

Halkidiki in the Early Modern Period: Towards an Environmental History

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In the case of Halkidiki, the early modern period coincides with the centuries of Ottoman rule. The Ottoman conquest of Halkidiki took place in two stages within the broader context of the Ottoman conquest of the Balkans after the mid-fourteenth century. The Ottomans first conquered Halkidiki in 1384, following a battle on the Chortiatis Mountain and kept it until 1403. The second conquest occurred in 1423 in the context of their preparations for the final siege of Thessaloniki (1430). A twenty-year interlude (1403-23) saw the peninsula revert to Byzantine rule, following the catastrophic defeat of Sultan Bayezid I by Tamerlane at Ankara in 1402. The first Ottoman conquest, in the late fourteenth century, led to the settlement of Muslim populations, particularly *Yürük* pastoralists, around Thessaloniki and in Halkidiki. These newcomers, to a certain extent, transformed the patterns of settlement and land use in the areas they had settled. At the same time, the peasants of Halkidiki and the monks of Mount Athos had to renegotiate their status in the area under the Ottomans. The final Ottoman conquest, after the first quarter of the fifteenth century, paved the way for the most important change that marked the period of Ottoman rule in Halkidiki, as well as the region's environmental history, our research topic in this collective volume: the operation of the mines at Siderokavsia (Ott. Sidrekapsı) in the mountains of western Halkidiki.

1. Settlement Patterns: Continuity and Change

Through studying the archives of the Athonite monasteries, we know a great deal about settlement patterns and the rural economy of Halkidiki during the late Byzantine times.¹ Now, for the first time, the Ottoman tax registers provide us with an almost complete picture of the population and the region's settlements as a whole during the early modern period. The combined study of these sources shows us both continuities

¹ Jacques Lefort, *Villages de Macédoine. I: La Chalcidique occidentale*, Paris: De Boccard 1982. See also the chapter on the Byzantine period in this volume.

and changes during the transition from Byzantine to Ottoman rule and, more broadly, within the historical context of the transition from the Middle Ages to the beginning of the early modern period.

Our research shows that during the transition to Ottoman rule Halkidiki preserved a considerable number of its settlements, a fact that is well reflected in the preservation of many of its medieval place-names. In western Halkidiki (the Byzantine Kalamaria), whose history has been particularly well studied, some of the largest villages in the hilly part of the peninsula, such as Galatista, Portarea, Agios Mamas and Zombatoi, were preserved (and still exist today), together with a considerable number of smaller villages, numbering almost thirty in all.² In the plain of Ormylia, the old Byzantine villages (Ormylia, Agios Sozon or Agios Dimitrios, Vatopedini Ermileia or Vatopedi) continued to survive until the seventeenth and the eighteenth centuries, when the population concentrated in the settlement of Maroula or Kalyvia (present-day Ormylia).³ Further to the east, the main population centre is still Ierissos, which has existed since Middle Byzantine times, although up until the earthquake of 1932 it lay on the acropolis of ancient Akanthos. In the vicinity of Ierissos, the Byzantine agricultural village of Gomatou was continuously inhabited up until the earthquake of 1932.⁴

On the other hand, the late medieval settlement in Halkidiki underwent a serious decline, which had begun even before the Ottoman conquest. It is debatable whether this fact can be connected with the more general demographic crisis that marked the end of the medieval period.⁵ In any case, the crisis led to some serious depopulations of villages in the area. In the case of the peninsula of Kassandra, there appears to have been no organised settlement after the invasion by the Catalan Company in 1307, while

² For the settlements in western Halkidiki during the Byzantine period, see Lefort, *op.cit.* For the Ottoman period, see Elias Kolovos, "Chorikoi kai monachoi stin othomaniki Halkidiki, 15os-16os aiones" [Peasants and Monks in Ottoman Halkidiki, 15th-16th c.], unpublished PhD thesis, Aristotle University of Thessaloniki, 2000, vol. 1, pp. 78-86; and vol. 2, for a list of the settlements of Halkidiki during the 15th and the 16th centuries.

³ Cf. Ioakeim A. Papaggelos, "I istoria", in *Ormylia. Iero koinovio Evaggelismou tis Theotokou* ["History", in *Ormylia. Holy Coenobion of the Annunciation of the Virgin*], Athens: Interamerican, 1992, pp. 29-68 and especially the topographical sketch in p. 28; Kolovos, "Chorikoi kai monachoi", vol. 2, pp. 42, 83-4, 91-2, 118-9; for the 17th and 18th century, see the unpublished Ottoman tax registers in Istanbul, Başbakanlık Osmanlı Arşivi (hereafter: BOA), Maliyeden Müdevver (hereafter: MAD) 3461, p. 184; MAD 4609, p. 47; BOA, Kamil Kepeci (hereafter: KK) 2869, p. 9.

⁴ The present day village of Gomatou, however, is situated to the south east of the old site in the same plateau. In the Provlakas area there existed also in the late Byzantine and the early Ottoman period the settlements of Eladiava and Komitissa, along with the settlements founded by the *paroikoi* of the Athonite monasteries (Iviron, Alypiou); see Ioakeim A. Papaggelos, "Eidiseis gia ta iviritika metochia tis Ierissou" [Notices for the metochia of Iviron monastery in Ierissos], *Byzantina*, 13 (1985), 1569-1618; Kolovos, "Chorikoi kai monachoi", vol. 2, pp. 48-9, 61, 67-8, 83.

⁵ The conclusion that the population of the monastic *paroikoi* declined during the 14th century was drawn from the study of Aggeliki Laiou-Thomadaki, *I agrotiki koinonia stin ysteri byzantini epochi* [Peasant Society in the Late Byzantine Empire], Athens: MIET 1987, p. 392; cf. Konstantinos Moustakas, "I dimographiki krisi tou ysterou Mesaiona ston elliniki choro: I periptosi tis notio-anatolikis Makedonias" [The demographic Crisis of the late Middle Ages in the Greek lands: the Case of the South-Eastern Macedonia], *Mnimon*, 25 (2003), 9-33.

it is likely that the raids of pirates from the Turkish emirates of Anatolia and the first Ottoman conquest during the fourteenth century further contributed to the desolation. After repairing the wall of Kassandreia, in 1407-08 the despot of Thessaloniki John VII Palaeologos attempted to reorganise agricultural production on the peninsula by making donations to the Athonite monasteries. Subsequently, Kassandra appears to have been occupied by the Ottomans before 1425, when it was temporarily retaken by the Venetians.⁶ In the Ottoman registers of the fifteenth and sixteenth centuries and prior to its repopulation in 1588, the Kassandra peninsula is recorded as “grazing land” and “winter pastureland” (*otlak, kışla*) with no villages at all. Similarly, the peninsula of Longos (present-day Sithonia) was also classified as winter pastureland during the same period, without any organised settlement until the second half of the sixteenth century. Its Byzantine villages (Longos, Sarti, Koskinas) were recorded as “old villages” (Gk. *paleochoria*, i.e. abandoned villages) already from 1346, probably as a result of the activity of pirates from the Turkish emirates of Anatolia in the previous year.⁷

2. The Athonite Monks and their Properties

After the devastating raids by the Catalan Company, the Athonite peninsula appears to have also been raided from the sea by pirates from the Turkish emirates of Anatolia in the first half of the fourteenth century.⁸ In the second half of that century, however, it appears that Mount Athos ceased to be the target of raids. On the basis of a reference by Patriarch Philotheos Kokkinos regarding the Turks’ respect for the Holy Mountain, Elizabeth Zachariadou has claimed that the monks had probably secured their protection probably through the mediation of John VI Kantakuzenos, Sultan Orhan’s father-in-law.⁹

The Athonite monks continued to preserve a kind of independence on the peninsula during the first Ottoman conquest, while in 1423-24 they hastened to “pay their

⁶ See the relevant documents in Paul Lemerle et al. (eds), *Actes de Lavra*, vol. 3, Paris: P. Lethielleux 1979, no. 159; Jacques Bomboire (ed.), *Actes de Xéropotamou*, Paris: P. Lethielleux 1964, no. 28; Phokion Kotzageorgis, *Archeio tis I.M. Agiou Pavlou. Epitomes eggrafon, 1010-1800* [Archive of the Holy Monastery of Agios Pavlos. Summary of Documents], Athens: National Hellenic Research Foundation 2008, no. 19; Konstantinos Mertzios, *Mnimeia makedonikis istorias* [Monuments of Macedonian History], Thessaloniki: Etaireia Makedonikon Spoudon 1947, pp. 62-7.

⁷ For the Byzantine habitation in Sithonia, see Ioakeim A. Papaggelos, “I Sithonia kata tous vyzantinous chronous: Istorია-Mnimeia-Topografia” [Sithonia in Byzantine Times: History-Monuments-Topography], unpublished PhD thesis, Thessaloniki: Aristotle University 2000. For the Ottoman period, see Kolovos, “Chorikoi kai monachoi”, vol. 1, pp. 94-9.

⁸ Mirjana Zivojinovic, “Concerning Turkish Assaults on Mount Athos in the 14th Century Based on Byzantine Sources”, *Prilozi za Orijentalnu Filologiju*, 30 (1980), 501-16.

⁹ Elizabeth A. Zachariadou, “A Safe and Holy Mountain: Early Ottoman Athos”, in A. Bryer and M. Cunningham (eds), *Mount Athos and Byzantine Monasticism*, Aldershot: Variorum 1996, p. 127.

respects” to Sultan Murad II at Adrianople,¹⁰ immediately after the beginning of the blockade of Thessaloniki. A few days after the fall of the city in 1430, they met the Sultan in person and were granted a decree guaranteeing protection of their properties in Halkidiki, the Strymon valley and Mount Pangaion, which ratified previous decrees by his predecessors on the same subject.¹¹

The monastic properties in Halkidiki constitute a case of continuous – albeit partial – land use in the region during the transition between the Byzantine and Ottoman periods.¹² We will present some examples below.¹³ The monastery of Esphigmenou retained its *metochion* at Portarea, despite the fact that some of its lands had been confiscated in the first Ottoman conquest (1383/87-1403). As can be seen in this case, the Ottomans had indeed confiscated lands during their first conquest of Halkidiki. The monastery’s lands at Portarea had been confiscated before 1388, together with the lands of Georgios Anatavlas, so that they could be handed over to a Muslim, perhaps a *timar*-holder. However, the monks of Esphigmenou, after appealing to the Sultan and the Vizier Ali Paşa, “at no little expense and with considerable haste”, managed to recover them,¹⁴ retaining, as can be seen from the Ottoman tax registers, an estate (*çiftlik*) at Portarea during the sixteenth century, together with five *dönüm* of vineyards and meadows, according to the list of monastic *vakıf* properties in 1568.¹⁵ As a result of the granting of *timars* by the Ottomans, the monasteries lost the tax revenues from their *paroikoi*, which now passed to the *timar*-holders; nevertheless, they were able to retain, at least in many cases, their main monastic estates (*domaines*) by paying taxes. Thus, we observe that while Lavra owned Vromosyrta (now Agios Panteleimon) during the Byzantine era and had a number of *paroikoi*, who paid tax to the monastery, according to the Ottoman tax register of 1445 in that year the monastery was no longer entitled to the tax revenues from the 36 families living in the village; the taxes were

¹⁰ Peter Schreiner, *Die byzantinischen Kleinchroniken*, Vienna: Österreichischen Akademie der Wissenschaften 1983, vol. 1, p. 473.

¹¹ See Elias Kolovos, “The Monks and the Sultan outside Newly Conquered Ottoman Salonica in 1430”, *Journal of Turkish Studies*, 40 (2013), 271-81.

¹² For losses of real estate properties during the first Ottoman occupation of Central Macedonia, with examples from the Halkidiki and Serres regions, see Kostis Smyrlis, “The First Ottoman Occupation of Macedonia (ca. 1383-ca. 1403): Some Remarks on Land Ownership, Property Transactions and Justice”, in A. D. Beihammer, M. G. Parani, C. D. Schabel (eds), *Diplomatics in the Eastern Mediterranean 1000-1500*, Leiden-Boston: E.J. Brill 2008, pp. 331-339. These losses might be related mainly with the colonisation of Muslim peasants and Yürüks pastoralists, for which see below.

¹³ See, in detail, Elias Kolovos, “Katalipsi tou chorou kai monastiriaki gaioktisia stin othomaniki Halkidiki (15^{ος}-16^{ος} ai.)” [Settlement and Monastic Land Properties in Ottoman Halkidiki (15th-16th c.)], in *To Agion Oros ston 15o kai 16o aiona. Praktika synedriou*, Thessaloniki: Agioreitiki Estia 2012, pp. 107-25.

¹⁴ Jacques Lefort (ed.), *Actes d’Esphigmenou*, Paris: P. Lethielleux 1973, no. 29 and the interpretation of the document in Smyrlis, “The first Ottoman occupation”, p. 334 and fn. 25. For the Byzantine estate, see Lefort, *Chalcidique*, p. 129.

¹⁵ Kolovos, “Chorikoi kai monachoi”, vol. 2, pp. 160-1. Unfortunately, we do not have enough data on the size of the real estates in the Ottoman tax registers so as to compare them with those from the Byzantine period.

shared between two *timars* held by the “royal slaves” (*gulam-ı mir*) Sofi Hızır and Uzun İlyas. Nevertheless, the monastery of Lavra retained its lands as an estate by paying a lump sum tax (*mukataa-ı çiftlik*).¹⁶ Similarly, it appears that the monastery of Vatopedi also retained its Byzantine *metochion* at Agios Mamas as an estate (now Georgikos Stathmos Halkidikis) by paying a lump sum tax.¹⁷

During the reign of Mehmed II, Şihabeddin Paşa, the former commander of the Sultan’s forces in Rumelia who ended his career in honourable pension as governor of Thessaloniki by issuing numerous documents in favour of the Athonite monasteries, granted a favourable tax arrangement, involving the payment of dues at a lump sum (*mukataa*), to the Athonite *metochia* at Ormylia (held by the monasteries of Vatopedi, Lavra and Xeropotamou). Indeed, this arrangement appears to have been respected by Şihabeddin’s successors too, as he had requested in the relevant documents.¹⁸ In the same area, the monasteries of Docheiariou and Zographou also retained their Byzantine *metochia*. On the other hand, the fate of Esphigmenou’s Byzantine *metochion* remains unknown.

Almost all of the Athonite monasteries possessed estates from the Byzantine era on the Isthmus of Ierissos, which survived through the Ottoman period.¹⁹ It is characteristic that the oldest Ottoman document relating to Mount Athos, a decree issued by the *beylerbey* of Rumelia Hacı Firuz bin Abdullah in 1401, ratifies the collection of dues from Prosfhorion by the monks of Vatopedi.²⁰

After the Ottoman conquest, the Athonite monasteries did not cease to invest in land by creating new *metochia*. In the Portarea area, for example, the monks of Dionysiou monastery appear to have created a new *metochion* during the fifteenth century (before 1474) at Katakali (now Dionysiou), which is recorded in the Ottoman registers as an agricultural area (*mezraa*), under the title ‘Dionysiatiko’ (*Dyonışad*).²¹ On the other hand, Docheiariou monastery’s Byzantine *metochion* of Mariana, a village which monks from that monastery had repopulated by settling *paroikoi* in 1373-75 and continued to exist in the Ottoman era, may not have been preserved in its entirety, since in 1568 the Ottoman registers mention only the monastery’s water-mills – two mills with

¹⁶ See in detail the comparison that Nicos Oikonomides attempted in his “Ottoman Influence on Late Byzantine Fiscal Practice”, in H. W. Lowry & R. S. Hattox (eds), *IIIrd Congress on the Social and Economic History of Turkey*, Istanbul-Washington-Paris: Princeton University Press-Isis 1990, pp. 252-7. See the complete data in the Ottoman tax registers in Kolovos, “Chorikoi kai monachoi”, vol. 1, pp. 115-8, 120, 135-7 & vol. 2, pp. 184-5.

¹⁷ Kolovos, *op.cit.*, vol. 2, pp. 139-40. For the Byzantine *metochion* of Agios Mamas and the relations of the monks of Vatopedi with their *paroikoi*, see Kostis Smyrlis, “Our Lord and Father’: Peasants and Monks in mid-Fourteenth-Century Macedonia”, *Travaux et Mémoires*, 16 (2010), 786-91.

¹⁸ Kolovos, “Katalipsi tou chorou”, pp. 114-6.

¹⁹ *Ibid.*, pp. 116-8.

²⁰ Elias Kolovos, “Early Ottoman Diplomats Revisited: An Order of the *Beglerbegi* of Rumeli Hacı Firuz ibn Abdullah in Favour of the Athonite Monastery of Vatopedi (1401)”, *Turcica*, 45 (2014), 187-208.

²¹ See Elizabeth A. Zachariadou, «Ottoman Documents from the Archives of Dionysiou (Mount Athos) 1495-1520», *Südost Forschungen*, 30 (1971), 1-36.

two millstones each – as well as a vineyard and a vegetable garden.²² In the case of the *metochion* of Agios Pavlos monastery at Avramites (now Agios Pavlos), which was granted to the monastery in 1405 by Radoslav Sabias, the monks exploited the lands of villages that had been previously abandoned.²³

To sum up: The Athonite monasteries were in a position to expand their possessions with grants from the Ottomans, the most characteristic example being the exploitation of the Longos peninsula for their flocks, from the fifteenth century onwards, and the partial exploitation of the Kassandra peninsula. We will discuss these developments further below.

3. The Newcomers: Yürüks in Halkidiki

In a region that had suffered from a demographic crisis in the fourteenth century, the Ottoman conquest appears to have offset the demographic losses caused by the military operations, partly by the settlement in the countryside around Thessaloniki of Muslim populations that had taken part in those operations, and partly through the forced resettlement (*sürgün*) of *Yürük* pastoralists, who, under Murad I in the 1380s and Bayezid I in the 1390s, were transferred from Western Anatolia (Sarukhan) to the countryside around Thessaloniki, forming a semi-circle around the city in order to bolster its defences.²⁴ On the basis of the later Ottoman registers, it is possible to chart these settlements, as far as they relate to Halkidiki, as follows: A small number of Muslim agricultural villages were created in the Vasilika valley, namely the settlements of Ilica, Turhanlu, Tuzcılar, Karaçulhali, which had Turkish names, and the settlements of Sarantarea and Agathi, which preserved their Byzantine names despite the Turkish colonisation of the area. Agathi, it should be noted, enjoyed special immunity from extraordinary taxes in exchange for the villagers' guarding of the coastline and the revenues from the sale of salt. In two other villages that preserved their Byzantine names, Panagia and Karkara, Muslim farmers were settled in the area between Vavdos and Portaria. The *Yürük* pastoralists, on the other hand, were recorded in the tax registers under the broad title of 'Yürük subjects' (*reaya Yürükler*), and were subjects of Kalamaria, which indicates that at least until the sixteenth century they were still in a seminomadic state. It is clear that they moved around with their flocks between Mount Vertiskos, more northerly-lying grazing grounds and western Halkidiki (summer pastures).

²² Kolovos, "Katalipsi tou chorou", p. 114.

²³ For Avramites, see in detail Phokion Kotzageorgis, *I athoniki moni Agiou Pavlou kata tin othomaniki periodo (14os ai.-1830)* [The Athonite Monastery of Agios Pavlos during the Ottoman Period (14th c.-1830)], Thessaloniki: University Studio Press 2002, pp. 56-96.

²⁴ See Nevra Necipoğlu, *Byzantium between the Ottomans and the Latins: Politics and Society in the Late Empire*, Cambridge: Cambridge University Press 2009, pp. 99-100. For the *Yürüks* in general, see H. İnalçık, "The *Yürüks*: Their Origins, Expansion and Economic Role", in his *The Middle East and the Balkans under the Ottoman Empire: Essays on Economy and Society*, Bloomington: Indiana University Press 1993, pp. 97-136.

Their temporary settlements, which are recorded in the registers as “neighbourhoods” (Ott. *mahalle*) (43 in the first few years of the reign of Suleiman the Magnificent and 81 in the early part of the reign of Selim II, for the largest group of them) with Turkish anthroponyms, were noted by the registrars as being spread out over the areas of Kalamaria, Thessaloniki, Mount Vertiskos (Boğdan), Serres, Sidirokastro, Stroumtza, Gynaikokastro (near present-day Kilkis) and Vardaris, and as far away as Philippoupolis/Plovdiv.²⁵

The winter settlements of the *Yürüks* in western Halkidiki appear to have been located mainly on Mount Kalavros and in the semi-mountainous zone to the south, and less on the southern slopes of Mount Chortiatis. This arrangement is corroborated from the distribution of their settlements in the nineteenth and early twentieth centuries.²⁶ It is very interesting to note that the settlements of the *Yürük* pastoralists correspond exactly with the present-day *maquis* zone. It should also be noted that a *Yürük* settlement also existed at Eğri Buçak, present-day Nea Apollonia. In this case, it is possible to trace, in a relatively clear manner, the evolution of the *Yürük* communities through the registers, beginning with their initial settlement, moving on to their transformation into farmers of the land and ending finally in their establishing of villages, though the latter does not mean they lost their semi-nomadic character (as seen in the movement of their flocks to nearby summer pastures to the west of Eğri Buçak).²⁷

A note should also be made of the tension that was caused by this category of pastoralists as they moved along the borders of cultivated areas or in areas that comprised a mixture of farmland and *maquis* (as in the case of the land to the north of present-day Nea Kallikrateia). This tension may have led to the abandonment of the village of Sigilou in the period 1527-68 and the relocation of its inhabitants to Rossaiou (which took the name Sigilou), with *Yürüks* settling on the land of the old Sigilou at the same time.²⁸

4. Demographic Growth, 15th to 16th Century

At the beginning of the early modern period Halkidiki experienced the kind of large demographic increase that characterised the Mediterranean and European worlds as a whole in the sixteenth century.²⁹ Thanks to the data provided by the Ottoman tax registers, it is possible to make relatively sound calculations for this “demographic revolution”.

²⁵ Kolovos, “Chorikoi kai monachoi”, vol. 2, p. 106.

²⁶ Paul Bellier et al., *Paysages de Macédoine*, Paris: De Boccard 1986, map no. 2 at the end of the book.

²⁷ See the relevant sections in Kolovos, “Chorikoi kai monachoi”, vol. 2, pp. 34, 93-4 and 58.

²⁸ *Ibid.*, p. 109.

²⁹ Fernand Braudel, *The Mediterranean and the Mediterranean World in the Age of Philip II*, vol. 1, Berkeley and Los Angeles: University of California Press 1995, pp. 402 ff.

A starting-point for the demographic history of Halkidiki during the Ottoman period is an abridged Ottoman poll tax register from 1490-91.³⁰ Given that Halkidiki was a region with an overwhelmingly Christian population and that the fiscal units in this survey generally corresponded to the geographical area covered by the later surveys of the sixteenth century, it is possible to compare the figures. The register of 1490-91 mentions the “fiscal provinces” (*vilayet*) of Kalamaria, Chortiatis, Mount Bogdan, and the Sidrekapsi mines, which made up the region. The total number of Christian households in 1490 was 5,736, while in the following year it was 5,991. Table 1 illustrates how these figures evolved according to the Ottoman tax registers of the sixteenth century.

Table 1
The tax-paying population of Halkidiki in the sixteenth century

Year	Muslims		Christians			Totals		
	Households	Unmarried	Households	Unmarried	Widows	Households	Unmarried	Widows
1519	627	380	5,235	777	541	5,862	1,157	541
1527	653	314	7,568	1,522	715	8,311	1,836	715
1568	584	426	6,462	3,352	292	7,046	3,788	292

Note: households = *hane*; unmarried = *mücerred*; widows = *bive*.

Source: The database made by Christos Kyriakopoulos, assistant researcher, for the project. Cf. Kolovos, “Chorikoi kai monachoi”, vol. 2. These data emerge from the figures given for 111 settlements in 1519 (or earlier), 113 settlements in 1527 and 107 settlements in 1568. The *Yürüks* and the Muslim or Christian *çiftlik*s have not been included.

On the basis of the number of households, it is possible to observe a 41.77% increase in the size of the taxed population in a relatively short period, between 1519 and 1527. The same increase may also be observed if the calculations are based on the number of adult males (unmarried and households combined show an increase of 44.56%) or the total number of households (unmarried males and widows show an increase of 43.67%). However, we should note that the register of 1519 did not record the salt-workers (*tuzciyân*), nor did the registers of 1527 and 1568. This means that the actual increase in the tax-paying population was not so large. In the period 1527-68, on the other hand, there was a drop in the number of households (-15.22%), but an increase in the number of unmarried males (a 6.67% increase for households and unmarried males combined) and in the total number of households (a 2.33% increase for unmarried males and widows). This was the result of a twofold increase in the number of unmarried males between the registers of 1527 and 1568. Overall, on the basis of

³⁰ Nikolai Todorov & Asparuh Velkov, *Situation démographique de la péninsule balkanique (fin du XVe s.-début du XVIe s.)*, Sofia: Bulgarian Academy of Sciences 1988, pp. 264-5 and 274.

the above figures, it is possible to conclude that the tax-paying population of Halkidiki generally increased during the sixteenth century.³¹

As the villages of Halkidiki form a sizeable sample, it has been possible to identify the settlements in the various registers. Assuming that migration was a negligible factor, we have deduced the region's overall population from the number of adult males on the basis of a set of different factors.³²

Table 2

Estimates on the population of Halkidiki in the sixteenth century

Year	Adult males	Coefficient	Estimated population
1519	7,019	4.31	30,251.89
	7,019	2.72	19,091.48
1527	10,147	4.31	43,733.57
	10,147	2.72	27,599.84
1568	10,824	4.31	46,651.44
	10,824	2.72	29,441.28

Source: Table 1 with the coefficients in Faroqhi-Erder, "Population rise".

According to the data in Table 2, the average annual rate of demographic growth in the fifty-year period 1519-68 was 0.89%, which is considered to be generally satisfactory, though not particularly impressive, for a pre-industrial society.³³

The above estimates can be indicatively compared with the data provided by the first few censuses of the twentieth century. However, it should be borne in mind that while today much of the region examined in this study falls under the former Prefecture of Halkidiki, a part of it falls under the former Prefecture of Thessaloniki. According to the 1920 census, the semi-urban and rural population of the Halkidiki prefecture was 48,859, while in 1928 it was 60,618 and in 1940 74,523. The semi-urban and rural

³¹ For increases in the population of the Ottoman Empire during the 16th century, see Ömer L. Barkan, "Essai sur les données statistiques des registres de recensement dans l'Empire Ottoman aux XV^e et XV^e siècles", *Journal of the Economic and Social History of the Orient*, 1 (1958), 9-36; Suraiya Faroqhi (in collaboration with Leila Erder), "Population Rise and Fall in Anatolia, 1550-1620", *Middle Eastern Studies*, 15.3 (1979), 322-45. However, not all Greek lands experienced such a demographic growth. For example, in western and central Macedonia (districts of Horpište and Karaferye) the average annual rate of growth fluctuated from -1.8% (1519-1530) to 0.8% (1530-1542), before dropping again to -0.75% (1542-1568); see Vassilis K. Gounaris, "Dimografikes paratiriseis" [Demographic remarks], in J.S. Koliopoulos (ed.), *Opseis tou Argous Orestikou (Chroupistas) kata tin Tourkokratia (1400-1912)* [Aspects of Argos Orestikon during Turkish Rule, 1400-1912], Thessaloniki: Adelphoi Kyriakidi 2013, pp. 54-5 and fn. 55 and Table 1.

³² For the method, see: Faroqhi-Erder, *op.cit.*, p. 33 fn 3.

³³ The average annual rate of demographic growth in the Greek towns of that period fluctuated between 0.8%-1.2%; see: Machiel Kiel, "Das türkische Thessalien: Etabliertes Geschichtsbild versus Osmanische Quellen. Ein Beitrag zur Entmythologisierung der Geschichte Griechenlands", in R. Lauer-P. Schreiner (eds), *Die Kultur Griechenlands in Mittelalter und Neuzeit*, Göttingen: Akademie der Wissenschaften in Göttingen 1996, p. 133.

population of the whole of the Thessaloniki prefecture was 74,458 in 1920, 116,952 in 1928 and 147,265 in 1940.³⁴

The figures that exist for the settlement and population of Halkidiki in the fifteenth century are not complete, since the relevant tax surveys have only been partially preserved; consequently, it is not possible to calculate overall figures that may be compared with those we have for the sixteenth century. Below, we have chosen to make a comparison between smaller samples, consisting of the same villages that occur in the tax surveys of both the fifteenth and sixteenth centuries. Excluding those villages that were also inhabited by salt-workers, in as much as the latter were not recorded in earlier tax surveys, we have selected a sample of twenty-five Christian and one Muslim village, which appear in the surveys of 1445 and 1519.

Table 3

The tax-paying population of 26 villages of Halkidiki in 1445 and 1519

Year	Muslim		Christian			Totals		
	Households	Unmarried	Households	Unmarried	Widows	Households	Unmarried	Widows
1445	8		836	56	111	844	56	111
1519	103	58	2,047	271	233	2,150	329	233

Source: Kolovos, "Chorikoi kai monachoi", vol. 2.

The results are impressive. A 154.73% increase in the number of households that is calculated, a 175.44% increase in the number of adult males (households and unmarried men combined), a 168.24% increase in the total number of households, adult males and widows. The increase in the size of the tax-paying population is in excess of 150% and almost threefold. It represents actually a "demographic increase of 100 per cent".³⁵ The annual rate of demographic growth for the total number of households, unmarried men and widows is 1.34%, a high percentage for this type of society. By comparing two samples from the same villages that appear in the registers for the periods 1445-78 and 1478-1519, respectively, it is possible to form a more accurate picture of the increase in the size of the tax-paying population between the late fifteenth and the early sixteenth century. For the first period the sample that was used includes 24 Christian and one Muslim village, while the sample used for the second period includes 52 Christian and ten Muslim villages.

³⁴ Michail Chouliarakis, *Exelixeis tou plithismou ton agrotikon periochon tis Ellados, 1920-1981* [The Evolution of the Population in Rural Areas of Greece, 1920-1981], Athens: EKKE, 1988, p. 17.

³⁵ Braudel, *op.cit.*, p. 402.

Table 4

The tax-paying population of 25 villages in Halkidiki between 1445-78

Year	Muslim		Christian			Totals		
	Households	Unmarried	Households	Unmarried	Widows	Households	Unmarried	Widows
1445	8		820	54	111	828	54	111
1478	30	10	815	46	127	845	56	127

Source: Kolovos, "Chorikoi kai monachoi", vol. 2.

Table 5

The tax-paying population of 62 villages in Halkidiki between 1478-1519

Year	Muslim			Christian			Totals		
	Households	Unmarried	Widows	Households	Unmarried	Widows	Households	Unmarried	Widows
1478	157	55	1	1,409	56	213	1,566	111	214
1519	463	313		3,603	494	384	4,066	807	384

Source: Kolovos, "Chorikoi kai monachoi", vol. 2.

A comparison of the above tables reveals that the tax-paying population in the sample of 25 villages remained extremely stable during the period 1445-78. By contrast, the sample of 62 villages displays a particularly high increase in the period 1478-1519. In respect of households, the increase is in the order of 159.64%, in respect of adult males 190.57%, and in respect of households, unmarried men and widows as a whole 178%. The annual rate of demographic growth in the first period is 0.105%, displaying a real stability in the population, while the annual rate of demographic growth in the second period is 2.525%, an impressively high increase for this period and this type of society. This observation concurs completely with the findings of a study conducted for the Strymon area, which, like Halkidiki, possesses sufficient historical sources for the transitional period between Byzantine and Ottoman rule. In this study it is argued that in the period 1454-78 the demographic increase was negligible (the population remained more or less stable), while in the period 1478-1519 large-scale demographic changes occurred.³⁶

In order to calculate the density of the calculated population in the sixteenth century, it was necessary to calculate the total size of the area under examination on the basis of the figures provided by the National (Greek) Statistical Service in 1962 for every municipality and community. To be precise, the figures for all the municipalities and communities in the Prefectures of Halkidiki and Thessaloniki below the line of the lakes (which is the northernmost limit of the area examined in this study) were

³⁶ Moustakas, "I dimografiki crisi", especially pp. 32-3. Similarly, from a sample of ten villages in the district of Horpiste between 1445 and 1500 (or 1519) an annual rate of growth of 1.6% (or 1.3%) is observed; Gounaris, "Dimografikes paratiriseis", pp. 54-5 and table 2.

added together, while the Sithonia and Kassandra peninsulas were excluded as they had no villages during the period under consideration.³⁷ The total land area was calculated at 3,203.9 km². On the basis of this figure, and the highest and lowest calculated figures for the total population in Table 2 above, the population density in the whole of the area under examination has been estimated to be as follows:

Table 6
Density of the estimated population of rural Halkidiki in the sixteenth century
(in a total land area of 3,203.9 km²)

Year	Estimated population	Inhabitants per km ²
1519	30,251.89	9.44
	19,091.48	5.95
1527	43,733.57	13.65
	33,688.04	10.51
1568	46,651.44	14.56
	35,953.68	11.22

Source: Based on Table 2.

The above calculations represent minimum values as they do not include the *Yürüks*, the monks or the population of Sidrekapsi and the two mining villages nearby (Izvor and Piavitsa). In comparative terms, in 1920 the population density of the Halkidiki prefecture was 16.96 inhabitants per km², while in 1928 it was 21.04 and in 1940 25.87.³⁸

5. The Resettlement of Kassandra and Sithonia

Evidence of the large demographic increase that occurred in the sixteenth century, which certainly led to a fuller occupation of the land area of Halkidiki, is to be found in the resettlements, during the last quarter of the sixteenth century, of the Kassandra and Longos (Sithonia) peninsulas, which, as we saw earlier, had had no organised habitation up until that point.

³⁷ National Statistical Service of Greece, *Katanomi tis ektaseos tis choras kata vassikas kategorias chriseos. Proapografika stoicheia* [Allocation of the Land Area of the Country According to Basic Categories of Use. Pre-Census Data], Athens: Ethniki Statistiki Ypiresia Ellados 1962, pp. 182-5 and 150-4.

³⁸ For the area of the Prefecture of Halkidiki, see *idem*, p. 4. The data of 20th-century censuses are in Chouliarakis, *op.cit.*, p. 17. Cf. the population density of the Peloponnese in 1700 (8.4 inhabitants/km), in contrast with the later data (1879: 34.0, 1907: 44.0, 1940: 55.6), in Vassilis Panagiotopoulos, *Plithysmos kai oikismoi tis Peloponnisou, 13os-18os aionas* [Population and Settlements of the Peloponnese, 13th-18th centuries], Athens: Istoriko Archeio Emporikis Trapezas Ellados 1987, pp. 170-82. We should underline that the average density in the Greek peninsula at the beginning of the 19th century was 13.3 inhabitants/km²; Dimitris Anogiatis-Pele, "Dimografikes plirofories gia tin Ellada apo periigites (1800-1820)" [Demographic Information on Greece Based on Travellers' Accounts], *Mnimon*, 10 (1985), 5-6 and 15.

In the Ottoman tax registers of the fifteenth and sixteenth centuries Kassandra was classified as grazing land. In the tax register of 1478 the revenues from the *hass* of the then governor of Thessaloniki included the “dues from the grazing land of Kassandra in the district of Kalamaria” (*resm-i otlak-ı Kesendire der vilayet-i Kelemerye*). The same “dues from the winter pasture of Kassandra” (*resm-i kışla-ı Kesendire*) were also mentioned in the tax register of 1519. In 1527 these also included dues from beehives, fish and resin. In 1568 the dues from the winter pasture of Kassandra (together with the dues from beehives, buffalo, sheep, pigs, fish and resin) were recorded together with other revenues from the *hass* of the governor of Thessaloniki.³⁹ The partial continuity of the exploitation of Kassandra, as in the case of Longos, was aided by the presence of certain monasteries based on Athos and at Serres which, according to the Ottoman tax registers, maintained winter pastures on Kassandra (the Athonite monasteries of Vatopedi, Philotheou, and Dionysiou, of Timios Prodromos at Serres, Kossifoinitsa on Mount Pangaion, Agia Anastasia in the Thessaloniki area).⁴⁰

The Kassandra peninsula was resettled in the late sixteenth century on the initiative of a high-ranking Ottoman official, Gazanfer Ağa (d. 1602-03), the head of the White Eunuchs (*Kapu Ağası*), to whom the peninsula had been granted, with full ownership (*temlik*), in 1588 by Sultan Murad III, according to a document granting tax immunity to the Kassandra peninsula (*suret-i muafname-i cezire-i Kesendire*). Gazanfer was later to convert the holding into a *vakıf*.⁴¹ In order to attract settlers, the Sultan decreed that the *reaya* of the peninsula and their descendants should be granted immunity (*muaf ve müselleme*) from extraordinary taxes (*avarız*) and a set of obligations to provide mandatory services.⁴² Of particular interest are the exemptions from the obligations to work in the mines or on the galleys, to pay the tax on postal services and the taxes on barley, hay and tree-felling, and to provide boys for the *devşirme*. The fact that the “exemption document” included a tax on tree-felling indicates that the Ottoman State was concerned about the uncontrolled felling of trees in the peninsula.

The establishment of Gazanfer Ağa's *vakıf* in Kassandra led to the settlement of those villages that still account for the majority of the peninsula's population today. It is not known where the new inhabitants came from. It seems quite likely, however, that the peninsula was settled by people from other parts of Halkidiki. The lack of any evidence to the contrary and the peninsula's smooth demographic development since

³⁹ BOA, Tapu Tahrir Defteri (hereafter: TT) 7, p. 560 and 590; TT 70, p. 103; TT 403, p. 781; TT 723, p. 250.

⁴⁰ Kolovos, «Katalipsi tou chorou», pp. 121-3. See also : Kotzageorgis, *I athoniki moni*, p. 116, for a grant of uncultivated lands in 1542 by the Patriarch of Constantinople Ieremias I to the monastery of Stavronikita; however, this property is not registered in the catalogue of 1568.

⁴¹ For a similar resettlement project of the same years on the island of Samos, see Sophia N. Laiou, *I Samos kata tin othomaniki periodo* [Samos in the Ottoman Period], Thessaloniki: University Studio Press 2002, pp. 33-8.

⁴² BOA, TT 723, p. 250 (copy). A copy of the document is also held in the archive of the Agios Pavlos monastery; see Kotzageorgis, *I athoniki moni*, p. 116 fn. 166.

then both lead to this conclusion. Moreover, it should be borne in mind that in the second half of the sixteenth century Halkidiki, like other parts of the Balkans, came to have a demographic surplus and thus there was enough population surplus for people to be resettled in Kassandra. The first evidence we have of village settlements during this period concerns the villages of Valta in 1589-90, Pinakas in 1593-94, Paliouri and Agia Paraskevi in 1596-97, Polychrono in 1597-98, Aphytos in 1615, Kapsochora and Kalinikou in 1623, and Kalandra in 1629.⁴³ At the same time, almost all of the Athonite monasteries hastened to re-establish their Byzantine *metochia* in Kassandra, whose ownership was safeguarded with the issuing of deeds and boundary documents by the administrators of the *vakif* or Gazanfer Ağa. The *metochia* of Agios Pavlos, Esphigmenou and Dionysiou monasteries had already been founded in 1591, while those of Xeropotamou, Zographou and Koutloumousiou were established in 1597-98, 1599 and 1608, respectively.⁴⁴

Already in documents dating from the fifteenth century there is considerable evidence of the extensive use of the Longos peninsula by the Athonite monasteries as a winter grazing land. Due to its immediate proximity to the Mount Athos peninsula, almost all of the monasteries held winter pastures on Longos from the early Ottoman period onwards. The Ottoman tax register of 1478 contains a list of the Athonite monasteries which at that time paid taxes to the *timar*-holder of Nikiti, relating to their holdings on Longos, in the form of dues on beehives (*resm-i kovan*) and on winter pastures (*resm-i kışlak*),⁴⁵ according to the list of *vakif* estates held by the Athonite monasteries in 1568, winter pastures on Longos were held by 15 out of the 20 monasteries.⁴⁶

In the second half of the sixteenth century the peninsula of Longos became part of the Sultan's *hasses*, a source of tax revenue for the Sultan himself.⁴⁷ It is likely that during this period certain villages on the peninsula were reconstituted as fiscally accountable units. From this period we have the first reference to the village of Sykia, in

⁴³ See in detail, Kolovos, "Chorikoi kai monachoi", vol. 1, 87-94. Aphytos was a village in the 14th century. For the movement of peasants from Athitos to Agios Mamas in 1346-48, obviously evacuating their former village for unknown reasons, see Smyrlis, "Peasants and Monks", p. 787 and fn. 87.

⁴⁴ Kolovos, "Chorikoi kai monachoi", vol. 3, no. 191, 201, 223, 224; Kotzageorgis, *I athoniki moni*, p. 116. For the topography of the villages and the metochia in Kassandra after the colonization of the 1590s, see Bellier et al., *Paysages de Macédoine*, passim; Johannes Koder, "Die Metochia der Athos-Klöster auf Sithonia und Kassandra", *Jahrbuch der Österreichischen Byzantinistik*, 16 (1967), 211-24.

⁴⁵ BOA, MAD 17748, p. 6. Cf. the special Ottoman regulation for the "winter pasture of Longos" (*kışla-ı ada-ı Longoş*) in John C. Alexander, *Toward a History of Post-Byzantine Greece: The Ottoman Kanunnames for the Greek Lands, circa 1500-circa 1600*, Athens 1985, p. 45 and 217.

⁴⁶ Kolovos, "Katalipsi tou chorou", pp. 119-21.

⁴⁷ Vassilis Dimitriades, "Forologikes katigories ton chorion tis Thessalonikis kata tin Tourkokratia" [Tax categories of the villages of Thessaloniki during the Ottoman Period], *Makedonika*, 20 (1980), 429-30.

the vicinity of the Byzantine village of Longos, while Sarti is also mentioned once again as a village.⁴⁸

Apart from having demographic repercussions, the resettlements described above may also have had an environmental impact in the medium term. The hilly region in the north-west part of the Kassandra peninsula is now cultivated with large tracts of cereals, separated by areas of pine forest. Nineteenth-century records show that the areas of pine forest were probably larger, and coexisted with areas of cultivated land and *maquis*. The situation was very different in the fourteenth century, where records show that oak forests existed instead of the pine forests and that most of the land was used for stockbreeding. The disappearance of oak forests between the fourteenth century and the modern era has also been noted in the case of the region to the south-west of Ormylia and the Vourvourou area on the Longos peninsula.⁴⁹

6. Rural Economy and the Environment

The rural economy in the Late Byzantine era has been analysed by Angeliki Laiou, mainly on the basis of the example of the Halkidiki countryside. In the case of the village of Gomatou, the peasants cultivated only a small proportion of the land, which may reasonably be assumed to have been the village's small plain (the rest of the land was mountainous and barren). The peasants owned vineyards and fruit trees, oxen to plough the land (an average of 0.62 each in 1300), pigs (an average of 0.8 each), sheep and young goats (an average of 8.0 each), which grazed on the barren land or in the fields after harvest-time. A system of crop rotation was used, and the fields were sown with winter seeds (wheat and rye) and spring seeds (wheat, millet, oats and legumes).⁵⁰ We have no reason to believe that this situation changed during the period of Ottoman rule. In 1527, for example, the peasants of Ierissos were cultivating for food cereals (wheat, barley, oats and rye) and legumes (broad beans and bitter vetch). A considerable part of their diet consisted of fish, which were taxed quite heavily. They also had pigs for meat and fat (they had no olive trees), bees for honey and, of course, sheep and goats. They were also taxed on the figs and flax they cultivated. Of course, they also cultivated vineyards and produced must and wine, which, together with cereals, were the principal goods taxed by the Ottomans at the time. Similarly, in 1527, the

⁴⁸ Kolovos, "Chorikoi kai monachoi", vol. 3, no. 146 (1577), 161 and 162 (1583). See also Ioakeim A. Papaggeolos, "To telos tis Teronis" [The End of Teroni], in G. Karadedos (ed.), *Doron. Timitikos tomos ston kathigiti Niko Nikonano* [Volume in Honour of Professor Nikos Nikonanos], Thessaloniki: 10th Ephoreia Byzantinon Archaioitten 2006, p. 182-183, with a reference on donors' names from Teroni and Sykia in the old "vrevion" of the monastery of Pantokrator from the second half of 16th century. Thus, it is probable that Teroni was also re-colonised in the second half of 16th century.

⁴⁹ Bellier et al., *Paysages de Macédoine*, pp. 112-3. For travellers' evidence of 19th- and early 20th-century *maquis* (yews, arbutus, and wild olive-trees) in the region southwest of Ormylia, see p. 89. For evidence of the retreat of forests in the northern part of Kassandra, see p. 90; for Longos, see p. 94.

⁵⁰ Laiou, *I agrotiki koinonia*, pp. 94-100.

inhabitants of Ormylia cultivated for food cereals (wheat, barley, oats, rye and millet) and legumes (broad beans). Their diet also included fish. In addition, they had pigs for meat and fat (they had no olive trees either), although they had no bees, sheep or goats, living as they did in the middle of the plain. However, on the outskirts of the village there was a winter pasture for large animals (buffalos), probably near the river mouth. The inhabitants of Ormylia were even taxed on their figs and pears. An important “commercial” crop that was grown in the fertile plain was hemp and flax. Of course, vineyards were also cultivated. The inhabitants of Agios Sozon, in the same plain of Ormylia, also cultivated cereals and vineyards, and cotton as well. Unlike Ormylia, this village had olive trees and bees. The inhabitants also bred pigs, and they too had a winter pasture. The inhabitants of near-by Kalyvia, like those of Agios Sozon, cultivated most of their crops – cereals, vines and flax – within the boundaries of the Ormylia estates. Apart from these crops, the people of Kalyvia also had bees. On the other side of the river of Ormylia, the inhabitants of the village of Vatopedi had similar crops: cereals, vines, hemp, flax, and cotton. They were also taxed on their cocoons, figs, beehives and pigs. This village also possessed a winter pasture. The inhabitants were also fishermen, and they were also taxed on the potteries that existed in the village.⁵¹

A special category of the rural population in Halkidiki was that of the salt-workers. The two largest villages in the plain of Vasilika were the Christian villages of Vasilika and Agia Paraskevi.⁵² Most of their inhabitants, along with the majority of the inhabitants of another five Christian villages that lay further to the south (Zombatoi, Mesimeri, Koumoutzoulou, Krini and Kalarinos), were salt-workers and worked on the state’s saltpans. Saltpans appear to have existed in Halkidiki at an earlier date and further to the south, in the areas of Agios Mamas, Portaria and Vromosyrta; in the sixteenth century some of the inhabitants of these villages were described as “former salt-workers”. The revenue from the salt monopoly was the most important source of state income from the city of Thessaloniki in the sixteenth century.⁵³

Peregrine Horden and Nicholas Purcell have recently approached the history of the Mediterranean from the standpoint of a “new ecological economic history”,⁵⁴ studying rural history with an emphasis on the diversification that is evident in the Mediterranean. As they have argued, “the omnipresence of the marginal has enforced diversity, flexibility and opportunism in managing the environment”.⁵⁵ Even through the selective

⁵¹ See the relevant entries in the tax register TT 403, p. 1028, 677, 746-7, 678, 682.

⁵² TT 403, pp. 117 and 90 respectively.

⁵³ TT 403, pp. 128, 85, 77, 75, 69; p. 126, 98 and 120.

⁵⁴ Peregrine Horden & Nicholas Purcell, *The Corrupting Sea: A Study of Mediterranean History*, London: Blackwell Publishing, 2000, pp. 175-7.

⁵⁵ *Ibid.*, p. 180.

presentation made above, this diversification is particularly evident in the case of the rural economy of Halkidiki.

In this diversified economy and ecology, the settlement of the semi-nomadic *Yürüks* added yet another level of complexity to the rural economy of Byzantine Halkidiki. According once again to Horden and Purcell, the schematic distinction between pastoralism and agriculture is pointless: "When interdependence is high and intensification desirable, animals not only make it possible to exploit zones of forest, steep slope, or marshland which would otherwise yield much less nutriment, but through the addition of labour into the processing and marketing of animal products, they can readily take their place in the world of storage and redistributive gain. Hence the importance of the recognition that pastoralism as a system does not indicate underdevelopment, but rather the opposite".⁵⁶ In addition, 'mountain pastoralism, and above all long-distance transhumance, is a novel opportunistic exercise extending the reach of the producers of the more comfortable landscapes – a kind of displaced intensification.'⁵⁷ The *Yürüks* of Halkidiki, though not a typical example of a mountain population engaged in long-distance transhumance, introduced a new element into the Halkidiki environment. Purely nomads at first, they gradually adapted to a region of age-old villages and a terrain that did not possess the extensive grazing grounds of the Anatolian plateaus. They moved between a form of short-distance transhumance and a form of agriculture practised by settled populations. Gradually, losing their nomadic character, they became integrated in the local exchange networks and accumulated capital through extra-agricultural activities as well (money-trading).

7. Post-Sixteenth-Century Halkidiki: Crisis and Climate Change

Post-sixteenth-century European history has been described by historians as an era of "General Crisis";⁵⁸ recently, Geoffrey Parker argued that the seventeenth century was an era of "Global Crisis".⁵⁹ The historiographical concept of crisis has been applied also to the post-sixteenth-century Ottoman history, which had been conventionally, and somewhat ethically, described also as an era of "decline".⁶⁰ In any case, however, the seventeenth century was a century of significant political, economic, and social change

⁵⁶ *Ibid.*, p. 199.

⁵⁷ *Ibid.*, p. 198.

⁵⁸ Eric Hobsbawm, "The Crisis of the Seventeenth Century", *Past and Present*, 5-6 (1954), 33-53, 44-65.

⁵⁹ Geoffrey Parker, *Global Crisis: War, Climate Change and Catastrophe in the Seventeenth Century*, New Haven and London: Yale University Press, 2013.

⁶⁰ Linda T. Darling, *Revenue-Rising and Legitimacy. Tax Collection and Finance Administration in the Ottoman Empire, 1560-1660*, Leiden: E.J. Brill 1996, p. 1-21.

for the Ottomans. Baki Tezcan has even argued that from 1600 onwards we should talk of an actual “Second Ottoman Empire”.⁶¹

As far as environmental history is concerned, Faruk Tabak has recently described the post-sixteenth-century era as the “autumn” of the Mediterranean, when the centre of the world economy left the Inner Sea for the north of Europe; at the same time, settlement in the Mediterranean moved from the plains up to the hills and the mountains.⁶² The latter was the result of the climate change, alias called the “Little Ice Age” (1550-1870), which, in the Mediterranean, produced increased rain and snow in higher altitudes during the cold months and opposite phenomena of big draughts during the warm months; hence, the abandonment of the plains in favour of the mountains. More recently, Sam White studied extensively the outbreak of the “Little Ice Age” in the Eastern Mediterranean, focusing especially on the great draught of the 1590s. White made a strong argument in favour of a connection between climate change and social unrest, i.e., the Celali rebellions in Anatolia.⁶³ In the case of Halkidiki, however, an area of hills and mountains, without major plains, we should not expect to find a similarly strong impact of climate change onto cultures and yields, as in the case of Anatolia.⁶⁴ We will discuss in some detail this argument in the following pages. Moreover, for the case of Anatolia, there is strong evidence that climate change and social unrest coincided also with a “big flight” of the population from the countryside. As we will show in the following paragraphs, there is evidence of a population decline in post-sixteenth-century Halkidiki. However, we cannot locate a similarly extreme demographic catastrophe in Halkidiki, where settlement was expanding still in the last decades of the sixteenth century (see above, on the resettlement of the Kassandra peninsula, and a quite similar case in the peninsula of Longos).

8. Population and Settlement (17th–18th Centuries): Decline and Recovery

The Ottoman tax surveys constitute the basis for our research into the history of seventeenth- and eighteenth-century Halkidiki. Notwithstanding significant changes to their format, the registers of these surveys are considered to provide important information

⁶¹ Baki Tezcan, *The Second Ottoman Empire: Political and Social Transformation in the Early Modern World*, Cambridge: Cambridge University Press 2010.

⁶² Faruk Tabak, *The Waning of the Mediterranean, 1550–1870: A Geohistorical Approach*, Baltimore: The Johns Hopkins University Press, 2008, pp. 22-35.

⁶³ Sam White, *The Climate of Rebellion in the Early Modern Ottoman Empire*, Cambridge: Cambridge University Press 2011, esp. pp. 126-39 for the “Little Ice Age” and pp. 140-62 for the big draught of the 1590s in the Eastern Mediterranean.

⁶⁴ White, *The Climate of Rebellion*, p. 80, mentions a famine in Dubrovnik in 1564, which was alleviated with grain from Chios, Rodos, Limnos, Kos, Mytilene, Tarhanyat, Sığacık and Seferhisar. White mentions also a famine in Thessaloniki at the same year; however, he has misread the Mühimme 6/266, as Thessaloniki actually provided grain to Anatolia.

for both the history of settlement and demographic history.⁶⁵ Evidence from the Ottoman poll-tax (*cizye*) registers indicates a decrease of the population in Halkidiki in the first half of the seventeenth century. We have already seen that in 1568 the Christian tax households in Halkidiki comprised a total of 10,106 (Table 1). In 1620-21, the sum of the poll-tax households (*cizyehane*), which were recorded in the two "tax provinces" of Siderokavsia/Thessaloniki (*vilayet-i Sidrekapsı tetimme-i Selanik*) and Siderokavsia/Gynaikokastro (*vilayet-i Sidrekapsı tetimme-i Avrethisarı*), were only 5,759,⁶⁶ the former *vilayet* included only 25 villages of Halkidiki, whereas the latter included also a lot of villages outside Halkidiki.⁶⁷ We can use more comparable data from the registers of 1620-21 and 1642, when the poll-tax households in the "tax province" of the *vilayet-i Sidrekapsı tetimme-i Selanik* dropped from 2,675 to 1,890; 1,824 poll-tax households were counted in the same "tax province" in 1644.⁶⁸ In sum, these figures indicate a downward trend in the population of Halkidiki in the first half of the seventeenth century, consistent with the general "demographic crisis" in the Ottoman Empire at the time.⁶⁹

In the second half of the seventeenth century, this trend seems to have been reversed. A register of 1692 recorded 5,830 poll-tax payers in Halkidiki, not including the Cassandra peninsula. A few years later, in 1697, another register counted 8,172 poll-tax payers, including this time 871 men in the Cassandra peninsula; however, 664 from the aforementioned poll-tax payers were "dispersed" (*perakendegân*).⁷⁰ The number of these *cizye* registers is corroborated by the number recorded in an *avarız* register of 1722 for Halkidiki; 3,231 *avarızhanes*, both Muslim and Christian, comprising an estimated 10,000 tax-payers.⁷¹ To sum up, the evidence from the Ottoman tax registers

⁶⁵ Oktay Özel, "Avarız ve Cizye Defterleri", *Osmanlı Devleti'nde Bilgi ve İstatistik*, Halil İnalçık & Şevket Pamuk (eds), Ankara 2001, pp. 35-50.

⁶⁶ S. Dimitrov, E. Grozdanova & S. Andreev (eds), *Turski izvori za balgarskata istorija*, vol. 7, Sofia: Bulgarian Academy of Sciences 1986, p. 390. The division of Halkidiki between two "tax provinces" was a fiscal practice of the first half of the seventeenth century; Bistra Cvetkova (ed.), *Opis na dzizie registri*, Sofia: National Library "Cyril and Methodius" 1983, no. 216 (1639-40), and no. 273 (1642-43). A poll-tax register dated 1666 refers to the *vilayet-i Sidrekapsı* as a whole (*ibid.*, no. 427).

⁶⁷ It is interesting to note that in these tax districts in 1620-21 14.3% of the total *hanes* paid their poll-tax in the reduced price of 215 *akçes*, when the remaining *hanes* paid 245 *akçes*.

⁶⁸ Dimitrov, Grozdanova & Andreev, *Turski izvori*, p. 390 (abridged register of 1620-21); BOA, MAD 1209 (detailed register of 1642); Cvetkova, *Opis*, no. 273 (abridged register of 1644).

⁶⁹ Oktay Özel, "Population Changes in Ottoman Anatolia during the 16th and 17th Centuries: The 'Demographic Crisis' Reconsidered", *International Journal of Middle East Studies*, 36.2 (2004), 183-205.

⁷⁰ Cf. BOA, MAD 4609 (1692) and MAD 3461 (1697). It has been suggested that around 20-30% of the tax-paying population was not registered in the Ottoman *defters* (Darling, *op.cit.*, p. 101). If we accept a minimum percentage of 20%, then the total number of taxpayers can be estimated at 10,215, a figure that almost equals the number of Christian taxpayers in 1568.

⁷¹ See BOA, KK 2869, p. 2-23 and 81-116. The survey of 1722 has both an advantage and a disadvantage for the researcher. It includes both Christians and Muslims, however, only those who had to pay the extraordinary taxes (*avarız*). Moreover, the register does not indicate a fixed equivalence between *hane* and *avarızhane*. We would suggest a minimum equivalence of 1:3, whereas an equivalence of 1:5 was standard in the mid-

provide some indications for a population decrease in the last decades of the sixteenth and in the first half of the seventeenth century, a trend which was reversed in the second half of the seventeenth century. Around 1700, it seems that Halkidiki had recovered its sixteenth-century population. Interestingly, the ratio between Muslims and Christians remained the same as in the register of 1568, i.e. 1:10.⁷²

On the other hand, it should be emphasised that in the case of Halkidiki the demographic crisis of the late sixteenth and early seventeenth century did not result in a radical change of the settlement network in the region. The bigger settlements, as one would expect, survived the crisis. In the western part, the Christian villages of Vasilika (97 Christian poll-tax payers in 1697) and Agia Paraskevi (115) continued to be the biggest settlements in the area. Travelling further to the south in the district of Kalamaria, one finds all the old Byzantine villages in this area, for example Kalarinos (23 poll-tax payers in 1692), Portaria (35) and Agios Mamas (135), together with the new settlement of Epanomi (125).⁷³ Further to the east, one finds Ormylia-Kalyvia (36 poll-tax payers in 1692), Nikiti (125) and, of course, Ierissos (71). Up on the mountains, Polygyros (159 Christian poll-tax payers) had already become in 1692 one of the bigger settlements in Halkidiki. This evolution might partially indicate, for Halkidiki as well, a population movement from the plains up to the hills and the mountains. The near-by settlement of Galatista, in the borderline of the plain of Vasilika and the mountainous area, was the most populous settlement in Halkidiki (321 Christian poll-tax payers in 1697).⁷⁴ In total, Halkidiki had 107 settlements according to the register of 1568 and 100 according to the register of 1722.⁷⁵ The deserted settlements during the seventeenth century are not many. Most were abandoned as a result of settlement regrouping around modern Ormylia/Kalyvia, which should have regrouped the villagers of the deserted settlements of Byzantine Ormylia, Agios Sozon or Demetrios, and Vatopedi); around Ierissos, where one assumes that the population from the deserted settlements of Eladiava,⁷⁶ Komitissa, Alypiou, and Ivires had moved; and around the new town of Bazar-ı Cedid/Pazargâh (mod. Apollonia) in the area of the lakes, which was founded

seventeenth century. See Darling, *op.cit.*, p. 107; Phokion Kotzageorgis, *Mikres poleis tis ellinikis hersonissou kata tin proimi neoteri epohi. I periptossi tis Xanthis (15os-17os aionas)* [Small Towns of the Greek Peninsula in the Early Modern Period. The Case of Xanthi (15th-17th centuries)], Xanthi: Iera Mitropolis Xanthis kai Peritheoriou 2008, pp. 68-71.

⁷² Cf. Table 1 (esp. the survey of 1568) with the data from the detailed *avarız* register of 1722. The latter, where tax-payers were explicitly noted, recorded 189 Muslims and 1,745 Christians (9.77%-90.33%) villagers.

⁷³ Nine villages in the district of Kalamaria formed a group of villages producing salt (*tuzcıyan*). Dimitriadis, "Forologikes katigories", pp. 419-20.

⁷⁴ Six villages around Galatista belonged to the *vakıf* of İshak Paşa (*ibid.*, pp. 428-31).

⁷⁵ Cf. the registers TT 723 and KK 2869.

⁷⁶ Eladiava was mentioned as a village at least until 1676 and as an uninhabited cultivated place (*mezraa*) in 1722; see respectively Kolovos, "Chorikoi kai monachoi", vol. 3, no. 331, and BOA, KK 2869, p. 106. According to Papaggelos ("Eidiseis", pp. 1599 and 1609) the residents of Eladiava moved to Hierissos and formed a quarter which they named "Ladiava".

by Sokollu Mehmed Paşa⁷⁷ and where most probably the villagers of the nearby deserted settlements of Rendina, Akrotiri, Roglateia, and maybe Rachova, Kournofolia, and Souda had regrouped.⁷⁸

The Kassandra peninsula, which, as we have already seen, was resettled in the second half of the sixteenth century, retained its villages throughout the period under consideration. At the end of the seventeenth century Kassandra was registered with nine villages and in 1722 with 15, exactly as in 1851.⁷⁹ The villages that appeared in the registers of 1697 and 1722 were Valta, Athytos, Fourka, Pazaraki, Tsaprani, Kalandra, Agia Paraskevi, Paliouri, and Kapsochora. Moreover, the Ottoman registers counted ten monastic *metochia* in Kassandra (nine belonging to the monasteries of Mount Athos and one to the Monastery of Agia Anastassia) in 1697 and 12 (11 and one respectively) in 1722. As we have already noted, the peninsula of Kassandra belonged to the *vakif* of Gazanfer Ağa, and was fiscally and administratively separated from the rest of Halkidiki; Kassandra formed a separate *nahiye* and was administered by the *voyvoda* of the *vakif* of Gazanfer Ağa. The special status of Kassandra might have shielded the tax-payers,⁸⁰ but the opposite might have also been the case. In one instance, there is evidence that some of its inhabitants moved to the area of Larissa (Ott. Yenişehir) to escape from the fiscal pressures of the Ottomans.⁸¹

To the east of Kassandra, the peninsula of Longos had since the second half of the sixteenth century only two villages, Sykia and Parthenonas (71 and nine Christian tax-payers respectively in 1722). The village of Sarti, near the sea, which was revived by the end of the sixteenth century, was not recorded afterwards as it probably had

⁷⁷ Machiel Kiel, "Ottoman Building Activity along the Via Egnatia, the Cases of Pazargah, Kavalla and Ferecik", in Elizabeth A. Zachariadou (ed.), *The Via Egnatia under Ottoman Rule 1380-1699*, Rethymnon: Institute for Mediterranean Studies 1996, pp. 147-9.

⁷⁸ For more detailed evidence on abandoned settlements, see Kolovos, "Chorikoï kai monachoi", vol. 2, passim.

⁷⁹ For 1697, see BOA, MAD 3461, p. 127-130; for 1722, see BOA, KK 2869, p. 110-115; and for 1851, see the table in Dimitriadis, "Forologikes katigories", p. 431. William Martin Leake (*Travels in Northern Greece*, vol. 3, London: J. Bodwell 1835, pp. 163-4) mentioned that the peninsula of Kassandra had 12 villages.

⁸⁰ I. Vasdravellis (ed.), *Istorika archeia Makedonias. A: Archeion Thessalonikis, 1695-1912* [Historical Archives of Macedonia. A: Archive of Thessaloniki], Thessaloniki: Etaireia Makedonikon Spoudon 1952, nos., 14 (of 1696), 47 (1705), 52 and 54 (1706), 59 (1707), 75 (1709).

⁸¹ K. Kambouridis, *I neoteri Ellada mesa apo othomanikes archeiakes piges. Oikonomia, thesmoi kai koinonia sti Thessalia tou 17ou aiona* [Modern Greece through Ottoman Archival Sources. Economy, Institutions and Society in Seventeenth-Century Thessaly], Thessaloniki: A. Stamoulis 2009, p. 259 (of 1662), 350 (1663), 477-8 (1666).

been deserted.⁸² It seems, however, that the monasteries of Mount Athos had expanded their cultivated lands around 1600.⁸³

On the other hand, the mountainous peninsula of Longos remained mostly a pasture and forest area. The peninsula did not form a separate entity, as in the case of Kassandra. It belonged to the fiscal entity of the *hass* of Longos or Langadas, which included around 15 villages in different areas in Halkidiki (including villages such as Zombatoi to the west, Agios Mamas to the south and Polygyros to the north).⁸⁴ On an administrative level, Longos belonged to the *nahiye* of Pazargâh, which included 37 villages around 1700.⁸⁵

The *Yürük* pastoralists, which settled in Halkidiki at the end of the fourteenth century, remained an important element in the region's countryside during the seventeenth and the eighteenth centuries; their numbers, however, gradually decreased. In 1691, the Ottoman state tried to re-organise the *Yürük* militia through a general survey. According to this survey, the *Yürüks* in Halkidiki were recorded in 27 temporary settlements (*mahalles*) in north-eastern Halkidiki (*nahiye* of Pazargâh), 14 *mahalles* in north-western Halkidiki, and 32 *mahalles* in western Halkidiki. All three groups of settlements consisted of a total of 1,306 militia soldiers.⁸⁶

Being semi-nomadic pastoralists, the *Yürüks* were often in conflict with the villagers and the monks concerning the use of land along settlement boundaries. The cultivated lands were often trespassed by the sheep herds of the *Yürüks* during the summer. In the case of the *metochion* of the monastery of Agios Pavlos in Kalamaria, which had common borders with the summer settlements of the *Yürüks*, conflicts were often recorded, at least from 1529 onwards. Sometimes these resulted in violent confrontations, as in a case recorded in 1562, when the monk of the *metochion* of the monastery of Agios Pavlos was wounded by *Yürük* shepherds. In another incident in 1599, two *Yürük* shepherds hit a monk of the monastery of Chilandar with a stone.⁸⁷ On the other hand, an arrangement between the monks of Agios Pavlos and their *Yürük* neighbours was recorded in 1599, whereby the former agreed with the latter to let them use their lands for winter pastures, after the payment of an annual rent. During

⁸² KK 2869, p. 2. For the village of Sarti, see Kolovos, "Chorikoi kai monachoi", vol. 1, pp. 98-9. It was not of course a coincidence that both the villages of Sykia and Parthenonas are on the mountain, whereas Sarti was on the littoral. For pirate attacks against Sarti and the area around it, see Kolovos, "Chorikoi kai monachoi", vol. 3, nos. 323 and 341.

⁸³ We have located a series of documents of sales of arable fields in Sarti to the monasteries of Agios Pavlos and Xeropotamou around 1600; Kotzageorgis, *I athoniki moni*, p. 98-104, and Kolovos, "Chorikoi kai monachoi", vol. 3, nos. 146, 161, 164, 168, 173-4, 176, 190, 195, 212, 217-218.

⁸⁴ For the Longos *hass*, see Dimitriadis, "Forologikes katigories", pp. 429-30 (table for 1804, with the same 14 villages recorded in the surveys of the end of the seventeenth century); Leake (*Travels*, vol. 3, p. 162-3) mentioned 15 villages.

⁸⁵ Cf. MAD 4609, p. 44-56 and KK 2869, p. 2-23.

⁸⁶ Totals drawn from the tables published by Dimitriadis ("Forologikes katigories", pp. 404-6).

⁸⁷ Kotzageorgis, *I athoniki moni*, pp. 94-5.

the seventeenth century, arrangements of this kind were common practice, due to the economic problems encountered by the monasteries. In one such case it is recorded that the arable fields of the monks had been left uncultivated for a long time and had been transformed to pasture lands; thus, the monks rented them to the *Yürüks*.⁸⁸

Another development in the settlement patterns in Halkidiki during the late seventeenth and the eighteenth century was the expansion of Muslim-owned agricultural estates (*çiftlik*s), sometimes simply through the renting of the monastic estates in the area. The register of 1697 records seven *çiftlik*s in the district (*nahiye*) of Pazargâh and 23 in the district of Kalamaria; nine of the latter were actually monastic estates then "belonging" (*tabi*) to Muslim officials. From the case of the *metochion* of the monastery of Agios Pavlos in Kalamaria, which was actually held as a pledge by a certain Hüseyin Ağa and his son, we can understand that these Muslim officials had been exploiting the monastic estates without having acquired full ownership of them.⁸⁹

9. The Expansion of Olive Cultivation

The expansion of olive cultivation has been observed in the case of Crete from the end of the sixteenth century onwards, prior to which Crete was "the island of wine".⁹⁰ Moreover, olive cultivation does not seem to characterise the agricultural production of Greek lands before the seventeenth century.⁹¹ A similar case might be that of Halkidiki, where the Ottoman tax registers of the fifteenth and the sixteenth century do not record almost anywhere the systematic cultivation of olive trees. According to the detailed register of 1568, a tithe of olives was collected only from the *metochia* of Agios Pavlos in Provlakas, of Iviron in the village of Gomatou (although it was recorded since 1500), and of Koutloumousiou in Tristinika, in the Longos peninsula. Other sources mention also olive trees in the village of Kalyvia/Ormylia in 1560. All these references, however, are scarce. In addition, we have located a source that shows that in 1566 the monks of the monastery of Xeropotamou requested permission to extirpate their olive trees in

⁸⁸ *Ibid.*, pp. 85-6, 92-5, 112-3; Kolovos, "Chorikoi kai monachoi", vol. 3, no. 228. For the relations between *Yürüks* and Athonite monks, see Vančo Boškov, "Jurucite i svetogorskite manastiri", in *Etnogeneza Jurucite i nivnoto naseluvanje na Balkanot*, Skopje: MANU 1986, pp. 57-67; Vassilis Dimitriadis, "The Yuruks in Central and Western Macedonia", *op.cit.*, pp. 9-15.

⁸⁹ MAD 3461, p. 119-121, 125; Kotzageorgis, *I athoniki moni*, p. 88-89; Historical Archive of Macedonia, Ottoman Court Registers, no. 1, #66.1 (of 1697).

⁹⁰ Molly Greene, *A Shared World. Christians and Muslims in the Early Modern Mediterranean*, Chichester: Princeton University Press 2002, pp. 118-9.

⁹¹ In the Peloponnese and the island of Thassos olive cultivation intensified from the end of the sixteenth century onwards; Evangelia Balta, "I elaiokalliergeia ston tourkokratoumeno Moria" [Olive Cultivation in Ottoman Morea], in *O de topos ... elaioforos. I parousia tis elias stin Peloponnisso*, Athens: Politistiko Idryma Omilou Peiraios 2007, pp. 91-4; eadem, "I Thassos stis othomanikes apografes tou 16ou kai tou 17ou aiona" [Thassos in the Ottoman Tax Surveys of the Sixteenth and the Seventeenth Century], *Thassiaka*, 10 (1996-97), 512 and Tables 1b and 2b.

the small port of Dafni, Mount Athos, and plant instead sour orange trees.⁹² *Argumentum ex silentio*: There was no systematic cultivation of olive trees in Halkidiki during the fifteenth and the sixteenth centuries. Unfortunately, the registers of the seventeenth and the eighteenth centuries do not record data on agricultural production. An exception is the tax survey of 1764 only for the peninsula of Mount Athos, which, however, records around 35,000 olive trees.⁹³ We are inclined to assume that this shows an impressive increase in the cultivation of olive trees, similar to that of Crete. We do not, however, have comparable data from the sixteenth century, since Mount Athos paid then a fixed sum for the taxes of the monasteries. Travellers, however, like Mehmed Aşık, had noticed already from the sixteenth century the increased cultivation of olive trees on Mount Athos, an observation that is not made with regard the rest Halkidiki countryside.⁹⁴ One final observation we can extract from our sources is that olive trees in Halkidiki of the eighteenth century were present in all altitudes, like Galatista (mass bequests of olive trees in 1741) or Liarigkovi (today Arnaia, in 1773).⁹⁵ In sum, since the Ottoman tax registers do not mention taxes on olive cultivation in a large scale way, we argue that, although olive trees had not been absent from the landscape of Halkidiki, the intensification of the production was a phenomenon of the seventeenth or even the eighteenth century. This argument is supported by the results of the pollen analysis in Tristinika (Sithonia peninsula).⁹⁶ According to these findings, olive cultivation seems to have declined between 1450 and 1650, compared to the Byzantine period. It also looks that olive cultivation became dominant in modern Halkidiki only after the end of the seventeenth century, particularly during the last two centuries.

⁹² See respectively Sofia, National Library of Kyril and Methodii, OAK 83/85, 16b; BOA, TT 723, p. 118, 1055, 146, 1052; Archive of the Monastery of Agios Pavlos (hereafter: AMAP), f. 4, P/9; AMAP, f. 9, A/26; Kolovos, "Chorikoi kai monachoi", vol. 3, nos. 146, 135, 105.

⁹³ Evangelia Balta, "Landed Property of the Monasteries on the Athos Peninsula and its Taxation in 1764", *Arab Historical Review for Ottoman Studies*, 19-20 (1999), 149, 151, 153.

⁹⁴ Aşık Mehmed, *Menâzirü'l-Avâlim*, ed. Mahmut Ak, Ankara: Türk Tarih Kurumu 2007, vol. 2, p. 250; Robert Walpole (ed.), *Memoirs Relating to European and Asiatic Turkey. Edited from Manuscript Journals*, London: Longman 1817, pp. 198-203 (for Vatopedi monastery), p. 215 (for Xeropotamou), and p. 195 (for Daphni on Mount Athos); Leake, *Travels*, vol. 3, p. 118 (Xeropotamou), p. 124 (Koutloumousiou), p. 129 (Lavra), p. 131 (Vatopedi); M. E. M. Cousinéry, *Voyage dans la Macédoine, contenant des recherches sur l'histoire, la géographie et les antiquités de ce pays*, Paris: Imprimerie Royale 1831, vol. 2, p. 152 (Palaiokastro of Nea Roda), p. 156 (*metochion* at Pyrgadikia and the way to Metangitsi); Pierre Belon du Mans, *Les observations de plusieurs singularitez & choses memorables, trouvées en Grece, Asie, Judée, Egypte, Arabie, & autres pays estranges*, Anvers: Imprimerie de Christophe Plantin 1555, ff. 89v-90r, 91r (for Siderokavasia).

⁹⁵ Paris Gounaridis, *Arheion I.M. Xiropotamou. Epitomes metavyzantinon eggrafon* [Archive of Holy Monastery of Xeropotamou. Registries of Post-Byzantine Documents], Athens: Hellenic National Research Centre 1993, nos. 76, 79, 82, 84-88, 90; N. Giannakopoulos, *Arheion I.M. Stavronikita. Epitomes eggrafon, 1533-1800* [Archive of Holy Monastery of Stavronikita. Registries of Documents], Athens: Hellenic National Research Centre 2001, no. 47.

⁹⁶ See the article of Sampson Panagiotidis in this volume.

10. The “Little Ice Age”

The closing years of both the sixteenth and the seventeenth century are considered to be two of the crucial phases of crisis during the long “Little Ice Age” (1550-1870). These two phases were characterised by temperature instability and weather unpredictability as a whole.⁹⁷ In the case of Anatolia and the Middle East in general, the most visible characteristics of the climate were very cold winter seasons and, in sharp contrast, summer draughts.⁹⁸ Draughts, especially, made very hard the survival of populations that were based on grain production. As a result, during the “Little Ice Age” the phenomenon of peasants turning to pastoralists was widespread. On a micro-level, this meant that peasants left their fields uncultivated, which consequently were transformed to pastures. In the case of Halkidiki, our sources for the seventeenth and the eighteenth century indicate a significant presence of pastures. Several sources show the presence of village pastures and, in some cases, their mortgage when the communities were in debt.⁹⁹ The sources, however, of the same period testify to the granting of titles for cultivation of arable fields as well; and we have already observed above that the settlement patterns did not change abruptly during the seventeenth and the eighteenth century, as was the case in Anatolia.¹⁰⁰ Therefore, we can not be sure if and to what degree there was really a gradual abandonment of arable fields, and, consequently, a decline of agriculture, in favour of pastoralism, as was the case during the “seventeenth century crisis”.¹⁰¹ According to the same pollen analysis, the pollen indicators Chenopodiaceae, Plantago, Caryophyllaceae, Asteraceae, Ranunculus acris type, and Cichoriaceae reached their maximum in the period after the second half of the seventeenth century. Such findings fully comply with our evidence for abandoned arable fields and expansion of the grazing areas.

In theory, the “Little Ice Age” should have contributed to a reversal of the earlier (i.e. Late Medieval) period of deforestation. However, Faruk Tabak has observed, the population flight from the plains up to the hills and the mountains during these centu-

⁹⁷ O. Miszaros & G. Serlegi, “The Impact of Environmental Change on Medieval Settlement Structure in Transdanubia”, *Acta Archaeologica Academiae Scientiarum Hungaricae*, 62 (2010), p. 214, quoting M. E. Mann, *Little Ice Age. 1: The Earth System. Physical and Chemical Dimensions of Global Environmental Change*, Chichester: Princeton University Press, 2002.

⁹⁸ White, *The Climate*, pp. 126-39.

⁹⁹ See, for example, the case of the village pasture of Palaiochorion, which was rented to the monastery of Xeropotamou for 38 years, in order to settle a debt of the community to the monks; Kolovos, “Chorikoi kai monachoi”, vol. 3, no. 302 (of 1640).

¹⁰⁰ See Oktay Özel, “The Question of Abandoned Villages in Ottoman Anatolia (Seventeenth to Nineteenth Centuries)”, in E. Kolovos (ed.), *Ottoman Rural Societies and Economies*, forthcoming.

¹⁰¹ White, *The Climate*, pp. 229-48.

ries should have created new pressures upon the forests.¹⁰² Our sources offer some indications for the deforestation in Halkidiki as well.¹⁰³

Forests were an essential element of the region's landscape, covering the slopes of Mount Holomontas in the centre of the peninsula. Even the three smaller peninsulas in the south had forests. In fact, the medieval Slavic name of the middle one, "Loggos", translates as "dense forest". In our sources, we have not located any references to state or communal forests in Halkidiki. There is, however, some information on forests belonging to Athonite monasteries, which were struggling to protect them from trespassing by pastoralists or lumberjacks. In 1591, for example, the monks of the monastery of Agios Pavlos protested to the Sultan against their Christian neighbours, who had entered without permission into their forest in Sykia, in the peninsula of Longos. The reply of the central authority was that since the forest was not in common use, the trespassers should be impeded from entering into it. The same protest by the monks of the monastery of Agios Pavlos was repeated in 1620 and in 1759, a sign that villagers were constantly trespassing into the monastic forest.¹⁰⁴ In another case, from 1725, two Christian *katrancis* from Florina entered illegally into the forest of the Xeropotamou monastery in Longos and cut 1,000 pine trees in order to make wood tar. Eventually, they had to negotiate a settlement with the monks for the compensation of the latter in cash.¹⁰⁵ As everywhere in the Mediterranean, timber was also important for ship building. In 1624, a Muslim was in conflict with the monks of the Xeropotamou monastery for the compensation of the timber he had cut for the building of a ship.¹⁰⁶ These examples show that forests were exploited at the time, both by their owners and their trespassers. More generally, tree-felling for timber and overgrazing in forest areas (a phenomenon derived from the shortage of pastures and/or from the rising numbers of animals) should have been more than usual in early modern Halkidiki. Together with the tree felling for the mines and the furnaces in Siderokavsia, which we will examine immediately below, these factors led to the deforestation of Halkidiki during the period under consideration.

¹⁰² See, in detail, Vaso Seirinidou, "Dasi ston elliniko choro (15os-18os ai.): Anapsilafontas mia istoria katasτροφis" [Forests in Early Modern Greece: Reviewing a History of Catastrophy], *Mesaionika kai Nea Ellinika*, 11 (2014), 74-5.

¹⁰³ For the deforestation in early modern Europe, cf. Lajos Rác, "The Price of Survival: Transformations in Environmental Conditions and Subsistence Systems in Hungary in the Age of Ottoman Occupation", *Hungarian Studies*, 24 (2010), 26-7.

¹⁰⁴ AMAP, f. 13, S/23; AMAP, f. 6, 10; AMAP, f. 13, 27.

¹⁰⁵ Kolovos, "Chorikoi kai monachoi", vol. 3, nos. 386 and 387 (1725).

¹⁰⁶ *Ibid.*, no. 267 (1624).

11. The Making of an Ottoman Mine

The Ottoman story of mining in Halkidiki originates from the very beginning of the establishment of the Ottoman Empire during the fifteenth century. In the struggle for financing their emerging empire, the Ottomans applied a policy of imperial fiscalism, aiming at controlling precious metals and coinage. In this context, 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.¹ At the same time, the Ottomans invested in opening new mines in the Balkans, like the mines of Siderokavsia (Sidrekapsı) in Halkidiki.

The place name “Siderokavsia” means in Greek “smelting iron”, “ironworks”, or “siderurgy” (*sidero* means iron in Greek).² We encounter it for the first time in the ninth century, when a monk by the 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” (*chorion* in Greek).³ The Byzantine tax registers (*praktika* in Greek) enumerate the villagers in the area as peasants, with fields, vineyards, and animals. There is only one reference, from the mid-fourteenth century, to a “public ironworks” (*demosiakon siderokavseion* in Greek) in the nearby village of Kontogrikou,⁴ 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.⁵

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 Thessaloniki 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

¹ Halil İnalçık with Donald Quataert (eds), *An Economic and Social History of the Ottoman Empire, 1300-1914*, Cambridge: Cambridge University Press, 1994, pp. 58-9. For the Balkan mines, see also Sima Cirković, “The Production of Gold, Silver, and Copper in the Central Parts of the Balkans from the 13th to the 16th Century”, in H. Kellenbenz (ed.), *Precious Metals in the Age of Expansion*, Stuttgart: Klett-Cotta 1981, pp. 41-69.

² Ioakeim Papaggelos (“To ‘koinon’ tou Mademiou”, in *I diachroniki poreia tou koinotismou sti Makedonia*, Thessaloniki: Kentro Istorias Thessalonikis 1991, p. 257, fn. 1) has located archaeological evidence of metallurgical activity in Skouries, dating from Roman times, and in the plain southwest of Megali Panagia, dated maybe earlier.

³ D. Papachryssanthou, *O Athonikos monachismos. Arches kai organosi* [Athonite Monasticism. Beginning and Organisation], Athens: MIET 1992, p. 123 and fn.233, p. 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).

⁴ Bombaire, *Actes de Xéropotamou*, no. 25 (1346), l. 29-31 and no. 27 (1351).

⁵ Spyros Vryonis (“The Question of Byzantine Mines”, *Speculum*, 37 [1962], 13-14) suggested that the Ottoman mines had Byzantine precedents in the area. It is a suggestion, however, that is based on no other evidence than the place-name “Siderokavsia” itself.

(*hassa-ı padişah*).⁶ Murad II had 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.⁷ This important text was written according to the regulation for the mines of Kratova (Karatova in Ottoman), 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.⁸ 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).⁹ Moreover, we know that in the beginning of the eighteenth century, when the Ottomans attempted to reorganise mining activity in Siderokavsia, they transferred there some skilled miners from Kratova.¹⁰

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 Siderokapsı*) that, together with the neighbour settlements of İzvor and Piyavica, constituted the “imperial demesne of the mine of 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 surveys of the first years of the reign of Süleyman the Magnificent (1520-66), 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.

⁶ N. Todorov & B. Nedkov (eds), *Fontes Turcici Historiae Bulgaricae, series XV-XVI* [=Turski izvori za Balgarskata istorija, serija XV-XVI], vol. 2, Sofia: National Academy of Sciences 1966, p. 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.

⁷ Robert Anhegger & Halil İnalçık (eds), *Kanunname-i Sultani Ber Muceb-i Örfi Osmani, II. Mehmed ve II. Bayezid Devrilerine Ait Yasakname ve Kanunnameler*, Ankara: Türk Tarih Kurumu 1956, pp. 66-7; Nicoara Beldiceanu, *Les Actes des premiers Sultans conservés dans les manuscrits turcs de la Bibliothèque Nationale à Paris*, vol. 1: *Actes de Mehmed II et de Bayezid II du ms. fonds Turc ancien 39*, Paris – Hague: Mouton 1960, p. 138; Ahmet Akgündüz (ed.), *Osmanlı Kanunnameleri ve Hukuki Tahlilleri*, vol. 1, İstanbul: FEY Vakf Yayınları 1990, pp. 524-6.

⁸ For the Ottoman policy of forced migration (*sürgün*), see Ö. 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 & 15 (1953-54), 209-37.

⁹ İnalçık & Quataert (eds), *An Economic and Social History*, p. 59, table 1:12.

¹⁰ Mustafa Altunbay, “Osmanlı döneminde bir maden işletmesinin tarihi süreci: Sidrekapsı”, unpublished PhD thesis, İstanbul: İstanbul Üniversitesi 2010, pp. 225, 227-8, and below this chapter.

Table 7
The population of Siderokavsia, Izvor, and Piyavica
according to the Ottoman registers of the fifteenth and sixteenth century

	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>Kurucuzade nam-ı diğer 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>İstamad İslav</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: Kolovos, "Chorikoi kai monachoi", vol. 2, pp. 27-9.

Table 7 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 sixteenth 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 Thessaloniki 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 (1517-64), who had visited them in 1547 in the course of his *Voyage au Levant* (first published in Paris in 1553).¹¹ According to Belon, “le village était 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).¹² Actually, according to Jewish sources, the first Jews of Siderokavsia were Ashkenazim, followed shortly after by Sephardim.¹³

The population increase in Siderokavsia, which peaked in the mid-sixteenth 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”.¹⁴ 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-thirteenth 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.¹⁵

¹¹ Alexandra Merle (ed.), *Voyage au Levant (1553). Les observations de Pierre Belon du Mans*, Paris: Chandeigne 2001, pp. 156-76.

¹² *Ibid.*, pp. 156-7 and 159.

¹³ 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 I. K. Hassiotis (ed.), *The Jewish Communities of Southeastern Europe*, Thessaloniki: Institute for Balkan Studies 1997, p. 214. In 1568, the Jews of Thessaloniki were financing the operation of the mines in Siderokavsia with a sum of 50,000 *akçes*, paid as “sarraflik”. 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”, *The Jewish Communities of Southeastern Europe*, pp. 453-71.

¹⁴ *Voyage au Levant*, p. 156.

¹⁵ 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, pp. 59-66 ; Circović, “The

Belon is the first to describe in detail the operation of the Ottoman gold and silver mines of Siderokavsia. The ore, 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 galena lead ore 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*), 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.¹⁶ On the other hand, the separation of gold from silver, an operation, says Belon, carried out by an Armenian expert, was made through the process of salt cementation.¹⁷

Belon's testimony is corroborated by the information from the Ottoman regulations of the mining activity in Siderokavsia, dating from the fifteenth century.¹⁸ 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 1478 was divided in half between them and their contractors,¹⁹ the owners of the pits (Turkish *kuyu sahipleri* or *varak*, from the German *Gewerke*).²⁰ 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 pre-

Production of Gold", pp. 42-3; Şevket Pamuk, *A Monetary History of the Ottoman Empire*, N. York : Cambridge University Press 2000, p. 27 ; *Voyage au Levant*, p. 159.

¹⁶ Note that the Slavic place name Izvor for the village of miners near Siderokavsia means "source of water".

¹⁷ In 1546, Eliezer son of Abraham, a Sephardic Jew from the congregation of the Old Catalan synagogue (*Köhne Katalan cemaati*) of Thessaloniki, 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", p. 22, fn. 21.

¹⁸ See above fn.112 and especially the detailed report published by Beldiceanu (*Les Actes*, vol. 2, pp. 183-7) and Akgündüz (*Osmanlı Kanunnameleri*, pp. 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 Thessaloniki between 1472-83.

¹⁹ 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.

²⁰ Beldiceanu, *Les Actes*, vol. 2, pp. 184-5. For the property status of these individuals in Balkan mines, see in detail *ibid.*, pp. 89-94.

ate (*knez*).²¹ They should have also included the owners of the furnaces, who were called *vatrok*.²² The workers in the mines worked in groups of eight men and were led by skilled miners, elected by the assembly. They were named *hutman* (“Hutmann” in German) and *şafar* (“Schaffer” in German); *şafars* were Muslims in 1568.²³

The Ottoman state had the monopsony of the ore extracted in 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.²⁴ However, silver and gold coins issued in Siderokavsia have been located only from the early sixteenth century.²⁵ 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. The mint was also farmed out separately.²⁶ However, the state oversaw the whole operation of the mines through a superintendent (*emin-i maden*), appointed by the Sultan, who was supervised by the judge (*kadı*) of Siderokavsia.²⁷

The remains of the mining town of sixteenth-century Siderokavsia are still visible today on the slope of Mount Stratoniko to the north of the village of Stageira.²⁸ The village of Izvor (now Stratoniki) was situated one km to the southeast of Siderokavsia. Finally, Pyavica, according to Belon, was a small village over Siderokavsia, on the top of the mountain to the east of the town, with small houses.²⁹ According to the register of 1478, the three settlements of the miners were also taxed for their vineyards, cereals, sheep, and hives, being exempt from the poll-tax (*haraç*), the *ispençe*, the *salarlık*, the due from the wine barrels (*fuçı resmi*) and the service for the transportation of sheep (*celeb*).³⁰ 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

²¹ *Ibid.*, pp. 117-8. For the *knez* in Siderokavsia already in 1444, see *Actes de Xéropotamou*, no. 30.

²² According to a report of 1537; see Papaggelos, “To ‘koinon tou Mademiou’”, pp. 269-70. For the *vatrok* in detail, see Beldiceanu, *Les Actes*, vol. 2, pp. 95-7.

²³ *Ibid.*, pp. 184, 109-11 (*hutman*), 111-12 (*şafar*).

²⁴ See fn. 113.

²⁵ Pamuk, *A Monetary History*, p. 37.

²⁶ Papaggelos, “To ‘koinon tou Mademiou’”, pp. 269-70.

²⁷ For the administration of the Balkan mines in general, see Beldiceanu, *Les Actes*, vol. 2, pp. 127-40. For the role of the *kadı*, see *ibid.* p. 187, a case of a *kadı* asking for the replacement of the *emin*.

²⁸ For archaeological research in the area, see Ploutarchos L. Theocharidis, “The Consolidation Works on the South Tower at Siderokavsia, Halkidiki”, in N. K. Moutsopoulos (ed.), *Pyrgoi kai Kastrá*, Thessaloniki: Patriarchiko Idryma Paterikon Meleton 1980, p. 77 (a map of the site on 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: Ecole Française de Rome 1988, pp. 319-23.

²⁹ *Voyage au Levant (1553)*, p. 173.

³⁰ BOA, TT 7, p. 557 and Beldiceanu, *Les Actes*, vol. 1, p. 138.

reached the market of Siderokavsia, including flour, wheat, barley, rice, lentils, greens and fruits, fat and cheese, honey, fish, sheep, swine, salt, wine, etc.³¹

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 mosque³² and two public baths (hammams).³³ 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 (AD 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 Thessaloniki and the other neighbouring towns.³⁴

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 build in a tongue-shaped corner of the mountain a simple kiosk, named Çardak, with view to the Sea of Romania (Bahr-ı Rum).³⁵

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.³⁶ According to the regulation of Mu-

³¹ Beldiceanu, *Les Actes*, vol. 2, p. 186.

³² 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.

³³ One of the *hammams* is also in ruins today on the site of Siderokavsia.

³⁴ Âşık Mehmed, *Menâzirü'l-Avâlim*, pp. 995-6.

³⁵ *Ibid.*, p. 406.

³⁶ 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 Bosna. 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 dıraht-istândır*) and are being used for the smelting of the silver ore. If someone cuts a tree, he pays a fine"; *Evlyâ*

rad 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*).³⁷ The need for charcoal, which was used, as we have described above, for the furnaces that separated silver from lead, was much bigger of course. Around 1500, a group of villages in Western Halkidiki had become “villages of charcoal producers” (*kömürçiyân-ı maden-i Sidrekapsı*) and they had been assigned 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 tekîfât-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 Liarigovi, today Arnaia) and Varvara, which had been settled after the Ottoman conquest. By 1634, however, the Ottomans had established a much bigger group of villages in the *sancak* of Thessaloniki (including villages in Serres, Drama, Zichni, Avrethisar, Demirchisar, and of course Sidrekapsı), 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.³⁸

12. 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 seventeenth 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.³⁹ During the reign of Ibrahim I (1640-48), the mints all over the empire had closed, leaving only four still producing *akçes*, in Istanbul, Diyarbakir, Damascus, and Cairo.⁴⁰ 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 struck pure 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

Çelebi Seyahatnâmesi, ed. S. A. Kahraman, Yücel Dağlı, Robert Dankoff, vol. 8, Istanbul: Yapi ve Kredi Bankası, 2003, p. 44.

³⁷ Beldiceanu, *Les Actes*, vol. 1, p. 138.

³⁸ Altunbay, “Sidrekapsı”, pp. 133-5 and Table 22 in pp. 143-4 (including only the villages of the *sancak* of Thessaloniki).

³⁹ Pamuk, *A Monetary History*, pp. 131, 139.

⁴⁰ *Ibid.*, p. 145.

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.⁴¹

The archival evidence shows that the Siderokavsia mines were still farmed out in the second half of the seventeenth century at an annual rate of 1,600,000 *akçes* (around 6,000 gold *sultani*) in 1670. This figure shows a sharp decrease in 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 Thessaloniki in 1673.⁴² According to a local report reproduced in an order dated 1700, the silver mines of Siderokavsia were then almost abandoned.⁴³

During the difficult years of the long wars of the end of the seventeenth century, the Ottomans began once more to mint Ottoman silver coins, resulting, in the beginning of the eighteenth century, in the circulation of a new silver coin, the Ottoman *ku-ruş*.⁴⁴ 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 Thessaloniki, 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 together 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 mobilised as day-workers in the mine the villagers of Sidrekapsi, İzvor, Arnavudköyü, Revenik (Megali Panagia), Varvara, Yeniköy (Neochori), Yerise (Ierissos) and Liarigova (Arnaia), as well as villagers (*reaya*) from the neighbouring district (*nahiye*) of Pazargâh.⁴⁵ Some of the villagers, however, were not happy at all with their mobilisation and agitated for an uprising among workers, aiming at abandoning the mines.⁴⁶

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 production in the closing years of the seventeenth 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 İzvor, where some Muslims also lived, was

⁴¹ *Evlîyâ Çelebi Seyahatnâmesi*, vol. 8, p. 44.

⁴² Altunbay, "Sidrekapsi", p. 26.

⁴³ A. Refik, *Osmanlı Devrinde Türkiye Madenleri (967-1200)*, 2nd ed., İstanbul: Enderun Kitabevi 1989, p. 47 (*halî ve harab*).

⁴⁴ Pamuk, *A Monetary History*, pp. 159-60.

⁴⁵ See in detail Altunbay "Sidrekapsi", pp. 34-46 and 69-71. The register of the survey of 1702 is the BOA, KK 5189.

⁴⁶ *Ibid.*, p. 108, fn. 411. Some of the agitators were caught and imprisoned in Thessaloniki.

much bigger than Siderokavsia.⁴⁷ This is corroborated by Ottoman surveys of the eighteenth 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.⁴⁸ 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 300-400 houses, divided in two nearly equal *mahalles* of Greeks and Turks (i.e., Christians and Muslims), situated half a mile apart.⁴⁹

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.⁵⁰ Leake describes in 1806 the fort (*Kastro*) as the place where the silver was separated.⁵¹ We should maybe identify the tower which survives today in the centre of the village of Stageira with this fort.⁵²

After the reorganisation by Çavuşzade Hüseyin Ağa, the mines of Siderokavsia continued to be controlled by his family for the most part of the eighteenth century. Çavuşzade 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, Çavuşzade Ahmed Ağa, until 1784.⁵³ This was a development consistent with the general evolution of eighteenth-century Ottoman society, the Ottoman “age of the *ay-ans*”, when the Ottoman provincial elites asserted important power at the local level.⁵⁴ 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

⁴⁷ Vasdravellis, *Istorika Archeia Makedonias*, pp. 67-8. 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.

⁴⁸ Altunbay, “Sidrekapsi”, p. 124. In 1773, Siderokavsia had 71 miners and Izvor 182.

⁴⁹ Leake, *Travels*, vol. 3, p. 160.

⁵⁰ Altunbay, “Sidrekapsi”, p. 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 Çavuşzade Hüseyin Ağa; Papaggelos, “To ‘koinon tou Mademiuou’”, pp. 260-1, according to Vasdravellis (*Istorika Archeia Makedonias*, no. 43 [1705]). However, the mines were farmed out in 1705 to Süleyman Ağa from Istanbul.

⁵¹ Leake, *Travels*, p. 164.

⁵² See Theocharidis, “The Consolidation Works”.

⁵³ Altunbay, “Sidrekapsi”, pp. 69-96. For a short interval, from 1772 to 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 miners' protestations. For the latter and the miners' efforts to farm out the mines themselves, see the document published by Refik (*Osmanlı Devrinde Türkiye Madenleri*, pp. 42-3).

⁵⁴ Bruce McGowan, “The Age of the *Ayans*, 1699-1812”, in Inalcık & Quataert (eds), *An Economic and Social History*, pp. 637-738.

1807 Seyyid Mustafa Paşa was still farming out the mines⁵⁵ and his sons, Seyidi 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*, following 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.⁵⁶

Mustafa Altunbay has studied in detail the surveys of the Siderokavsia mines and of the villages that had been attributed to them during the eighteenth century.⁵⁷ 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 Thessaloniki (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 Kapucıbaşı 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 Thessaloniki 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.⁵⁸ 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 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 (*kömürkeşan*) in the *sancak* of Thessaloniki.⁵⁹ This was the first formation of the later called "Koinon tou Mademiu" (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.⁶⁰ According to Leake's testimony, in 1806 the *maden ağası*

⁵⁵ Leake (*Travels*, pp. 160-61), however, mentions as the *maden ağası* a certain Rüstem Ağa, a client of İbrahim Bey of Serres. Previously 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.

⁵⁶ Cf. Altunbay, "Sidrekapsi", pp. 96-99 and Papaggelos, "To 'koinon tou Mademiu'", pp. 262-65, according to Vasdravellis (*Istorika Archeia Makedonias*, no. 302).

⁵⁷ For the surveys, see in detail Altunbay, "Sidrekapsi", pp. 135-9, including also tables of the villages involved.

⁵⁸ In 1722, 92 villages of Halkidiki were registered as mining and only four as charcoal producers; BOA, KK 2869.

⁵⁹ Altunbay, "Sidrekapsi", p. 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 Thessaloniki, who had to deliver 194 $\frac{3}{4}$ loads of charcoal or their cash equivalent to the *maden emini*.

⁶⁰ Altunbay, "Sidrekapsi", p. 194. For the tax privileges of the miners, cf. Vasdravellis, *Istorika Archeia Makedonias*, no. 156 (1733) and no. 191 (1762). According to the latter document, the villages of the miners were

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”.⁶¹

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 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.⁶²

As the actual farmer of the mines in 1820, the “Community of the Mine” (*to koinon tou Mademiou* in Greek) 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 outbreak of the revolution, 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 previous years.⁶³ 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.⁶⁴ However, the mines were closed until the end of the nineteenth century.⁶⁵

the following: Sidrekapsi, Izvor, Arnavudkoy, Vrasta, Gomatou, Revenikia, Larigkova, Stanos, Neochori, Varvara, and Modi.

⁶¹ Leake, *Travels*, p. 161.

⁶² *Ibid.*, p. 164.

⁶³ Papaggelos, “To ‘koinon tou Mademiou’”, pp. 267-8. In 1829, 43 families of refugees on the island of Skopelos were from the Mademochoria.

⁶⁴ Vasdravellis, *Istorika Archeia Makedonias*, pp. 474, 521, 523.

⁶⁵ Papaggelos, “To ‘koinon tou Mademiou’”, p. 268 fn. 43.

13. Mining and Deforestation

How did the operation of the Ottoman mines of Siderokavasia contribute to the deforestation of Halkidiki?⁶⁶ 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 Thessaloniki, had serious implications for the forest. First of all, we have detailed information for the timber used for the galleries of the mines during the first years of the eighteenth century; almost 7,500 trees in 1703, over 35,000 in 1706 and almost 20,000 in 1707.⁶⁷ Moreover, in 1731, according to an Ottoman report, there were not enough trees around the village of Liarigova for the production of charcoal. As a result, its inhabitants were ordered to offer their services as miners.⁶⁸ 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 on villages that had enough forests, i.e., Larigkova, Nichori, Revenikia, Gomatou, Varvara, and Stanos.⁶⁹

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 Chortiatis. We have evidence from the eleventh century, but none from the nineteenth century.⁷⁰ Likewise, we have evidence from the fourteenth century for the forest on Mount Kalavros, but none from the nineteenth century, at least for a part of it.⁷¹ The deforestation in these two areas might be attributed to the production of charcoal for the needs of the mines of Siderokavasia. In conclusion, the function of the Ottoman mines seems to have transformed the environment of Western Halkidiki through the exploitation of both the subsoil and the forest. This exploitation would intensify from the second half of the nineteenth century onwards.

⁶⁶ For the deforestation in the Greek lands, see Seirinidou, "Dassi ston elliniko choro".

⁶⁷ Altunbay, "Sidrekapsi", p. 56.

⁶⁸ *Ibid.*, p. 123.

⁶⁹ *Ibid.*, p. 129.

⁷⁰ Bellier et al., *Paysages de Macedoine*, pp. 114 and 91-92.

⁷¹ *Ibid.*, pp. 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.

