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SALT EXPLOITATION IN ROMAN DACIA. MODERN SOURCES AND NEW ARCHAEOLOGICAL SURVEYS*

LUCREȚIU MIHAILESCU-BÎRLIBA

Abstract: The author presents the information of 18th century sources on salt exploitation in Roman Dacia, followed by own archaeological surveys in the salt exploitation areas of Dacia. The results lead to the necessity of systematic archaeological investigations in the researches areas.

Keywords: salt exploitation; Roman Dacia; Roman administration; archaeological surveys.

Rezumat: Autorul prezintă informațiile din secolul XVIII referitoare la exploatarea de sare din Dacia romană, urmate de propriile cercetări arheologice de teren în zonele exploatărilor de sare din Dacia. Rezultatele obținute reclamă necesitatea realizării unor cercetări arheologice sistematice în zonele investigate.

Keywords: exploatare de sare; Dacia romană; administrație romană; periegheze arheologice.

1. Introduction

The conquest of Dacia means also the exploitation of subsoil resources. Trajan organizes immediately these exploitations, at least the gold mines districts, like an inscription proves.¹ Even if the organization of salt mines and salt exploitation is not attested by texts, it doesn't mean that salt was not extracted, even more so because for the Dacian period there are archaeological evidences of such activities.

The inscriptions attesting the salt exploitations are quite late; the archaeological evidences of such activities in Roman period are also scarce. However, I shall present the main results of the archaeological investigations, as well as the modern literary mentions (18th century) on salt resources in Transylvania, attributed to the Roman period.

2. The mentions of Fridwaldszky

The mineralogist J. Fridwaldsky let us a treaty about the mineralogy of Transylvania. He mentions the main salt resources and exploitation which existed under Habsburg rule. Among them the exploitation of Turda is seen like the most important and the author underlined its importance in Roman time.² Other salt exploitations are those from Ocna Sibiului (Vizakna, Salzburg),³ Cojocna (Kolos),⁴ Sic (Szék),⁵ Dej (Dées-Akna),⁶ Praid

* This paper was achieved in the frame of CNCS projects PN-III-ID-PCE-2016-0759 and PN-III-ID-PCE-2016-0271.

¹ IDR III/3, 366.

² Fridwaldszky 1767, 159–162.

³ Fridwaldszky 1767, 163.

⁴ Fridwaldszky 1767, 163.

⁵ Fridwaldszky 1767, 164–166.

⁶ Fridwaldszky 1767, 166–169.

(Paraid).⁷ Fridwaldszky offers some information on previous exploitation (in the 15th century), but also on Roman time (at Turda).⁸

3. Fichtel's map

The mineralogist I. E. von Fichtel let us the first modern map of salt deposits in Transylvania (1780).⁹ The purpose of his work was both political and economic, and it was meant to systematize the salt resources for a better exploitation by the Austro-Hungarian Empire. Fichtel included the salt exploitation from Moldavia and Wallachia, too. This map was recently analyzed by D. Moscal.¹⁰ Moscal observed that Fichtel indicated not only the salt deposits and the salt mines, but also the salt springs.¹¹ He identified all the German toponyms with the actual ones in Transylvania, but he did not insist on the permanence of salt exploitation from Roman times, even if he noticed the importance of these mines in the aforementioned period.¹² The study of Moscal is very useful, because he put into attention the salt resources the Habsburgs intended to exploit. Fichtel's list contains some toponyms which are clearly related with exploitation in the Roman period, according to the information from the epigraphic record. The sites of Transylvania and the ones from Oltenia (Little Wallachia) correspond to the territory of Roman Dacia. I mention here not only the big salt works where Roman inscriptions related to the exploitation or Roman traces of salt exploitation activities (especially epigraphic ones) were found (like Turda, Praid, Sic, Cojocna, Ocna Dejului, Ocna Sibiului, Ocnele Mari),¹³ but also the salt deposits (Sânpaul-Homorod, Sovata)¹⁴ or salt springs (Mărtiniș, Dej, Sărățel, Ocnele Mari)¹⁵ related to information coming from the Roman period. It is very interesting that almost all the sites where evidences of pre-Roman salt exploitation activities were found appear on Fichtel's map (Blăjenii de Jos, Figa, Caila, Dumitra, Pinticu Tecii – salt springs,¹⁶ Mărtiniș – salt deposits,¹⁷ Orșova – salt deposits and salt spring¹⁸). In my opinion, this information strengthens the hypothesis that, even if in the Roman time there were not really systematic exploitations of salt sources in the area, the people used the sources more for their personal needs than on a larger scale.

4.1. Sânpaul – Ocland – Mărtiniș

The fort of Sânpaul (Harghita County) is situated on the stream Varcaba, next to Vlăhița pass.¹⁹ It is rectangular with round corner towers. At Ocland there is a fortlet

⁷ Fridwaldszky 1767, 169–171.

⁸ Fridwaldszky 1767, 162.

⁹ Fichtel 1780.

¹⁰ Moscal 2018, 1–11.

¹¹ Moscal 2018, 7–9.

¹² Moscal 2018, 1.

¹³ Moscal 2018, 8.

¹⁴ Moscal 2018, 8.

¹⁵ Moscal 2018, 8–9.

¹⁶ Moscal 2018, 8–9.

¹⁷ Moscal 2018, 8.

¹⁸ Moscal 2018, 9.

¹⁹ See especially Matei-Popescu, Țentea 2016, 13, with bibliography.

(20 × 20 m), provided with a ditch and a *vallum* of earth.²⁰ It is possible that it served as a *statio beneficiarii*, if one takes into account the inscription attesting a *beneficiarius*, which was found in a village belonging to the commune of Ocland.²¹ In the same area, at Băile Homorod, another fortlet was found. It was rectangular with round corners. At south-west, a small complementary fortlet was investigated. All the materials were dated to the Roman period.²²

Even if the surveys made by Harding and Kavruk did not registered the existence of Roman pottery, the presence of the troops in the area proves that the territory was inhabited in Roman period and therefore the salt springs were undoubtedly used.

At Petreni (commune of Mărtiniș), a salt spring was used until the modern era (Pl. I/1–2). Taking into account the Roman findings in the area, it is possible that Romans have used the salt resources. My advice is that archaeologists should start intrusive investigations (if it is possible), in order to collect pottery samples or other objects which can better indicate a chronology of the site's occupation.

I have made a survey at Sânpaul (Pl. I/3) in May 2019, together with my colleagues Andrei Asăndulesei and Felix Tencariu.²³ The salting is still visible and there are also wooden structures which can prove an ancient gallery (Pl. I/4; Pl. II/1). I do not know to which period these structures belong: they can even be dated to the modern one. We have found many modern shards and one pottery fragment from the Bronze Age (Pl. I/1; Pl. II/2). The proximity to the camp, the inscription erected by a freedman of C. Iulius Valentinus, *conductor salinarum*,²⁴ corroborated with this find, indicate, in my opinion, that at Sânpaul the salt exploitation has functioned in the Roman period. This is also suggested by A. Chiricescu, who has seen the salting, too.²⁵ Another salt spring is situated next to the camp and it was used until modern times: now it is no more in use.

I suggest that one can start archaeological excavations in the area (if not a systematic one, at least some short investigations).

4.2. Olteni

In Olteni area (Covasna County) are nowadays many functional salt springs.²⁶ First of all, in the site A both Iron Age and post-Roman pottery was found.²⁷ It is surprising that no evidence of Roman habitation was found, but I do not exclude the use of salt springs under the Roman period, in the same circumstances I mentioned in the case of Băile Figa. In the site situated at Olteni Nord – Carieră, the authors do not exclude a Dacian habitation, alongside a post-Roman one, like it certainly appears in the site Olteni Est – Canton C. F. R.²⁸

²⁰ RAJH, 167. See also Matei-Popescu, Țentea 2016, 13.

²¹ IDR III/4, 256. See also Matei-Popescu, Țentea 2016, 13.

²² RAJH 244; Matei-Popescu, Țentea 2016, 13. <https://limesromania.ro/ro/articole/situri-arheologice/?page=1>, accessed May 2nd 2019.

²³ I would like to thank once again Andrei Asăndulesei and Felix Tencariu for their help.

²⁴ IDR III/4, 248.

²⁵ Chiricescu 2006, 220.

²⁶ Buzea, (Chiricescu) Deák 2008, 47–53.

²⁷ Buzea, (Chiricescu) Deák 2008, 55–58.

²⁸ Buzea, (Chiricescu) Deák 2008, 54–65.

In my opinion, the lack of Roman pottery does not exclude the use of salt springs in Roman time.

The main argument for my hypothesis is made by the surveys and excavations made in the Roman camp. Despite a bad conservation of the monuments, the walls were visible. The camp is situated in the northern side of the actual village, on a terrace next to the Olt river. Z. Székely excavated a gate (in the south) and two bastions, a tower in the east, another gate with two towers in the west.²⁹ The material is exclusively dated to the Roman period.³⁰ Some Roman lamps coming from Olteni were separately published by R. Zăgreanu.³¹

So, the presence of Romans is beyond doubt at Olteni. The role of the military units which were accommodated there was not only to survey the right bank of the river Olt, but also to keep safe the salt exploitation in the area. That is why I believe the salt springs were fully used in Roman time, even if the Roman pottery in the sites investigated next to the camp is missing.

4.3. Livezile

The fort of Livezile (Bistrița-Năsăud County) was geophysically prospected by a team led by A. Popa.³² The dimensions of the fort are 166 × 120 m. The archaeologists have found Roman pottery, tile fragments and two sesterces dated under the Emperors Hadrian and Lucius Verus.³³ Popa and the collaborators are prudent in expressing their conclusions: it is not excluded that the fort could have been a “civil” station, but the possibility of the existence of a marching camp remains still open.³⁴ In the area, there are three salt springs: two of them are silted (one is situated in the place called Hâga – Pl. II/3, the other just in the proximity of the camp – Pl. II/4; Pl. II/1), and the third is still in use (Pl. III/2–3). I have noticed the rests of some wooden structures, probably modern (Pl. III/4). Even if the field surveys have revealed only modern materials next to the springs, the proximity of the camp does not exclude the possibility that Romans have used the springs. Like in the case of the salting from Sânpaul, I strongly recommend that intrusive archaeological investigations start in the signalled areas.

4.4. Sărățel

In this place was found the inscription of Atticus, slave of P. Aelius Marius.³⁵ A salt spring was noted in the proximity of the village Sărățel (Bistrița-Năsăud County) (Pl. IV/1–2). On Făget hill, not very far from the inscription's spot, a small lake was formed as a consequence of salt exploitation (Pl. IV/3). According to I. Chintăoan³⁶ and D. Ichim,³⁷ this phenomenon was provoked by a Roman exploitation. R. Zăgreanu from the Bistrița

²⁹ Székely 1993, 279–282. See also Székely 1993, 279–282, and Buzea, (Chiricescu) Deák 2008, 62.

³⁰ Buzea, (Chiricescu) Deák 2008, 62.

³¹ Zăgreanu 2011, 170.

³² Popa et alii 2010, 104–105.

³³ Popa et alii 2010, 104.

³⁴ Popa et alii, 104–105. See also Popa, Gaiu, Cociș 2009, 101–113.

³⁵ ILD 804.

³⁶ Chintăoan 2002, 137–138.

³⁷ Ichim 2017, 210.

County Museum confirmed that the Museum have received more than 30 years ago some Roman pottery samples coming from the indicated area.³⁸

4.5. Ocna Dejului – Sic – Gherla

M. Alexianu and V. Kavruk recently noticed the existence of a salt spring and salt fountain 2 km away from the town of Gherla, in the direction of the camp.³⁹

The same researchers have identified a silted salt spring at Dej.⁴⁰ It could have been used also in the Roman time; unfortunately, no survey research was done so far. In any case, the salt exploitation at Ocna Dejului was the most used by the Roman army.

At Sic, where salt exploitation is certainly attested in the Middle Ages, Roman materials were found in the field surveys.⁴¹ Recent geochemical analysis set three anthropogenic saline horizons, in which one belongs to the Roman period (2nd–3rd centuries).⁴²

5. Conclusions

As one can see, the findings concerning salt exploitation dating from Roman times are extremely scarce. It is true that researches or surveys have not been made so far. I shall discuss in another chapter the existence of military camps or forts next to salt resources. Except the archaeological investigations in military areas situated close to salt springs or salt works (Sânpaul, Ocland, Băile Homorod, Olteni), no other research put into our attention evidence of Roman settlements in the salt-rich zones. The Roman presence in this area shows that the salt springs were used also in Roman times, but there were no sites next to them. The Roman exploitation is suggested by epigraphic texts, which I shall discuss with other occasion. However, the exploitations in the pre-Roman period seem to me very important. At Băile Figa, the salt production started in the 16th–15th centuries BC, continued in the 14th–13th centuries BC, until the end of the Bronze Age and the beginning of the Iron Age. Then an Iron Age exploitation is attested, followed by another one in the post-Roman period.⁴³ The techniques were those of digging shafts onto the rock salt, in order to extract lumps of rock, and of collecting brine from the stream, in order to obtain by evaporation. In any case, the Dacians have used the site and exploited it. Even if there is no evidence of Roman exploitation, the re-using of the salt springs in post-Roman time suggests that the inhabitants used the old structures for salt production or they collected the salt directly from the stream: the production was probably less significant than before. The site noted by A. Harding and V. Kavruk in the Mărtiniș – Ocland area contains traces of salt production from the Iron Age:⁴⁴ the corroboration of this piece of information and the epigraphic file from Sânpaul is relevant to suggest a salt exploitation under Roman rule. The other sites investigated by Harding and Kavruk in Bistrița-Năsăud and Mureș

³⁸ I would like to thank once again R. Zăgreanu for the information.

³⁹ Many thanks to M. Alexianu, who provided me the information and the coordinates.

⁴⁰ Information M. Alexianu.

⁴¹ Jakab et alii 2018, 189.

⁴² Jakab et alii 2018, 201.

⁴³ On the chronology, see also Kavruk 2018, 22–24.

⁴⁴ Harding, Kavruk 2013, 44–47.

Counties provide a scarce material, dated to the Bronze Age (Săsar, Caila, Blăjenii de Jos),⁴⁵ or not dated at all (Sărățeni – Iocul, Pinticul Tecii, Dumitra, Orșova).⁴⁶

I. E. Fichtel's map is very interesting, because it provides salt resources which were exploited from prehistory: Blăjenii de Jos, Figa, Caila, Dumitra, Pinticu Tecii, Mărtiniș, Orșova. At these spots can be added the sites already known for salt exploitation in the Roman period: Turda, Ocna Dejului, Dej, Sic, Cojocna, Ocna Mureș, Ocnele Mari.

My suggestion is that surveys and researches can be achieved in the areas where actual salt resources (especially salt springs) are still exploited. The discovery of the inscription from Domnești (attesting Omucio, *actor* of C. Iulius Valentinus, *conductor pascui et salinarum*)⁴⁷ next to a salt spring indicates that archaeological investigations should be made in these areas, too.

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⁴⁵ Harding, Kavruk 2013, 134–141.

⁴⁶ Chiricescu 2006, 164–165; Harding, Kavruk 2013, 143–144.

⁴⁷ IDR III/4, 248.

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Pl. I. 1. The salt spring of Petreni (photo A. Asăndulesei); **2.** The salt spring at Petreni (photo A. Asăndulesei); **3.** Sânpaul – view from the salting (photo L. Mihailescu-Bîrliba); **4.** Salting with wooden structures at Sânpaul (photo L. Mihailescu-Bîrliba).



Pl. II. 1. Detail with a piece of the wooden structures at Sânpaul (photo A. Asăndulesei); 2. Bronze Age shard found at Sânpaul in the salting (photo L. Mihailescu-Bîrliba); 3. Silted salt spring at Livezile – Hâga (photo L. Mihailescu-Bîrliba); 4. Silted salt spring at Livezile – not far from the camp (photo L. Mihailescu-Bîrliba).



Pl. III. 1. Silted salt spring at Livezile – next to the camp. Rests of wooden structures; **2–3.** Salt springs still in use at Livezile; **4.** Rests of some wooden structures near the salt spring at Livezile (photos L. Mihailescu-Bîrliba).



Pl. IV. 1–2. Salt spring and salting at Sărățel; 3. Small lake in the former Roman exploitation at Sărățel (photos L. Mihailescu-Bîrlița).