

*Elias Kolovos**

Mines and the Environment in Halkidiki: A Story from the Ottoman Past

Halkidiki, a beautiful peninsula in Northern Greece, has gained certain publicity in the crisis-struck Greece of the 2010s as the terrain of a confrontation, in some cases violent, between a Canadian mining company and the local people, who resist the mining activity with the help of leftist and environmental initiatives. The basic argument of the protesters against the search for gold in Halkidiki is the protection of the environment and the local communities. Along with similar struggles for the protection of the environment in the late capitalist era worldwide, a new historiographical field was born, “environmental history.”¹ In this context, the aim of this paper is to discuss the history of the little known today Ottoman investment in

* Department of History and Archaeology, University of Crete & Institute for Mediterranean Studies, FO.R.T.H, Greece. The research for this paper was funded by a grant from the Aristeia II programme of the Greek General Secretariate for Research and Technology in support of the project “Mines, Olives and Monasteries: Towards an Environmental Macrohistory of Halkidiki” of the International Hellenic University in Thessaloniki.

1. See, for example, two polemic papers by Alfred W. Crosby, “The Past and Present of Environmental History,” *The American Historical Review* 100 (1995): 1177-89 and Ted Steinberg, “Down to Earth: Nature, Agency, and Power in History,” *The American Historical Review* 107 (2002): 798-820. Also the historiographical review by J. R. McNeill, “Observations on the Nature and Culture of Environmental History,” *History and Theory* 42 (2003): 5-43. For a review of the field of environmental history in Greek see Vasiliki Seirinidou, «Οι ιστορικοί στη φύση: Μια εισαγωγή στην περιβαλλοντική ιστορία» (Historians in Nature: An Introduction to Environmental History), *Ta Ιστορικά* 51 (2009): 275-97. For a study of mining in Mexico in the *longue durée*, from the colonial times until the Canadian-based corporation mining of our days, see Daviken Studnicki-Gizbert, “Exhausting the Sierra Madre: Mining Ecologies in Mexico over the Longue Durée”

mining in Halkidiki, between the 15th and the early 19th centuries, focusing on its social and environmental aspects.²

The Making of an Ottoman Mine

The Ottoman story of mining in Halkidiki originates from the very beginning of the construction of the Ottoman Empire during the 15th century. In the struggle for financing their emerging empire, the Ottomans had applied a policy of imperial fiscalism, aiming at controlling precious metals and coinage. In this context, the Ottoman Sultans Murad II and Mehmed II went to war with Hungary and the Italian states for control of the mining areas of the Balkans, principally in Serbia and Bosnia.³ At the same time, the Ottomans invested in opening new mines in the Balkans, like the mines of Siderokavsia/Sidrekapsi in Halkidiki.

The place name “Siderokavsia” means in Greek “smelting iron,” “ironworks,” or “siderurgy” (“sidero” means iron in Greek).⁴ We encounter it for the first time in the 9th century, when a monk by the

(forthcoming). I wish to express my gratitude to the author for sending me the draft of this stimulating paper before publication.

2. Two recent studies introduced Ottoman history into the field of the environmental history: Alan Mikhail, *Nature and Empire in Ottoman Egypt: An Environmental History* (Cambridge: Cambridge University Press, 2011); Sam White, *The Climate of Rebellion in the Early Modern Ottoman Empire* (Cambridge: Cambridge University Press 2011). A strong environmental problematique is also evident in the approach of Faruk Tabak, *The Waning of the Mediterranean, 1550-1870* (Baltimore: Johns Hopkins University Press, 2008). Cf. also the collective volume by Diana K. Davis and Edmund Burke III, eds., *Environmental Imaginaries of the Middle East and North Africa* (Athens, Ohio: Ohio University Press, 2011).

3. See Halil İnalçık and Donald Quataert, eds., *An Economic and Social History of the Ottoman Empire, 1300-1914* (Cambridge: Cambridge University Press, 1994), 58-9. For the Balkan mines see also Sima Circović, “The Production of Gold, Silver, and Copper in the Central Parts of the Balkans from the 13th to the 16th century,” in *Precious Metals in the Age of Expansion*, ed. H. Kellenbenz (Stuttgart: Klett-Cotta 1981), 41-69.

4. Ioakeim Papagelos has located archaeological evidence of metallurgical activity in Skouries, dated from the Roman times, and in the plain southwest of

name of Ioannis Kolovos, left Mount Athos and settled in Siderokavsia together with his disciples. Later on, there are references to Siderokavsia as a “village” (Gk. *chorion*).⁵ The Byzantine tax registers (Gk. *praktika*) enumerate the villagers in the area as peasants, with fields, vineyards, and animals. There is only one reference, from the mid-14th century, to a “public ironworks” (Gk. *demosiakon siderokavseion*) in the nearby village of Kontogrikou,⁶ which might suggest that some kind of metallurgical activity was active in the area, during Byzantine times. However, there is no reference in mining at all before the arrival of the Ottomans.⁷

Sultan Murad II probably ordered the opening of the mines in Siderokavsia, a place-name that the Ottomans kept in the form of “Siderokapsı” (and, simplified in Turkish, “Sidrekapsı”), after his conquest of Salonica in 1430. According to the surviving pages of an Ottoman tax register dating from 1445, Siderokavsia was by then a silver mine (*maden-i nukra*). Its revenues had been recently transferred from the fief (*zeamet*) of the head of the Treasury (*defterdar*) Murad Bey to the imperial demesne (*hassa-i padişah*).⁸ Murad II had

Megali Panagia, dated maybe earlier. Ioakeim A. Papaggelos, «Το ‘κοινόν του Μαδεμίου’», in *Η διαχρονική πορεία του κοινοτισμού στη Μακεδονία* (Thessaloniki: Kentro Historias Thessalonikes, 1991), 257 fn. 1.

5. D. Papachryssanthou, *Ο αθωνικός μοναχισμός. Αρχές και οργάνωση* (Athonite Monasticism. Beginning and Organisation), (Athens: MIET, 1992), 123 and fn. 233, 124 and fn. 238. The names of two more villages in the area are connected with metallurgy: Metallin (“metallo”: metal in Greek) and Rudava (“ruda”: metal in the Slavic languages).

6. Jacques Bombaire, ed., *Actes de Xéropotamou* (Paris: P. Lethielleux, 1964), no. 25 (1346), l. 29-31 and no. 27 (1351).

7. Spyros Vryonis, “The Question of Byzantine Mines,” *Speculum* 37 (1962): 13-14, suggested that the Ottoman mines had Byzantine precedents in the area; his suggestion, however, is based in no other evidence than the place-name “Siderokavsia” itself.

8. N. Todorov and B. Nedkov, eds., *Fontes Turcici Historiae Bulgaricae, series XV-XVI* (Turski izvori za Balgarskata istorija, serija XV-XVI), vol. II (Sofia: National Academy of Sciences, 1966), 343. A Greek document of 1445, written in Siderokavsia, makes a clear reference to “trochous ergastikous,” i.e., smelting activity, and Muslim and Christian inhabitants, with names of both Greek and Slavic origin (Bombaire, *Actes de Xéropotamou*, no. 30).

also issued a regulation (*kanunname*) for the mines of Siderokavsia, which does not survive itself, but was renewed by his son, Sultan Mehmed II, and is partially reproduced in an order issued after a request by the infidel miners (*madenci gâvurları*) themselves.⁹ This important text was written according to the regulation for the mines of Kratova (Ott. Karatova), located to the east of Skopje. This might suggest that the Ottomans, in their effort to open the new mines in Siderokavsia, had transferred here by force (*sürgün*) skilled miners from the mines of Kratova.¹⁰ The connection between the two mines is established also by the fact that in 1471 the mines of Kratova and Siderokavsia were farmed out together as a *mukataa* worth of 2,250,000 *akçes* (51,136 ducats).¹¹ Moreover, we know that in the beginning of the 18th century, when the Ottomans attempted to reorganise mining activity in Siderokavsia, they transferred there some skilled miners from Kratova.¹²

The “village” (*karye*) of Siderokavsia, as it was registered in the Ottoman tax register of 1445, by 1478 had developed into a town (*nefs-i Siderokabsı*) that, together with the neighbour settlements of İzvor and Piyavica, constituted the “imperial demesne of the mine of

9. Robert Anhegger and Halil İnalçık, eds., *Kanunname-i Sultani Ber Muceb-i Örfi Osmani, II. Mehmed ve II. Bayezid Devirlerine Ait Yasakname ve Kanunnameler* (Ankara: Türk Tarih Kurumu, 1956), 66-7; Nicoara Beldiceanu, *Les Actes des premiers Sultans conservés dans les manuscrits turcs de la Bibliothèque Nationale à Paris*, vol. I: *Actes de Mehmed II et de Bayezid II du ms. fonds Turc ancien 39* (Paris-Hague: Mouton, 1960), 138; Ahmet Akgündüz, ed., *Osmanlı Kanunnameleri ve Hukuki Tahlilleri*, vol. I (Istanbul: FEY Vakf Yayınları 1990), 524-26.

10. For the Ottoman policy of forced migration (*sürgün*), see Ömer L. Barkan, “Osmanlı İmparatorluğunda bir iskan ve kolonizasyon metodu olarak sürgünler,” *İstanbul Üniversitesi İktisat Fakültesi Mecmuası* 11 (1949-50): 524-70, 13 (1951-52): 56-78, and 15 (1953-54): 209-37.

11. Inalçık–Quataert, *An Economic and Social History*, 59, Table 1:12.

12. Mustafa Altunbay, “Osmanlı döneminde bir maden işletmesinin tarihi süreci: Sidrekapsı” (The History of the Function of a Mine during the Ottoman Period: Sidrekapsı), unpublished PhD dissertation, İstanbul Üniversitesi, 2010, 225, 227-28, and below in this paper.

Siderokavsia” (*hasshâ-yı maden-i Siderokapsı*). The three settlements of the miners included then a total of almost 600 tax households (*hane*). Their numbers remained almost the same in the tax

Table: The population of Siderokavsia, Izvor, and Piyavica according to the Ottoman registers (15th-16th c.)

	1478			1519			1527			1568		
	H.	B.	W.	H.	B.	W.	H.	B.	W.	H.	B.	W.
Siderokavsia												
Muslim quarters:												
<i>Cami-i Şerife</i>										28	6	
<i>Üveys Çelebi</i>										31	19	
<i>Hüsam Halife Cedid</i>										32	24	
<i>Hüseyin Çelebi</i>										17	1	
<i>Kuruczade nam-ı diğeri Yeni Tarla</i>										14	12	
<i>İzzet Hacı</i>										14		
Muslims	20	1		62	12		50	32		136	73	
Christian quarters:												
<i>Protopapas</i>	55	2	5				100	18	8	109	46	
<i>Pop İvlad</i>	80	2	7				161	26	13	154	73	
<i>Pop Yan</i>	72	3	7				73	16	6	98	27	
<i>Yani Yerasna</i>	10											
<i>Papa Yani</i>	12		1									
<i>Istamad Slav</i>	14											
<i>Todor Vasil</i>	11		1									
<i>Yani Kirko</i>	70	2	5									
<i>Rosotova</i>	11		2									
<i>Yani Markovik</i>	14											
Christians, total:	349	9	28	305	31	37	334	60	27	361	146	
Jews										40	19	
Izvor												
<i>Pop Yovan</i>							79	22	4	142	47	5
<i>Pop Radoslav</i>							61	11	2	73	31	
<i>Pop Dimitri</i>							46	9	5	77	19	
Christians, total:	164		8	167	16	13	186	42	11	292	97	5
Piyavica												
Christians	75	8	1	91	5	10	89	18	8	129	69	
Total	608	18	37	625	64	60	659	152	46	958	404	5

H.: Households (*hane*). B: Bachelors (*mücerred*). W: Widows (*bive*).

Source: Elias Kolonos, «Χωρικοί και μοναχοί στην οθωμανική Χαλκιδική, 15^{ος}-16^{ος} αιώνας» (Peasants and monks in the Ottoman Halkidiki, 15th-16th c.), unpublished PhD dissertation, Aristotle University of Thessaloniki, 2000, vol. 2, 27-29.

surveys of the first years of the reign of Süleyman the Magnificent (1520-1566), but increased to reach almost 1,000 tax households by the reign of Selim II (1568). The miners were Christians in their majority, including, however, a Muslim community, which developed from 20 tax households in 1478 to 62 in 1519, 50 in 1527, and 136 in 1568.

The Table above shows that apart from the increase in the number of households, the number of unmarried men in the three settlements of the mines of Siderokavsia increased as well during the 16th century, comprising a considerable proportion of the population (from 10.2% in 1519, to 23% in 1527, and to 42.1% in 1568). These men should have been the unskilled labour force working in the mines, most possibly migrants. After 1527, a Jewish community from Salonica had also settled in Siderokavsia, which included 40 tax households and 19 unmarried men in 1568.

The mines of Siderokavsia were described extensively by the French traveller and botanist Pierre Belon du Mans (1517-1564), who had visited them in 1547, in the course of his *Voyage au Levant* (first published in Paris in 1553).¹³ According to Belon, “*le village [de Sicerocapsa] etait auparavant mal bâti, mais maintenant il semble à une ville.*” He compares it to the famous mining town of Joachimstal in Bohemia and maintains that it had developed in the last 12-15 years, reaching a population of more than 6,000 miners, who had been forced migrants (*gens ramassés*). They were Albanians, Greeks, Jews, Vlachs, Circassians, Serbians, and Turks, who spoke Slavic, Bulgarian, Greek, and Albanian. Further below in his narrative, Belon states that the metal workers were in their majority of Bulgarian origin (*de nation bulgare*), a possible reference to the origins of the miners from Kratova. On the other hand, the inhabitants of the two neighbouring villages were mostly Christians, speaking Serbian and Greek. Belon refers also to the Jews of Siderokavsia, who spoke Spanish (Ladino).¹⁴ Actually, according to Jewish sour-

13. Alexandra Merle, ed., *Voyage au Levant (1553). Les observations de Pierre Belon du Mans* (Paris: Chandeigne, 2001), 156-76.

14. *Ibid.*, 156-57 and 159.

ces, the first Jews of Siderokavsia were Ashkenazim, who were followed shortly after by Sephardim.¹⁵

The population increase in Siderokavsia, which peaked in the mid-16th century, corresponded to the increase of the production of the mines. According to Belon, “*c’est un village d’aussi grand revenu au Turc, pour la grande quantité de l’or et de l’argent qu’on y fait, que la plus grande ville de toute Turquie.*”¹⁶ He estimates the revenues for the Sultan between 9-10,000 and 30,000 gold ducats per month, 18,000 ducats on average (216,000 ducats per year). The practices of metallurgy had been transferred to the Balkans by Saxons in the mid-13th century. As a result, the technical terms describing mining and metallurgy used by the Ottomans in the regulations for the Balkan mines, and in actual practice, as Belon corroborates, were German.¹⁷

Belon is the first to describe in detail the operation of the Ottoman gold and silver mines of Siderokavsia: The ores, in some cases found out even in the open, was usually extracted in pits or galleries. When it was found in middle depth, it was extracted by four miners. Sometimes, however, it was so deep in the ground, that they had to extract it with the use of machinery based on horse-power. When the lead ore was extracted (Belon makes a special reference to the common

15. For the Jewish community of Siderokavsia see H. Jakobsohn, “The Story of A Lamb: The Jewish Community of Sidrokapsi in the late 16th and Early 17th Centuries,” in *The Jewish Communities of Southeastern Europe*, ed. I. K. Hassiotis (Thessaloniki: Institute for Balkan Studies, 1997), 214. In 1568, the Jews of Salonica were financing the operation of the mines in Siderokavsia with a sum of 50,000 *akçes*, paid as “*sarraflık*.” We can assume that they had earlier been assigned the duty of the exchange of coins in Siderokavsia, which can explain their migration to Siderokavsia. See M. Rozen, “The Corvée to Operate the Mines in Sidrekapsı and its Effects on the Jewish Community of Thessaloniki in the 16th century,” in Hassiotis, *The Jewish Communities*, 453-71.

16. Merle, *Voyage au Levant*, 156.

17. See Nicoara Beldiceanu, *Les Actes des premiers Sultans conservés dans les manuscrits turcs de la Bibliothèque Nationale à Paris*, vol. 2: *Règlements miniers* (Paris-Hague: Mouton, 1964), 59-66; Circović, “The Production of Gold,” 42-43; Şevket Pamuk, *A Monetary History of the Ottoman Empire* (N. York: Cambridge University Press, 2000), 27; Merle, *Voyage au Levant*, 159.

galena lead ores extracted in Siderokavsia), silver was separated from the compound through smelting and cupellation, in furnaces of high temperature, where air flow made possible the oxidation of the lead and the removal of silver and gold. Belon describes in detail these furnaces, 500-600 in Siderokavsia, owned by private individuals (*particuliers maitres*),¹⁸ and states that for the separation of silver from the lead ore, they did not use charcoal (that they used for smelting the galena lead ore) but thick wood. Air flow for the furnaces was provided by bellows, operating with water power from nearby streams.¹⁹ On the other hand, the separation of gold from silver, an operation, says Belon, carried out an Armenian expert, was made through the process of salt cementation.²⁰

Belon's testimony is corroborated by the information from the Ottoman regulations of the mining activity in Siderokavsia, dating from the 15th century.²¹ According to these texts, the state claimed a share of 1/12 (8.3%) from the refined metal at the time of Murad II and the early years of Mehmed II. Before 1478, however, the taxation system had changed. A tithe of 10% was collected from the ore, and a second tithe was imposed later on the refined silver and gold after cupellation (*öşr-i cevher* and *öşr-i nukra*). After the collection of the tax, the miners took their share from the ore, which around

18. Cf. the relatively small individual mining operations in colonial Mexico, Studnicki-Gizbert, "Exhausting the Sierra Madre," 6.

19. Note that the Slavic place name Izvor for the village of miners near Siderokavsia means "source of water."

20. In 1546, Eliezer son of Abraham, a Sephardic Jew from the congregation of the Old Catalan synagogue (*Köhne Katalan cemaati*) of Salonica, farmed out (*iltizam*) for 11,000 *akçes* the right to search for gold in the water streams of Siderokavsia, and, further to the north, on the mountain of Beles. See Altunbay, "Sidrekapsı," 22, fn. 21.

21. See above, fn. 9 and especially the detailed report published by Beldiceanu, *Les Actes*, vol. II, 183-87, and Akgündüz, *Osmanlı Kanunnameleri*, 518-23. This report has to be dated around 1478, since it was ordered probably in connection with the survey of that date by Kasım Paşa, *sancakbey* of Salonica between 1472-1483.

1478 was divided in half between them and their contractors,²² the owners of the pits (Turkish *kuyu sahibleri* or *varak*, from the German *Gewerke*).²³ Actually, it was the skilled miners who were actually operating the mine through an assembly called *sabor*, arbitrating justice according to the Saxon mining code, and presided by a prelate (*knez*).²⁴ They should have also included the owners of the furnaces, who were called *vatrok*.²⁵ The workers in the mines worked in groups of eight men and were led by skilled miners, elected by the aforementioned assembly. They were named *hutman* (Germ. *Hutmann*) and *şafar* (Germ. *Schaffer*); *şafars* were Muslims in 1568.²⁶

The Ottoman state had the monopsony of the ore extracted in the mines. After the refinement of silver and gold with bellows (*çarh*), the ore was sold to the mint (*darbhane*), which operated in Siderokavsia, already from the times of Mehmed II.²⁷ However, silver and gold coins issued in Siderokavsia have been located only from the early 16th century.²⁸ The Ottomans farmed out both tax collection and the monopsony of the ore to farmers (*âmil*), who had also the right to collect agricultural revenues, like the tithe on vineyards, as well. The mint was also farmed out separately.²⁹ However, the state oversaw the whole operation of the mines through a superintendent

22. According to the report, in earlier years, the miners gave only 1/6 of the ore to the proprietors of the pits, and later, they sold the rest to them. It has to be noted also that the agreement between contractors and miners changed when the galleries had to take the water from the winter season out.

23. Beldiceanu, *Les Actes*, vol. II, 184-85. For the property status of these individuals in the Balkan mines, see in detail 89-94.

24. Beldiceanu, *Les Actes*, vol. II, 117-18. For the *knez* in Siderokavsia already in 1444 see Bombaire, *Actes de Xéropotamou*, no. 30.

25. According to a report of 1537, see Papangelos, «Το 'κοινόν του Μαδεμίου'», 269-70. For the *vatrok* in detail see Beldiceanu, *Les Actes*, vol. II, 95-97.

26. Beldiceanu, *Les Actes*, vol. II, 184, 109-11 (*hutman*), 111-12 (*şafar*).

27. See above, fn. 20.

28. Pamuk, *A Monetary History*, 37.

29. Papangelos, «Το 'κοινόν του Μαδεμίου'», 269-70.

(*emin-i maden*), appointed by the Sultan, who was supervised by the judge (*kadı*) of Siderokavsia.³⁰

According to the Ottoman tax register of 1478, the estimated annual revenues of the mines of Siderokavsia, which were farmed out, included 25,000 *akçes* from the tithe on the ore (*öşr-i cevher*), and 80,000 *akçes* from the tithe on the refined metals (*öşr-i nukra*).³¹ Since the tithe was then calculated at the rate of 10%, the mines of Siderokavsia in 1478 had, according to the aforementioned number, a total production valued more than 1,000,000 *akçes* (22,727 ducats); we have already mentioned that in 1471 the mines of Siderokavsia and Kratova were farmed out together as a *mukataa* worth of 2,250,000 *akçes* (51,136 ducats). In the register of the first years of the reign of Süleyman, the annual revenues from the mines of Siderokavsia were 112,800 *akçes*, from the tithe on the refined silver and gold and the tax on refinement (*mahsul-i öşr-i nukra ve zeheb ve resm-i kal*).³² Since the tithe was then calculated at a rate of 12.5%,³³ we can estimate the total production at a value of 900,000 *akçes* (15,789 ducats). However, this amount did not include the revenues from the mint. According to a document dated 1537, the mines and the mint of Siderokavsia were farmed out previously for an annual sum 1,000,000 and 833,333 *akçes* respectively (a total of 32,263 ducats); the contracts were renewed to 1,066,666 and 1,216,666 *akçes* respectively.³⁴ According to the tax register of 1568, the same contracts had jumped to 2,000,000 and 2,600,000 *akçes* respectively (a total of 76,666 ducats).³⁵ These numbers show clearly that production in Siderokavsia had almost doubled during the reign of Süleyman the Magnificent. However, they do not corroborate the number given by Pierre Belon for the annual revenues of from the

30. For the administration of the Balkan mines in general see Beldiceanu, *Les Actes*, vol. II, 127-40. For the role of the *kadı* see *ibid.*, 187, a case of a *kadı* asking for the replacement of the *emin*.

31. Istanbul, Başbakanlık Osmanlı Arşivi (hereafter: BOA), TT 7, 557.

32. BOA, TT 403, 1027.

33. Papaggelos, «Το ‘κοινόν του Μαδεμίου’», 269-70.

34. *Ibid.*

35. BOA, TT 723, 164.

mines and the mint of Siderokavsia (see above, 216,000 ducats per year); Belon might have overestimated the revenues of the Sultan. In any case, according to Şevket Pamuk, “Sidrekapsi in Macedonia became by far the most productive of the Balkan mines during the first half of the 16th century.”³⁶ After the peak of the years around 1568, however, the value of the tax farms for the mines and the mint of Siderokavsia decreased: 3,162,857 for 1585 and 1588 (45,183 ducats) and 1593 (26,357 ducats), 3,200,000 for 1598 (25,600 ducats), 3,433,333 for 1607 (27,466 ducats), 3,820,979 for 1625 (31,841 ducats) and 1631 (20,110 ducats).³⁷ However, it is evident that Siderokavsia mined still large quantities of silver until even the third decade of the 16th century; Rhoads Murphey has shown that this was true for the Ottoman mines in the Balkans in general.³⁸

The remains of the mining town of 16th-century Siderokavsia are still visible today on the slope of Mount Stratoniko to the north of the village of Stageira and to the south of the road.³⁹ The village of Izvor (now Stratoniki) was situated one km to the southeast of Siderokavsia. Finally, Pyavica, according to Pierre Belon, was a small village over Siderokavsia, on the top of the mountain to the east of the town, with small houses.⁴⁰ According to the register of 1478, the three settlements of the miners were also taxed for their

36. Pamuk, *A Monetary History*, 37 and 62, for the production of gold coins in Siderokavsia and Kratovo.

37. Rhoads Murphey, “Silver Production in Rumelia According to an Official Ottoman Report Circa 1600,” *Südost Forschungen* 39 (1980): 94. Cf. Altunbay, “Sidrekapsi,” 23-26.

38. Murphey, “Silver Production,” 75 and 85 for his estimation of the production of silver in Siderokavsia.

39. For the archaeological research in the area, see Ploutarchos L. Theodoridis, “The Consolidation Works on the South Tower at Siderokausia, Halkidiki,” in *Πύργοι και κάστρα*, ed. N. K. Moutsopoulos (Towers and Castles), (Thessaloniki: Patriarchal Institute of Patristic Studies, 1980), 77 and map of the site in p. 76. For the excavation, see also J.-M. Pesez, “Études de maçonnerie à Siderokavsia,” in *Structures de l’habitat et occupation du sol dans les pays méditerranéens, les méthodes et l’apport de l’archéologie extensive* (Rome-Madrid: École Française de Rome, 1988), 319-23.

40. Merle, *Voyage au Levant*, 173.

vineyards, cereals, sheep, and hives, being exempt from the poll-tax (*haraç*), the *ispençe*, the *salarlık*, the due from the wine barrels (*fıçı resmi*) and the service for the transportation of sheep (*celeb*).⁴¹ However, we can assume that what they produced did not suffice to meet their needs. These were met from the surrounding countryside. A tax regulation written around 1478 reports in detail the products that reached the market of Siderokavsia, including flour, wheat, barley, rice, lentils, greens and fruits, fat and cheese, honey, fish, sheep, swine, salt, wine, etc.⁴²

The Ottoman traveler Âşık Mehmed described in 1586/87 the town of Siderokavsia, where, he explains, he stayed for more than two years after an invitation from his local friends, as follows:

Sidrekabsi is the town of the district of the silver and gold mines. It's a small town. It has one mosque⁴³ and two public baths (hammams).⁴⁴ One of the hammams is a double one, with separate quarters for men and women respectively. The town does not have many streets. There is a mint there which strikes silver and gold coins from the mine of the district. The climate of Sidrekabsi is very pleasant during the summer and moderately cold during the winter. The water is coming from pipes and it is mild. Sidrekabsi has winter pastures near the seaside. During the winter of [99]4 and [99]5 (1586-87) the goats had kids and we enjoyed goat milk during all this season. This was a delicious drink which cannot be found in any other town of these parts. It is their special product and the people of Sidrekapsi use to send this goat milk as a gift to their friends in the towns of Serres and Salonica and the other neighboring towns.⁴⁵

41. BOA, TT 7, 557 and Beldiceanu, *Les Actes*, vol. I, 138.

42. Beldiceanu, *Les Actes*, vol. II, 186.

43. The mosque of Siderokavsia was registered for the first time in the register of 1568 (see above). The remains of the minaret can still be found today among the ruins of Siderokavsia.

44. One of the *hammams* is also in ruins today on the site of Siderokavsia.

45. Âşık Mehmed, *Menâzirü'l-Avâlim*, ed. Mahmut Ak (Ankara: Türk Tarih Kurumu, 2007), 995-96.

Âşık Mehmed described also the “mountain of Siderokavsia” (*cebel-i Sidrekabsi*):

The mountain is located to the south of the town of Siderokavsia, which is a silver mine. It is a high and wide mountain. Its length and width are of equal size and its total surface is over three parasangs (fersah) at a rough estimation. The mountain is at the border of the silver mine. Big and small trees on this mountain are innumerable. These trees are under the protection of the miners. They are protected from the villagers, so that they use them for the operation of the mine. On this mountain there are many places for hiking, full of sources and wells. The people of Siderokavsia have built in a tongue-shaped corner of the mountain a simple kiosk, named Çardak, with view to the Sea of Romania (Bahr-ı Rum).⁴⁶

The testimony of Âşık Mehmed includes the information that wood cutting on the mountains surrounding Siderokavsia was prohibited to the villagers, because it was used for the operation of the furnaces of the mines.⁴⁷ According to the regulation of Murad II and Mehmed II, the Christian miners of Siderokavsia had the right to make charcoal in the mountain (*dağdan kömür etmeğe mâni olmayalar, kim dilerse ede*).⁴⁸ The need for charcoal, which was used, as we have described above, for the furnaces which separated silver from lead, was much bigger of course. Around 1500, a group of villages in Western Halkidiki had become “villages of charcoal producers” (*kömürciyân-ı maden-i Sidrekapsı*) and they had been assigned

46. Mehmed, *Menâzirü'l-Avâlim*, 406.

47. The same information is repeated by Evliya Çelebi, who had visited shortly Siderokavsia in 1668: *Such big trees as the trees of the mountain of Siderokavsia cannot be found in any other country. Maybe only in the mountains of Ravna, in the vilayet of Bosnia. But in the case of the trees of Siderokavsia, nobody is allowed to cut them. This is because the mountain and the trees are the property of the state (mîrî kûhistân ve dirahistândır) and are being used for the smelting of the silver ore. If someone cuts a tree, he pays a fine.* S. A. Kahraman, Yücel Dağlı and Robert Dankoff, eds., *Evliyâ Çelebi Seyahatnâmesi*, vol. VIII (Istanbul: Yapı ve Kredi Bankası, 2003), 44.

48. Beldiceanu, *Les Actes*, vol. I, 138.

the task of supplying the mines with charcoal. In return, the charcoal producers were exempt from the extraordinary taxes (*avarız ve tekâlif-i divaniye or teklifât-ı örfiyye*). In the first years of the reign of Süleyman the Magnificent and during the reign of his son, Selim II, these were the old Byzantine villages of Revenikeia (Ravenik, today Megali Panagia) and Palaiochori (Palyohor), as well as the villages of Yeniköy (later Novoselo, today Neochori), Raligovi (Raliğova, later Liarigkovi, today Arnaia) and Varvara, which have been settled after the Ottoman conquest. By 1634, however, the Ottomans had established a much bigger group of villages in the *sancak* of Salonica (including villages in Serres, Drama, Zihne, Avrethisar, Demirhisar, and of course Sidrekabsi), which had been assigned the provision of 338 full loads and 25 quarter-loads of charcoal (*kömür beygiri*) for the mines of Siderokavsia; these services, however, could be exchanged with payments in cash.⁴⁹

Decline and Re-organisation of the Mining Activity

As a result of the arrival of large amounts of silver from the Americas, from the beginning of the 17th century, the Ottoman mints in the Balkans and Anatolia began to decrease their production, until, by the 1640s and 1650s, they virtually stopped the production of silver *akçes*, which were replaced in circulation with European silver coinage.⁵⁰ During the reign of Ibrahim I (1640-1648), the Ottoman mints all over the empire had closed, leaving only four still producing *akçes*, in Istanbul, Diyarbakir, Damascus, and Cairo.⁵¹ Evliya Çelebi, who visited Siderokavsia shortly after, in 1668, testifies to the closure of the mint:

In the years of the previous Sultans, pure silver akçes used to be struck in Siderokavsia. Actually, the mint is still standing in downtown Siderokavsia. In the reign of Sultan Murad IV, the mint stroke pure

49. Altunbay, "Sidrekapsi," 133-35 and Table 22 in pp. 143-44 (including only the villages of the *sancak* of Salonica).

50. Pamuk, *A Monetary History*, 131, 139.

51. *Ibid.*, 145.

coins which circulated with the inscription “Sultân Murâd ibn Ahmed Hân ızze nasruhu duribe Sidirkapsi”. Afterwards, however, during the reign of Sultan Ibrahim, Kara Mustafâ Paşa banned their production [...] The mint of Sidrekapsi, together with other mints, they have been all closed since the reign of Ibrahim Han; the silver mine, however, is still in full operation.⁵²

The archival evidence shows that the Siderokavsia mines were still farmed out in the second half of the 17th century at an annual rate of 1,600,000 *akçes* (around 6,000 gold *sultani*) in 1670. This number expresses a sharp decrease in the revenues from Siderokavsia after the closure of the mint. Most probably, this was also the reason behind the transfer of the *mukataa* of Siderokavsia to the *mukataa* of the Customs of Salonica in 1673.⁵³ According to a local report reproduced in an order dated 1700, the silver mines of Siderokavsia were then almost abandoned.⁵⁴

During the difficult years of the long wars of the end of the 17th century, the Ottomans began once more to mint Ottoman silver coins, resulting, in the beginning of the 18th century, in the circulation of a new silver coin, the Ottoman *kuruş*.⁵⁵ In this context, it is of no coincidence that the Ottomans tried to revive silver production in the provincial mints, like Siderokavsia. According to the study of Mustafa Altunbay, in 1703, a Sultanic *ferman* ordered Çavuşzade Hüseyin Ağa of Salonica, the tax-farmer of the mines since 1698, to revive the production in Siderokavsia. Çavuşzade Hüseyin Ağa was appointed Superintendent (*emin*) of the mines and reported to the Porte on the abandoned mines, as well as on his efforts, with the assistance of the remaining skilled miners, to register and bring to-

52. Kahraman, Dağlı and Dankoff, *Evliyâ Çelebi Seyahatnâmesi*, 44.

53. Altunbay, “Sidrekapsi,” 26.

54. Ahmed Refik, *Osmanlı Devrinde Türkiye Madenleri (967-1200)* (Turkish Mines of the Ottoman Period), 2nd ed. (İstanbul: Enderun Kitabevi, 1989), 47 (*hali ve harab*).

55. Pamuk, *A Monetary History*, 159-60.

gether the *reaya* for work in the mine and in the production of charcoal. Some of the old pits and galleries of the mines were repaired and new ones were opened. The Ottoman government mobilized as day-workers in the mine the villagers of Sidrekapsi, İzvor, Arnavudköyü, Revenik (Megali Panagia), Varvara, Yeniköy (Neochori), Yerise (Hierissos) and Larigova (Arnaia), as well as villagers (*reaya*) from the neighbouring district (*nahiye*) of Pazargâh.⁵⁶ Some of the villagers, however, were not happy at all with their mobilization and tried to agitate an uprising among the workers, aiming at abandoning the mines.⁵⁷

Despite the efforts for the revival of the mines, the town of Siderokavsia seems to have never regained its lost population, after the abandonment of the production in the closing years of the 17th century. According to a sultanic order of 1707, Siderokavsia, the seat of the mining villages, was not anymore an important settlement. In fact, the neighbouring village of Izvor, where some Muslims also lived, was much bigger than Siderokavsia.⁵⁸ This is corroborated by the Ottoman surveys of the 18th century. According to one of 1743, Siderokavsia had 72 miners, and Izvor 184. The same figures, more or less, are reported for 1773 as well.⁵⁹ In 1806, when the English military expert William Martin Leake visited the mines of Siderokavsia, he mentions only the settlement of Nísvoro (i.e. Izvor), with

56. See, in detail, Altunbay, "Sidrekapsi," 34-46 and 69-71. The register of the survey of 1702 is the BOA, KK 5189.

57. Altunbay, "Sidrekapsi," 108 fn. 411. Some of the agitators were caught and imprisoned in Salonica.

58. I. Vasdravellis, ed., *Ιστορικά Αρχεία Μακεδονίας. Α: Αρχείον Θεσσαλονίκης, 1695-1912* (Historical Archives of Macedonia. A: Archive of Thessaloniki), (Thessaloniki: Society for Macedonian Studies, 1952), 67-68. According to a report of the *nazır* of the mine Süleyman, the Muslims of Izvor were then forced to move to Siderokavsia, where there was a mosque, together with the *reaya* who had come to Izvor from other districts.

59. Altunbay, "Sidrekapsi," 124. In 1773, Siderokavsia had 71 miners and Izvor 182.

300-400 houses, divided in two nearly equal *mahalles* of Greeks and Turks (i.e., Christians and Muslims), situated half a mile apart.⁶⁰

On the other hand, between 1704 and 1707 a fort was built in Siderokavsia for the protection of the mine and the precious metals from bandit and pirate raids. The fort had a guard of 40 *sekban* and 20 cannons, sent from Istanbul.⁶¹ Leake describes in 1806 the fort (*Kastro*) as the place where the silver was separated.⁶² We should maybe identify the tower which survives today in the centre of the village of Stageira with this fort.⁶³

After the reorganisation by Çavușzade Hüseyin Ağa, the mines of Siderokavsia continued to be controlled by his family for the most part of the 18th century. Çavușzade Ali Ağa, grandson of Hüseyin Ağa, was the Superintendent of the Mines (*emin-i maden*) between 1726 and his death in 1751; he was succeeded by his son, Çavușzade Ahmed Ağa, until 1784.⁶⁴ This was a development consistent with the general evolution of 18th-century Ottoman society, the Ottoman

60. William M. Leake, *Travels in Northern Greece*, vol. 3 (London: J. Bodwell, 1835), 160.

61. Altunbay, "Sidrekapsi," 107. According to a document of 1705, the villagers of Halkidiki were held accountable also for the protection of the mines. The same document testifies to an attempt for the farming out of the mines by the villagers themselves, just after the first three years of lease by Çavușzade Hüseyin Ağa (Papaggelos, «Το 'κοινόν του Μαδεμίου'», 260-61, according to *Ιστορικά Αρχεία Μακεδονίας*, no. 43 [1705]). However, the mines were farmed out in 1705 to Süleyman Ağa from Istanbul.

62. Leake, *Travels*, 164.

63. See Theocharidis, "The Consolidation Works."

64. Altunbay, "Sidrekapsi," 69-96. For a short interval, between 1772-1774, Ahmed Ağa was dismissed and the mines of Siderokavsia were directed by a Superintendent of the Imperial Mint (*darbhane-i amire*). Ahmed Ağa was able to regain his appointment, despite the protest of the miners. For the protest of the miners after Ahmed Ağa's reappointment in 1774 and an effort by the miners to farm out the mines themselves, see the document published by Refik, *Osmanlı Devrinde Türkiye Madenleri*, 42-43.

“age of the *ayans*”, when the Ottoman provincial elites asserted important power in the local level.⁶⁵ In 1784, however, Çavuşzade Ahmed Ağa resigned from the directorate of the mines of Siderokavsia, which were farmed out to the retired vizier Seyyid Mustafa Paşa. In 1807, Seyyid Mustafa Paşa was still farming out the mines⁶⁶ and his sons, Seyyid İsmail and Yusuf Beyzade took over after his death. Finally, in 1820, after an important rebellion which resulted in the dispersion of the miners and the abandonment of the mines, they were farmed out to the *reaya*, with a letter of the Greek Patriarch promising that the miners would not revolt again. The state retained, however, the control of the mines through the appointment of Mehmed Emin as director.⁶⁷

The annual revenues of the mines, as estimated in the tax farming contracts, reflect the volume of production in the mines of Siderokavsia during the 18th and the beginning of the 19th century. When Çavuşzade Hüseyin Ağa started the reorganisation of the production, in the beginning of the 18th century, he had to pay annually 1,600,000 *akçes* (4,444 gold ducats); during his second term between 1710-1713, after the reorganisation of the mines, the annual payment had risen up to 2,710,245 *akçes* (7,528 gold ducats). In 1719, his grandson Çavuşzade Ali Ağa farmed out the mines for the first time against an annual payment of 3,203,600 *akçes* (8,898 gold ducats). His son, Çavuşzade Ahmed Ağa took over the mines in 1751 against a payment of 2,935,008 *akçes* (6,114 gold ducats). Finally, between 1772-1810, the mines were farmed out against an annual payment of 25,315 kuruş (3,164 gold ducats); a total of 200 okkas of silver were expected then to be delivered annually from Siderokavsia to the

65. According to the expression of Bruce McGowan, “The Age of the *Ayans*, 1699-1812,” in İnalçık–Quataert, *An Economic and Social History*, 637-738.

66. Leake, *Travels*, 160-61, however, mentions as the *maden ağası* a certain Rüstem Ağa, a client of İbrahim Bey of Serres. The previous years Rüstem Ağa had been expelled from his post after a complaint of the villagers, but he succeeded to overrule his dismissal, come back and take revenge upon the Greek notable of Izvor.

67. Cf. Altunbay, “Sidrekapsi,” 96-99 and Papaggelos, «Το ‘κοινόν του Μαδεμίου’», 262-65 (according to *Ιστορικά Αρχεία Μακεδονίας*, no. 302).

Imperial Mint.⁶⁸ In 1820, the mines had been farmed to the miners themselves for an annual payment of 37,621 *kurus* (4,702 gold ducats), plus an interest of 85,000 *kurus*; the same amount of 200 okkas of silver were expected to be delivered annually from Siderokavsia to the Imperial Mint.⁶⁹ From the aforementioned data, it is clear that the production of the silver mines of Siderokavsia in the 18th century never reached the volume of production of the 16th century.

Mustafa Altunbay has studied in detail the surveys of the Siderokavsia mines and of the villages which had been attributed to them during the 18th century.⁷⁰ According to the survey of 1702 (BOA, KK 5189), 3,461 Christians and 775 Muslim *reaya* from more than 150 villages in the *sancak* of Salonica (which included the *kazas* of Selânik, Siroz, Drama, Zihne, Demirhisarı, Avrethisarı) were registered as miners (*madenci*): they actually had to provide the mines of Siderokavsia with 360 $\frac{3}{4}$ full loads of charcoal (*kömür beygiri*) or pay a cash equivalent. Another survey was made in 1722 by Kapuçibaşı Ahmed Ağa, the *maden emini* of Siderokavsia (BOA, KK 5187). In this case, the 3,410 Christian and 872 Muslim mine workers (*madenci*) registered in the *sancak* of Salonica were forced to deliver annually 459 $\frac{1}{2}$ loads of charcoal or their equivalent in cash, an increase which created much resentment among the miners, especially in the villages of Serres.⁷¹ As a result in 1726, when Çavuşzade Ali Ağa farmed out the mines as an independent contractor, a new survey was ordered. In this register (BOA, MAD 22135), an increased total of 4,669 Christians and 851 Muslims were imposed a reduced annual rate of 397 $\frac{1}{2}$ loads of charcoal or their

68. See in detail the Table 17 in Altunbay, "Sidrekapsi," 101. Cf. also the testimony of Leake, *Travels*, 161, for 1806, who was told that the *mukataa* costed 120 purses and 200 okes of silver.

69. Papaggelos, «Το 'κοινόν του Μαδεμίου'», 262-65 (according to *Ιστορικά Αρχεία Μακεδονίας*, no. 302).

70. For the surveys, see in detail Altunbay, "Sidrekapsi," 135-39, including also tables of the villages involved.

71. In 1722, 92 villages of Halkidiki were registered as miners and only four as charcoal producers. See BOA, KK 2869.

equivalent in cash. The new register, moreover, introduced a distinction between the 12 villages of the actual miners of Siderokavsia (*cevherkeşan*), which no longer had to deliver charcoal or pay a cash equivalent, like the other villages of the charcoal producers (*kömiürkeşan*) in the *sancak* of Salonica.⁷² This was the first formation of the later called “Koinon tou Mademiou” (Mademochoria) in Greek. The villagers of the miners and charcoal producers of Siderokavsia enjoyed a special status (*serbestiyet*) of tax exemptions from the extraordinary taxation, a status which was defended by the superintendants of the mines.⁷³ According to Leake’s testimony, in 1806 the *maden ağası* had to deliver to the state 200 okes of silver from the mines, but he never made more than 100 okes; thus he had to supply the difference in cash. However, the “Greeks of the Sidherokapsika” (the 12 villages of the miners of Siderokavsia, called “eleutherochoria” by Leake, i.e., *serbest* villages), were “well content to make good the deficiency for the sake of the advantages they derive from belonging to the government of the mines.”⁷⁴

Leake describes also the operation of the mines, in 1808, which seems to have been restricted by then to a single deposit, soon to be exhausted:

The mines now wrought are about half an hour from Nizvoro, between two hills, in a deep ravine, where a stream of water serves for the operations of washing, as well as to turn the wheel for working the bellows of the furnace. The whole is conducted in the rudest and most slovenly manner. The richest ore is pounded with stones upon

72. Altunbay, “Sidrekapsi,” 149. The register of 1752 (BOA, KK 5196), made by Çavuşzade Ahmed Reşid Ağa, counted a total of 3,426 Christians and 605 Muslim *reayas* in 88 villages in the *kaza* of Salonica, who had to deliver 194 $\frac{3}{4}$ loads of charcoal, or their cash equivalent, to the *maden emini*.

73. Altunbay, “Sidrekapsi,” 194. Cf., for the tax privileges of the miners: *Ιστορικά Αρχεία Μακεδονίας*, no. 156 (1733) and no. 191 (1762). According to the latter document, the villages of the miners were the following: Sidrekapsi, Izvor, Arnavudkoy, Vrasta, Gomatou, Revenikia, Larigkova, Stanos, Neochori, Varvara, and Modi (11 villages).

74. Leake, *Travels*, 161.

*a board by hand, then washed and burnt with charcoal; the inferior ore is broken into larger pieces, and burnt twice without washing. The lead, when extracted from the furnace, is carried to Kastro, where the silver is separated, in the proportion of two and three drams to an oke of 400 drams. When the present shafts are exhausted, the mines will probably be abandoned.*⁷⁵

There is some evidence that the miners, who had compulsory to work in the mines, were in some cases organising collective actions very similar to modern “strikes.” In 1721, seven Christian *hutmans*, supervisors, named Michos, Alagözöğlü Manolis, Dimos, Alexis, Zacharyas, and Kostas, left the galleries and led an uprising of the workers which led also to plundering. In 1737, two other *hutmans*, Argyris and Papathanasis, led another “strike” of the workers, aiming at deserting from the mines (*madeni iptal kastıyla*) and returning to their villages; after the suppression of the “strike,” the two agitators were exiled to the Morea.⁷⁶ A similar “strike,” organized by the *hutmans*, was also registered in 1785.⁷⁷ Another act in the repertoire of contention of the miners was to hide and steal the precious ore: we know of one major case in 1710, when the *hutmans* Konstantinos, Dimos, and Michos had hidden a rich deposit “for the sake of them and their offspring” (*bize ve evladlarımıza kalsın sonradan mahfice intikam ederiz*).⁷⁸ In some cases, the villagers refused to go and work in the mines: this was the case in Hierissos in 1753 and Gomatou in 1785.⁷⁹ The villagers of the charcoal producers were also rebelling, when they could not catch up with the norms needed from them: one case we know of is that of Larigkova in 1720.⁸⁰ In another case, in Galatista in 1795, the elder (*kocabaşı*) Kosta denied the tax collectors of the mines to enter the village.⁸¹

75. Leake, *Travels*, 164.

76. Altunbay, “Sidrekapsi,” 109.

77. *Ibid.*, 112. The mines had experienced a crisis in 1775 as well. See in detail, *ibid.*, 94-95.

78. *Ibid.*, 110.

79. *Ibid.*, 126, fns. 39-40.

80. *Ibid.*, 110.

81. *Ibid.*, 113.

As the actual farmer of the mines in 1820, the “Community of the Mine” (Gk. *to koinon tou Mademiou*) participated in the Greek Revolution of 1821 as a legal entity, having initially one and by June 1821 five representatives signing documents on behalf of the revolutionaries. With the outburst of the rebellion, the Ottoman director of the mines (*maden ağası*), had to evacuate the fort, which was burnt down a bit later, having lost almost all of his men but two after an ambush near the village of Stanos. However, soon after, the Ottoman army marched into Halkidiki and crushed the rebels, who had to leave their villages for Mount Athos and the islands of the Aegean. In 1823, the *kocabaşıs* of the 12 villages of the mines had to accept their tax debts from the previous years.⁸² The events of 1821 seem to have sealed the mines in Siderokavsia. From an Ottoman document of 1830, we learn that the Ottomans have again tried to revive production, and that in 1832 they had appointed *vali* Vecihi Paşa as the director of the mines.⁸³ However, the mines were closed until the end of the 19th century.⁸⁴

In 1907, the *Société Ottomane des Mines de Cassandra*, the owner of the mines since 1893, established in Stratoni a modern hydromechanical unit. In 1920, the pyrite mines of the Ottoman French company were farmed, for 60 years, by the Anonymous Greek Company of Chemical Products and Fertilizers (A.E.E.X.Π.&Λ.); the two companies merged in 1927; after World War II, the company was acquired by the industrialist Bodosakis–Athanasiadis, who started exploiting the sulfure ores in Olymbiada. In 1992, the Greek company dissolved.⁸⁵ From 1996, the Canadian company TVX Gold started an effort to mine gold in the area, provoking the environmental resistance of the local society.

82. Papaggelos, «Το ‘κοινόν του Μαδεμίου’», 267-68. In 1829, 43 families of refugees on the island of Skopelos were from the Mademochoria.

83. *Ιστορικά Αρχεία Μακεδονίας*, 474, 521, 523.

84. Papaggelos, «Το ‘κοινόν του Μαδεμίου’», 268, fn. 43.

85. See Leda Papastefanaki, «ΕΕΧΠΛ (1909-1993). Κεφάλαια, Τεχνολογία, Αγορές, Εργασία» (ΑΕΕΧΠΛ [1909-1993]: Capitals, Technology, Markets, Labour), in *Ανώνυμη Ελληνική Εταιρεία Χημικών Προϊόντων και Λιπασμάτων (1909-1993)* (Athens: Piraeus Bank Group Cultural Foundation, 2007), 15-55.

Mining and Deforestation

How did the operation of the Ottoman mines of Siderokavsia contribute to the deforestation of Halkidiki?⁸⁶ There is some scattered evidence that the need for timber, both for the galleries and for the production of charcoal, distributed among 150 villages in the area of Salonica, had serious implications for the forest. First of all, we have detailed information for the timber used for the galleries of the mine during the first years of the 18th century: almost 7,500 trees in 1703, over 35,000 in 1706 and almost 20,000 in 1707.⁸⁷ Moreover, in 1731, according to an Ottoman report, there were not enough trees around the village of Larigkova for the production of charcoal. As a result, its inhabitants were ordered to offer their services as miners.⁸⁸ In 1782, the villagers of Peristera, Galatista, Ravna, Megala Vrasta, Livaditsi, Ardameri, and Loukova, reported to the *emin* of the mines that the mountains in the vicinity of their villages had no more timber for the production of charcoal. After an inspection, which corroborated the report, the production of charcoal was imposed to villages which had enough forests, i.e., Larigkova, Nihori, Revenikia, Gomatou, Varvara, and Stanos.⁸⁹

In light of the above information, it is interesting to note the disappearance of the forest in the area of the village of Peristera, in the southern slopes of Mount Hortiatis. We have evidence from the 11th

86. For the deforestation in early modern Europe cf. Lajos Rácz, "The Price of Survival: Transformations in Environmental Conditions and Subsistence Systems in Hungary in the Age of Ottoman Occupation," *Hungarian Studies* 24 (2010): 26-27. For the deforestation in the Greek lands, see Vaso Seirinidou, «Δάση στον ελληνικό χώρο (15^{ος}-18^{ος} αι.): Αναμηλαφώντας μια ιστορία καταστροφής» (Forests in Early Modern Greece [15th-18th c.]: Reconsidering a History of Catastrophe), *Μεσαιωνικά και Νέα Ελληνικά* 11 (2014), 74-75. Cf. the catastrophic deforestation caused by the mining activity in Cerro de San Pedro in colonial Mexico, in Studnicki-Gizbert, "Exhausting the Sierra Madre," 7.

87. Altunbay, "Sidrekapsi," 56.

88. *Ibid.*, 123.

89. *Ibid.*, 129.

century, but none from the 19th century.⁹⁰ Likewise, we have evidence from the 14th century for the forest on Mount Kalavros, but none from the 19th century, at least for a part of it.⁹¹ The deforestation in these two areas might be attributed to the production of charcoal for the needs of the mines of Siderokavsia.

In conclusion, the function of the Ottoman mines seems to have transformed the environment of the western Halkidiki, through the exploitation of both the subsoil and the forest. This exploitation would intensify during the modern years, from the second half of the 19th century and until today, when very important hazards for the environment of Halkidiki, especially from the potential of the mining activity, are at stake.

90. Paul Bellier et al., *Paysages de Macédoine* (Paris: De Boccard, 1986), 114 and 91-92.

91. *Ibid.*, 114 and 90, 92: In 1901, Adolf Struck found a thick forest of beeches and oak-trees to the west of the village of Vavdos, which he crossed for two hours.