 402-408.

<sup>132</sup> Brewster 1917, 22-23.

<sup>133</sup> Aubert 1994, 52-64.

<sup>134</sup> Ionomu 2013, 89-90.

<sup>135</sup> Ionomu 2013, 89.

<sup>136</sup> For a detailed overview on determination of the origin of lamps based on clay analysis see Schneider, Daszkiewicz 2011, 261-278.

<sup>137</sup> Bocan, Neagu 2015, 129; Buchi 1975, 65; Topoleanu 2010, 161.

can be interpreted as an initial of an *officina* location, as it is the case with *Mutina*, or could they represent the initial of an *institor*? Also, based on some stamped specimens there are some other distinct signs, such as bullseyes or other symbols (Fig. 2). The role of these letters and symbols can be interpreted in different ways, however the addition of such symbols suggests, in our opinion, a certain degree of individuality and associating them with the workshops of the provincial branches is a plausible hypothesis.

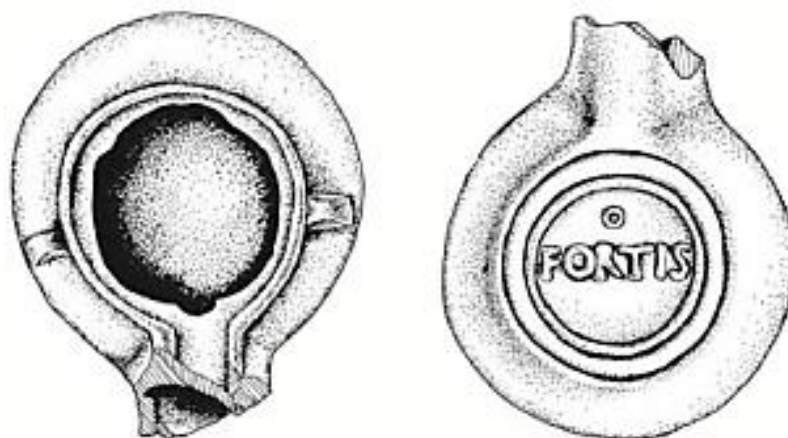


Fig. 2. *Firmalampen* from *Troesmis*, with a bullseye on top of Fortis' stamp (after Topoleanu 2016, 110, Pl. VI, no. 39).

The role that imitations have played in the propagation of stamps should not be overlooked. Even if it is a process that the original manufacturers probably would not have liked, imitations have made it possible for marks to circulate significantly more broadly. The phenomenon of imitations would not have been as widespread -if there were no economic, or at least social, motivation behind it. Thus, depending on the type and number of imitated marks in each area, we can only assume about products that would have been of economic interest in that specific place.

An example worth mentioning in our discussion is a lamp of Loeschcke VIII type<sup>138</sup> from Barboși, with the ATIMETI mark on the base and with two theatre masks on the discus, under which it can be seen the name COST (Fig. 3). S. Sanie is of the opinion that the lamp in question is made by a local craftsman, who used a mould with the mark of Atimetus, to which he added his name on the discus, suggesting an imitation.<sup>139</sup> I think that besides this explanation, we shouldn't

<sup>138</sup> Even if the consensus is that the term *Firmalampen* is used for Loeschcke IX and X types, however this example of stamped lamp is relevant for the subject, and we've consider grouping it with the rest of the pieces.

<sup>139</sup> Sanie 1981, 165.

completely rule out the possibility that the name COST (Costans, Costinus, Costans?<sup>140</sup>) is that of an *institor* who signed the copy with his own name, or perhaps we are dealing here with a custom product for a specific person, a special order? It is unlikely to come up with a definitive answer to this question, but by addressing different interpretation for this particular case we can open an interesting discussion about the characteristics of both imitation and „official,, branches.

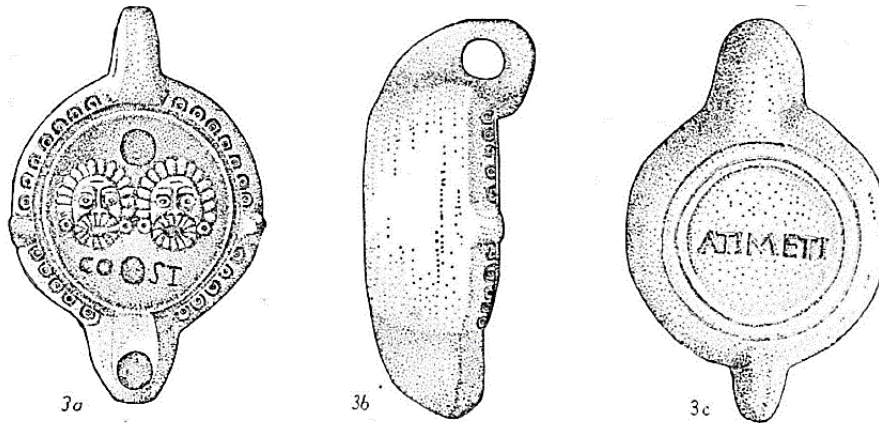


Fig. 3. Lamp from the Barboși *castrum* (after Sanie 1981, Pl. 45).

## Conclusions

The subject of *Firmalampen* continues to be an interesting chapter full of valuable information about various cultural and economic aspects of the Roman Empire. Certain details of their circulation and use are still unknown. For example, L. Chrzanovski develops the idea that these types of lamps, despite the numerous examples discovered and their fame in the literature, would not have been as popular as one might think, due to an apparent lack of use traces.<sup>141</sup> However, based on the analysis carried out in this study, we can make some considerations regarding their popularity.

Firstly, the wide chronological range over which the *Firmalampen* lamps are spread would be difficult to explain were it not for a certain degree of popularity, mainly due to their usefulness, all the more so as a considerable number of stamps are interpreted as imitations, which shows that

<sup>140</sup> Names suggested by D. Tudor, in Tudor 1953, 480, who also believes that this piece is an imitation.

<sup>141</sup> Chrzanovski 2020, 221.

the original product must have had some popularity amongst the military units and the civilian population.

Secondly, even if the lot of published *Firmalampen* is not as consistent as in other provinces of the Empire, the diversity of the marks in the centers mentioned above, as well as the above argument about their long circulation in the region (between the 1<sup>st</sup> and 4<sup>th</sup> centuries AD) are conclusive reasons to consider that *Firmalampen* were indeed popular.

Lastly, as he also correctly points out, there lies large amounts of unpublished specimens, that can massively improve our current understanding.<sup>142</sup> Nevertheless, the same situation is happening in our case, that of Dobrudja. As for the gradual decline of this imperial industry, we must put in a historical context: the 2<sup>nd</sup> century AD, arguably the height of the *Firmalampen* production in terms of variety and quantity, it takes place in favorable conditions, a mainly prosperous time frame, especially the first half of century. As for the 4<sup>th</sup> century, the last chronological time frame in which the *Firmalampen* are present in the archaeological record, as it stands now, it is associated with political and military turmoil that could very likely affect the production and commercialization of these types of lamps, just as the crisis of the 3<sup>rd</sup> century almost definitely made some form of an impact in this regard.

Another interesting fact about the diffusion of *Firmalampen* in Dobrudja is the lack of specimens from the West Pontic coast, more precisely from the cities of *Histria*, *Tomis* and *Callatis*. In quite a high contrast compared to their Italic counterparts, the local producers seem to have had a lot more success in this area, especially in the case of Euctemon. The popularity of the lamps with the mark of Euctemon over those with the mark of the North-Italic producers may be due to a combination of factors, probably resulting from a favouring of local production and trade over western imports. Thus, drawing a parallel with the workings of the modern economy, we would not be far off the mark if we were to compare Euctemon's success with a certain degree of monopoly, at least in comparison with the North-Italic workshops.

Using an intuitive approach, we believe that the reasons for the popularity of this type of lamps should be sought in relation to the stamp, the defining feature of the *Firmalampen*. As the decoration is not as elaborate and spectacular as in other types, suffering limitations due to the morphology of the lamps, the extensive diffusion of lamps as a result of stylistic value is unlikely. The utilitarian feature, the channel with a hole for oxygen circulation, through which the wick

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<sup>142</sup> Chrzanowski 2020, 250.

could emit a larger flame, may have been a favourable factor in this respect. Also, by assigning a mark, the value of an object is expected to increase. This relationship between the object and the stamp would be recognized by manufacturers, traders, customers, and users. The large number of different marks, as well as the countless imitations, can be explained by a market with an increased demand.

Even if the *Firmalampen* are not particularly known for their decoration, the decorative motifs and scenes on the lamps are a good means of identifying certain cultural, religious, or ideological particularities. Thus, by correlating the iconographic repertoire and the types of stamps with the producer's mark found on the decorated lamps, the results obtained may indicate a possible correlation.

There remain many questions about North-Italic imports and provincial production of *Firmalampen* that we hope future research will answer. One question that we think is worth asking is why some stamps, otherwise very popular in the West, are in short supply in Lower Moesia, as is the case with Strobilus. Could it be the preference of troops stationed in the area? Or the lack of branches in the area? Only the discovery and the publishing of new specimens, along with crafting indicators such as kilns and moulds may shed some light on the subject.

#### **Bibliography:**

- Aubert, J.J. 1994, *Business Managers in Ancient Rome. A Social and Economic Study of Institores, 200 B.C. - A.D. 250*, Columbia Studies in the Classical Tradition, XXI, Leiden: Brill.
- Bailey, D.M. 1987, „The roman terracotta lamps industry. Another view about exports”, in *Les lampes de terre cuite en Méditerranée. Table ronde du C.N.R.S., tenue à Lyon du 7 en 11 décembre 1981*, Travaux de la Maison de l'Orient 13, Lyon, edited by Th. Oziol and R. Rebuffat, 59-63: Maison de l'Orient et de la Méditerranée Jean Pouilloux.
- Băltăc, A. 2018, „The pottery workshops at Ostrov (Durostorum), Farm No.4 spot, Constanța County”, in *Atlas of Roman Pottery Workshops from the Provinces Dacia and Lower Moesia/Scythia Minor (1<sup>st</sup>-7<sup>th</sup> centuries AD) (I)*, edited by V. Rusu-Bolindeț, C.-A. Roman, M. Gui, I.-A. Iliescu, F.-O. Botiș, S. Mustață, and D. Petruț, 211-223, Cluj-Napoca: Mega Publishing House.
- Baumann, V.H. 2009, „Lucernele de la Noviodunum”, in *Peuce*, S. N. VII, 217-310.
- Benea, D. 2008, „Ateliere locale de opaițe în provincia Dacia”, in *Dacia în sistemul socio-economic roman. Atelierele meșteșugărești locale*, edited by D. Benea, M. Balaci, S. Regep-Vlascici, A. Onițiu, and C. Timoc, 301-340, Timișoara: Excelsior Art.
- Bocan, I. and C.M. Neagu, 2015, „Opaițele romane din castrul de la Micia, păstrate în colecțiile Muzeului



- Național de Istorie a României”, in *Cercetări Arheologice*, XXII, 115-174.
- Bounegru, O. and M. Zahariade, 1996, *Les forces navales du Bas Danube et de la Mer Noire aux Ier–VIe siècles*, Colloquia Pontica, 2, Oxford: Oxbow Books.
- Brewster, E.H. 1917, *Roman craftsmen and tradesmen of the early Empire*, Wisconsin: George Banta Publishing Company.
- Buchi, E. 1975, *Lucerne del Museo di Aquileia I, lucerne romane con marchio di fabbrica*, Associazioni Nazionale per Aquileia, Aquileia.
- Chrzanowski, L. 2020, „Firmalampen: an abundantly-produced lamp-type almost never used? Socio-economic elements to define a new framework to study these peculiar lighting devices”, in *Peuce*, S.N. XVIII, 215-262.
- Čičikova, M. 1974, „Firmalampen du limes danubiene en Bulgarie”, in *Actes du IX<sup>e</sup> Congres International d'etudes sur les frontieres romaines, Mamaia, 6-13 sept. 1972*, edited by D. Pippidi, 155-165, Bucharest, Köln, Wien: Ed. Academiei, Böhlau Verlag.
- Chrzanowski, L. and D. Djaoui 2018, „A (partial) iconographical dictionary of early roman imperial lamps (70-130 AD). A short study of 290 discus-motifs adorning the lamps discovered within the harbour garbage covering the „Arles-Rhône 3” shipwreck and of their geographic repartition”, in *Peuce*, S.N. XVI, 55-198.
- Croitoru, C. and V. Diaconu, 2019, „Lămpi antice de tip „Euctemon” (re)descoperite într-o colecție locală”, in *Memoria Antiquitatis*, XXXV, 57-67.
- Cuomo di Caprio, N. 1971, „Proposta di classifica-zione delle fornaci per ceramica e laterizi nell'area italiana, dalla preistoria a tutta l'epoca romana”, in *Sibrium*, XI (1971-2), 443-457.
- Domergue, C. 1966, „Un envoi de lampes du potier Caius Clodius”, in *Mélanges de la Casa de Velázquez*, tome 2, 1966, 5-50.
- Duch, M. 2017, *Economic role of the Roman army in the province of Lower Moesia (Moesia Inferior)*, Acta Humanistica Gnesnensia, XVI, Gniezo.
- Eckardt, H. 2000, „Illuminating Roman Britain”, in *TRAC 99: Proceedings of the Ninth Annual Theoretical Roman Archaeology Conference, Durham 1999*, edited by G. Fincham, G. Harrison, R. Rodgers Holland, and L. Revell, 8-21, Oxford: Oxbow Books.
- Elefterescu, D. 2016, „Tipologia ștampilelor de lămpi (Firmalampen) descoperite la Durostorum-Ostrov (Ferma 4)”, in *Peuce*, S. N. XIV, 159-185.
- Fischbach, O. 1896, „Römische Lampen aus Poetovio”, in *Besitze des Steiermärkischen*, XLIV, 3-64.
- Freder, R. 2015, *Gerulata: The Roman lamps in a provincial context*, Prague: Karolinum Press.
- Gostar, N. 1960, „Inscripțiile de pe lucernele din Dacia romană”, in *Arheologia Moldovei*, I, 149-209.
- Harris, W.V. 1980, „Roman Terracotta Lamps: The Organization of an Industry”, in *Journal of Roman Studies*, 70, 126-145.
- Howland, R.H. 1958, *The Athenian Agora IV. Greek Lamps and Their Survivals*, Princeton: American School of Classical Studies at Athens.

- Iconomu, C. 1967, *Opaițe greco-romane*, Constanța.
- Iconomu, C. 1986, *Un capitol al producției și al schimbului de mărfuri în zona Dunării de Jos, Lucernele (sec. I e.n. - VII e.n.)*, PhD thesis (mss.), București.
- Iconomu, C. 2013, „Euctemon – Un producător de lucerne la Tomis”, in *Arheologia Moldovei*, XXXVI, 89-104.
- Iványi, D. 1935. *Die Pannonischen Lampen: Eine typologisch-chronologische Übersicht*, Budapest: Sárkány.
- Labate, D. 2017a, „Mutina Fecit: la produzione di lucerne a Modena”, in *Mutina Splendidissima. La città romana e la sua eredità*, edited by L. Malnati, S. Pellegrini, F. Piccinini, and C. Stefani, 221-227, Roma: De Luca Editori d'Arte.
- Labate, D. 2017b, „I produttori di lucerne che firmano con Mutina Fecit”, in *Mutina Splendidissima. La città romana e la sua eredità*, edited by L. Malnati, S. Pellegrini, F. Piccinini, and C. Stefani, 235-236, Roma: De Luca Editori d'Arte.
- Loeschcke, S. 1919, *Lampen aus Vindonissa. Ein Beitrag zur Geschichte von Vindonissa und des antiken Beleuchtungswesens*, Zurich: Beer&Cie.
- Matei, C. 1991, „Considerații privind raportul dintre Classis Flavia Moesica și fortificațiile limesului roman de la Dunărea de Jos (sec. I-VI)”, in *Pontica*, XXIV, 143-158.
- Matei-Popescu, F. 2010, *The Roman Army in Moesia Inferior*, Bucharest: Conphys Publishing House.
- Munteanu, C. 2012, „Porturile fluviale romane din provinciile renane și dunărene (secolele I-III p.Chr.)”, in *Pontica*, XLV, 181-260.
- Mușețeanu, C. and D. Elefterescu, 2004, „Contribuții privind ceramica romană de la Durostorum IV”, in *Peuce*, S.N. II, 95-142.
- Nicolae, C. 1994, „Câteva opaițe descoperite la Carsium”, in *Pontica*, XXVII, 199-207.
- Nuțu, G. 2019, *Meșteșugurile în Provincia Moesia Inferior*, Iași: Iași University Press.
- Opaiț, A. 1980, „Considerații preliminare asupra ceramicii romane timpurii de la Troesmis”, in *Peuce*, VIII, 291-366.
- Paraschiv, D. 1997, „Descoperiri de epocă romană la Măcin”, in *Pontica*, XXX, 317-330.
- Paraschiv, D. and G. Nuțu, 2012, „Roman lamps from Poșta (Moesia Inferior)”, in *Le Luminaire antique/Lychnological Acts 3. Actes du 3e Congrès International d'études de l'ILA, Université d'Heidelberg, 21 – 26.IX.2009*, Monographies Instrumentum 44, edited by L. Chrzanowski, 287-294, Montagnac: Éd. Monique Mergoil.
- Petolescu, C. M. 1971, „Opaițe romane din Dobrogea”, in *Apulum*, IX, 665-672.
- Petruț, D., M. Gui, and H. Trîncă, 2014, „Lighting Roman Military Barracks. An Interdisciplinary Approach Based on Evidence from Dacia”, in *Archaeologia Bulgarica*, XVIII, 3, 65-92.
- Pliny The Elder, *Naturalis Historia*, Volume IX: Books 33-35. Translated by H. Rackham, 1952, Cambridge: Harvard University Press.
- Poblome, J., D. Malfitana, and J. Lund, 2013, „Pottery, Roman Empire” in *The Encyclopedia of Ancient History*, First Edition, edited by R. Bagnall, K. Brodersen, C. Champion, A. Erskine, and S. Huebner, 5482-5489, Malden: Wiley-Blackwell.

- Rădulescu, A. 1975, „Contribuții la cunoașterea ceramicii de uz comun din Dobrogea”, in *Pontica*, VIII, 331-360.
- Roman, C. A. 2005, *Piese de iluminat în epoca romană. Dacia Porolissensis*, PhD thesis, Cluj-Napoca.
- Roman, C.-A. 2006, *Lamps from Dacia Porolissensis*, Zalău.
- Rusu-Bolindeț, V. 2010, „Lamps from the Early Roman Times at Histria. An Introduction on the Activity of the Lamp Producing Workshops in Roman Dobrogea”, in *Antiquitas Istro-Pontica. Mélanges d'Archéologie et d'Histoire Ancienne offerts à Alexandru Suceveanu*, edited by M.V. Angelescu, I. Achim, A. Bâltac, V. Rusu-Bolindeț, and V. Bottez, 401-420, Cluj-Napoca: Mega Publishing House.
- Sanie, S. 1981, *Civilizația romană la est de Carpați și romanitatea pe teritoriul Moldovei (secolele II î.e.n. – III e.n.)*, Iași: Junimea.
- Schneider, G. and M. Daszkiewicz, 2011, „Imported and local Firmalampen in Aquileia: Chemical analyses by WD-XRF”, in *Aquileia Nostra-Anno LXXXII*, 261-282.
- Topoleanu, F. 2010, „Opațiile de tip «Firmalampen» din colecțiile Muzeului Județean de Istorie și Arheologie Prahova”, in *Arheologia Moldovei*, XXXIII, 151-188.
- Topoleanu, F. 2016, „Oil Lamps from Troesmis”, in *Troesmis – A Changing Landscape. Romans and the Others in the Lower Danube Region in the First Century BC – Third Century AD. Proceedings of an International Colloquium Tulcea, 7th – 10th of October 2015*, edited by C.-G. Alexandrescu, 63-116, Cluj-Napoca: Mega Publishing House.
- Tudor, D. 1953, *Studii și Cercetări Științifice*, IV, Iași.