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# Cities of rice: risiculture and environmental change in the Early Modern Ottoman Balkans

**Aleksandar Shopov**

The evolution of a global market for rice is associated with the rise of capitalism. However, the expansion of rice farming in the Ottoman state during the Early Modern Period has not been accounted for in the formation of this global market, nor have its environmental effects in the Ottoman Eastern Mediterranean been explored. This article traces the history of rice production in the Ottoman Balkans in the 15th through 17th centuries. Focusing on the case of rice agriculture in the city of Filibe (Plovdiv, present-day Bulgaria), it traces the causes and implications, both environmental and economic, of the new waterscapes that arose in this region with the spread of rice agriculture. It argues that the appearance of these new waterscapes was connected to a process of agricultural change throughout the region, new forms of control over land and in some instances the introduction of wage labour. Of particular interest is a government order of 1583 that repeats a complaint from Filibe's elite residents about the city's bad air and the prevalence there of fevers, which the residents explicitly blamed on the local rice fields. The article examines how responses to rice agriculture were part of an emerging awareness in the Early Modern period of the relationship between economic activity and environmental change. It also frames local environmental change within a global economic transformation.

**Keywords** Ottoman Balkans, water, environmental history, rice, Filibe, Plovdiv

## Introduction

Life for many in the Ottoman Balkans revolved around rivers, lakes, swamps, and the seas that surround the peninsula. It would be wrong to assume that the relationship of people to these water environments was static. In 16th-century Ottoman manuscripts, cities are frequently depicted alongside their waterscapes, with growing observation-based realism — for instance, in the miniatures of Anatolian, Iraqi and north Syrian cities found in a work by the Bosnian-born author Matrakçı Naşūh (d. 1564) (Mitrakçı 1976). A rising interest in water also found expression in literature. For example, in a description of Istanbul's countryside, located at the south-eastern edge of the Balkan peninsula, the Ottoman poet and bureaucrat Maḥremī (d. 1535)

virtually guides his reader through the settlements along the shores of the Bosphorus and the Golden Horn (Aynur 2018: 52). At the end of the 16th century, the Ottoman scholar Muṣṭafā Selānikī (d.1600) would open his chronicle with a detailed description of a storm that struck Istanbul in July 1563 and which resulted in the city and its surroundings being flooded (Selaniki 1989: 1–4). Such a detailed reference to a flood was relatively novel in Ottoman historical writings. In his *Views of the Worlds*, 'Āşık Meḥmed (d.1613), an Ottoman cosmographer and bureaucrat, vividly describes the numerous lakes, rivers and hot springs of the Ottoman Balkans and Hungary (Āşık Meḥmed 2007: 2:265–72; 2:318–24; 2:348–353). Such descriptions are absent from the earlier cosmographies in Arabic and Persian that he references.

The purpose of such descriptions of water was not simply to fill in gaps of knowledge for the emerging Ottoman imperial project, which, by the mid-16th

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century incorporated lands from the Adriatic Sea to the Indian Ocean. Rather, the Ottoman central government, provincial bureaucrats and local communities seem to have been increasingly aware of the close relationship between water and human activity. Fluctuations in water supply — flooding or drought — were beginning to be attributed to human activity and not divine intervention. In 1583, the Ottoman central government intervened when newly established produce gardens around the town of Çatalca, in the countryside of Istanbul, began disrupting the water supply for state (*mīrī*) watermills (Başbakanlık Osmanlı Arşivi [hereafter BOA] — BOA, MD, no. 51, f. 75/231). The following year, a similar concern was raised in Üsküdar, across the Bosphorus, when some janissaries (members of the Ottoman standing army) began establishing produce gardens (*besā'im*) along a stream, disrupting the flow of water to watermills that belonged to an Islamic charitable foundation of Muştafā Paşa. According to the government order, the janissaries had destroyed the dams built for the watermills and were using the water to irrigate their own produce gardens, hampering the ability of the mills to conduct their business and in turn affecting flour production in the city of Istanbul (BOA, MD, no. 53, f. 128/370).

In Early Modern Europe those who had control over land had a vested interest in changing landscapes and thus understanding their form and function (Miglietti and Morgan 2017: 10). Western European colonial officials documented environmental change in the colonies, such as the deterioration of the local climate and soil with the establishment of slave-plantations (Grove 1994: 70–71). It is, therefore, useful to consider how the increasing supply of, and demand for, commodities impacted local environments and shaped environmental awareness and responses in the Ottoman state. This article is an invitation to consider this question using the case of rice.

Local communities, provincial scholars and bureaucrats, and the central government in Istanbul were beginning to connect the dots between human activities and changes in water regimes. This article will focus particularly on the Ottoman city of Filibe, whose waterscape was permanently altered following the introduction of rice agriculture in the 15th century. By the end of the 16th century, Filibe — today Plovdiv, in central Bulgaria — had turned into a virtual island surrounded by a sea of rice paddies. I will examine the connections between risiculture, changes in environments, and the rise of an awareness about changing waterscapes in Filibe and other cities in the Ottoman Balkans. I will also consider the

economic and political context in which these changes occurred. What were the implications of the spread of risiculture in the Ottoman Balkans and the new waterscapes that it generated? As I will show, the spread of rice in the Ottoman Balkans was enabled by the increased endowment of state land to Islamic charitable foundations. Ottoman urban elites with an interest in regional and global trade were taking control of water resources, investing in the construction of irrigation canals for rice, and frequently also using wage labour for its production.

Histories of capitalism prior to 1800 tend to marginalize the Ottomans' role in the rise of the world economy. However, the history of rice in the Ottoman Balkans can be regarded as part of this account. In the Early Modern period, rice was becoming a global commodity. Francesca Bray, in her introduction to a recent edited volume on the global history of rice, proposes that 'the history of rice is intricately entwined with the emergence of the early modern world economy and the global networks of industrial capitalism' (Bray *et al.* 2015: 1). The evolution of the global market for rice provides insight into the emergence of capitalism (Coclanis 1993). This has been noted in the case of northern Italy, where rice had been grown since the second-half of the 15th century and was traded north along the Rhineland in the 16th and 17th centuries (Coclanis 1993: 1054). By contrast, there has been little research into the history and impact of risiculture in the eastern and central regions of the Ottoman Balkans. This region has not even been considered a major source for the rice that was then being traded globally. Yet, by the 1580s Filibe had become a 'rice city' and its residents were acutely aware of the environmental impact of this crop. During the same period, economic activity was impacting the flow of water near other cities in the region. Such histories of environmental change were entwined with increasing production and trade, and the formation of a global economy. Water and its uses are very central to this historical development.

Contributing to the still relatively new body of scholarship on Ottoman environmental history, this paper argues that a new environmental sensibility was emerging among Ottoman bureaucrats, scholars and local communities. This runs contrary to the widespread notion that Ottoman agricultural production was 'conservative' and 'traditional', and that attempts to introduce new crops in Ottoman regions had limited success (McCarthy 1997: 221). Such views are frequently used to marginalize the role of Ottoman economy in the formation of global flows of

commodities, and to ascribe a secondary role to Muslim merchants in the expansion of global commerce — laying blame on Islamic institutions which allegedly obstructed economic development (Kuran 2010: 66–67). By contrast, this paper shows that the Islamic charitable endowments were important in the introduction of market-oriented agriculture in the Ottoman Balkans. Moreover, rather than distant countrysides, it was cities that were first affected by the environmental pressures that arose alongside the global economy.

### Rice, trade, diets

In the 16th century, the Ottoman state was becoming a major global rice producer and consumer. Although rice still accounted for only a small fraction of the trade in cereal grains, its trade during this period was becoming global (Coclanis 1993). By the 18th century, though Western Europe was primarily eating the Carolina rice grown by slaves and shipped across the Atlantic, large markets in Spain and France also relied on cheaper rice grown in the Ottoman Empire (Morgan 1995: 436). By the end of the 16th century, Ottoman Christian and Muslim merchants were operating in western Europe and as far as south-eastern Asia (Filipović 1951; Kafadar 1986). With its long shelf life, rice was a crucial ingredient in the success of expanding Ottoman armies and trade. Indeed, in 1555 the Habsburg Ambassador Busbecq quipped that the Ottomans' success was due to 'camels and rice' (Inalcik 1994: 39).

Filibe, which stood on the major road connecting Istanbul with Sofia, Belgrade and Ottoman Hungary, had both. An Ottoman list of expenses related to the royal stables dated to 1512 shows that part of the income from rice production around Filibe was used for feeding the state-owned camels that wintered in the city (BOA, IE. As. No. 1, 8). When the snow melted, the camels were used to transport goods, almost certainly including rice, as far north as Hungary. Indeed, camel caravans loaded with rice departed Filibe for Istanbul in 1640 carrying around 513 tons of rice (Inalcik 1982: 114). Other documents show the connections more generally between rice agriculture and the emergence of an infrastructure necessary for regional and international trade. At the end of the 16th century, the grand vizier Sokollu Mehmed Paşa (d. 1579) and the state secretary Ferīdūn Aḥmed Beg (1583) proposed to the palace administration in Istanbul the building of a large irrigation canal (around 13 km long) that could draw water from Sakarya river in north-western Anatolia to support rice and cotton agriculture around the

city of Eskişehir. The canal, and shares from the yields, would support their charitable foundation in its upkeep and repair of decaying trade infrastructure, such as a caravanserai and a road frequented by 'Arab and Persian merchants' (Barkan 1942: 364; Inalcik 1969: 133–34). The foundation would receive not only half the yield of rice grown by customary tenants, but also, if Mehmed Paşa and Ferīdūn Aḥmed Beg were to employ wage labourers (*irgadiye*), their entire rice yield. In other words, rice was so lucrative that the investors justified building irrigation canals for rice with the need to maintain long-distance trading operations leading to Persia and the Arab lands.

Ottoman merchants likewise found rice to be profitable. In 1570–1571, shipments of rice were traded in Ottoman Kefe, a city on the Crimean Peninsula and a major mercantile hub leading to the markets in northern Europe and Central Asia (BOA, A.DVNSMHM no. 141, 393/978). From Kefe, Ottoman merchants supplied the markets in northern Europe and northern Caucasus. The earliest cookbook written in Russian, which dates to the early 17th century, included dishes made from rice, then most likely imported from the southern Ottoman lands (Zabelin 1914: 918–34). The term 'Saracen wheat' used for rice in this cookbook and in other Russian sources suggests an Ottoman origin of this staple; 'Saracen' was widely used as a term for Muslim people in the eastern Mediterranean. At the other end of the Ottoman realm, in the city of Katif in the Persian Gulf (present-day Saudi Arabia), rice was one of the items mentioned in the Ottoman custom regulations concerning the Indian trade together with cloth, garments and wheat (Özbaran 2006: 175). Some Ottoman merchants came to specialize in the rice trade. One such merchant, called Naşūḥ, was allowed, according to an order from the Ottoman Imperial Council from 1570–1571, to purchase as much rice as he wanted in Filibe, which was intended for consumption in the city of Istanbul (BOA, A.DVNSMHM no. 141, 255/978).

A government order dating to 1569–1570 ordered that rice then being transported from Egypt to Syria was, instead, to be diverted to Istanbul. The Egyptian rice, meanwhile, was to be replaced by new rice fields that the Imperial Council in Istanbul ordered to be planted in Syria (BOA, A.DVNSMHM no. 9, 12/32. 977). Other new water-scapes appeared in connection with the burgeoning Ottoman and global trade in rice. Trade agreements, such as the one made following the creation of a joint Ottoman-Polish border in the 1540s, resulted in

growing exports of Ottoman rice to Poland (Golobic 1979: 356), from where rice could have been further traded north and west. In Germany, a 14th-century cookbook already includes dishes made with rice (Odenwald 1844). Across early Modern Europe there was a growing demand for this luxury grain (Gentilcore 2016: 56), which was grown in the Ottoman lands as well as Spain and northern Italy.

By the 16th century, rice was widely consumed across Ottoman geographies and had acquired the status of a commoners' food — as would later be the case in western Europe, where in the 18th century rice would transform into a cheap dietary staple (Coclanis 1993: 1052). Sixteenth-century Ottoman hospices served soups made out of rice (Gökbilgin 1952: 252); rice was also used in soups in Ottoman Egypt in the same period (Lewicka 2011: 153). By contrast, in the Byzantine period, rice seems to have been only or primarily used as medicine (Dalby 2010: 133; Kokoszko *et al.* 2015), or eaten as dessert (Browning 2001: 118; Rautman 2006: 46). Just as the first coffee house was established in mid-16th century Istanbul, rice too was part of the shifting consumption patterns in the eastern Mediterranean. If rice production in 15th-century Mamluk Syria and Egypt initially supported its transformation into an ingredient in popular dishes, rather than one of elite consumption as it had been earlier (Lewicka 2011: 145–46), sources suggest that in the same period, the Ottoman Balkans also played a role in this. Ottoman literary sources indeed reflect a market demand specifically for the rice grown in Filibe. 'Āşık Mehmed's aforementioned cosmography mentions the high quality of Filibe rice saying that 'the region around the city is a land planted with grains of which especially good is the rice' (Āşık Mehmed 2007(3): 1109). By the mid-17th century, Evliyā Çelebi, in his ten-volume account of his travels in the Ottoman realm and beyond, would give an even more elaborate description of Filibe's rice. He notes that it is red in colour and that, compared to the varieties then grown in Egypt and typically regarded as the best, it absorbed more water, making it tasty (Evliyā Çelebi 2006(3): 218). Evliyā Çelebi was born in Istanbul, where trends of consumption for the Ottoman market were frequently set. The formation of a taste for rice from the Ottoman Balkans in Istanbul likely increased demand and stimulated investment in agriculture in the region. With this in mind, let us now turn to a document that can shed light on the environmental impact of rice in the regions where it was grown.

### Commercial farming, climate and public health

The city's 'bad air' (*havāsi mute'affin olub*) sickened people; they 'caught fever' (*hummāya muhtelā olub*). This was due, according to a government order, to the 'rice canals surrounding Filibe' (*Filibe eṭrāfi çeltük enhāri*) (BOA, A.DVNSMHM.d no. 49, 38/137). The order was sent in 1583 from the Ottoman Imperial Council in Istanbul to the judge in Filibe — today known as Plovdiv, the second-largest city in Bulgaria. It approved the departure of Filibe's professors, scholars and preachers from the city to the mountains during the summer period. This was an 'old custom', the order notes, and those who left for the mountains normally authorized their deputies to deal with the highest ranking official in the city, the Ottoman judge. But some judges, according to the order sent to Filibe in April 1583, did not recognize these deputies and were forcing those who seasonally vacated the city to remain. Filibe's affluent citizens likely prepared their petition in the first days of the spring of 1583, as the summer heat and humidity would have been making their early warning signs. Preparations were likely underway for breaking the dikes for the water to enter the rice paddies around the city. In March of that year, Filibe's rice fields would make an impression on Reinhold Lubenau, a pharmacist from Königsberg, who arrived in the city when the rice canals and paddies were still visible before being overgrown with rice stalks later in the summer. In his diary, Lubenau compares the rice fields that surrounded Filibe with the wheat fields around German cities, marvelling at the industriousness with which they were created: 'It appears that this city just like a crown for the ornament of the entire land was built with special diligence, for all around the entire area watered with the river Hebro is planted full of rice like our fields of wheat' (Lubenau 1912: 113). The construction of rice canals around Filibe did not go unnoticed by central European cartographers. Johann Baptist von Reben's map of the road between Vienna and Istanbul depicted, in 1741, the plain of Filibe as a grid of intersecting canals connected with the rivers flowing into Maritsa (see Fig. 2).

Thus, the Ottoman official and traveller Evliyā Çelebi may not have been exaggerating when he claimed in his *Seyāhat-nāme* that there were 360 rice canals in the district of Filibe, all yielding income for the sultan (Evliyā Çelebi 2006(3): 219). Two centuries later, when rice fields still dominated the landscape around Filibe, the effects of risiculture on residents' lives would be recorded in the diary of the poet

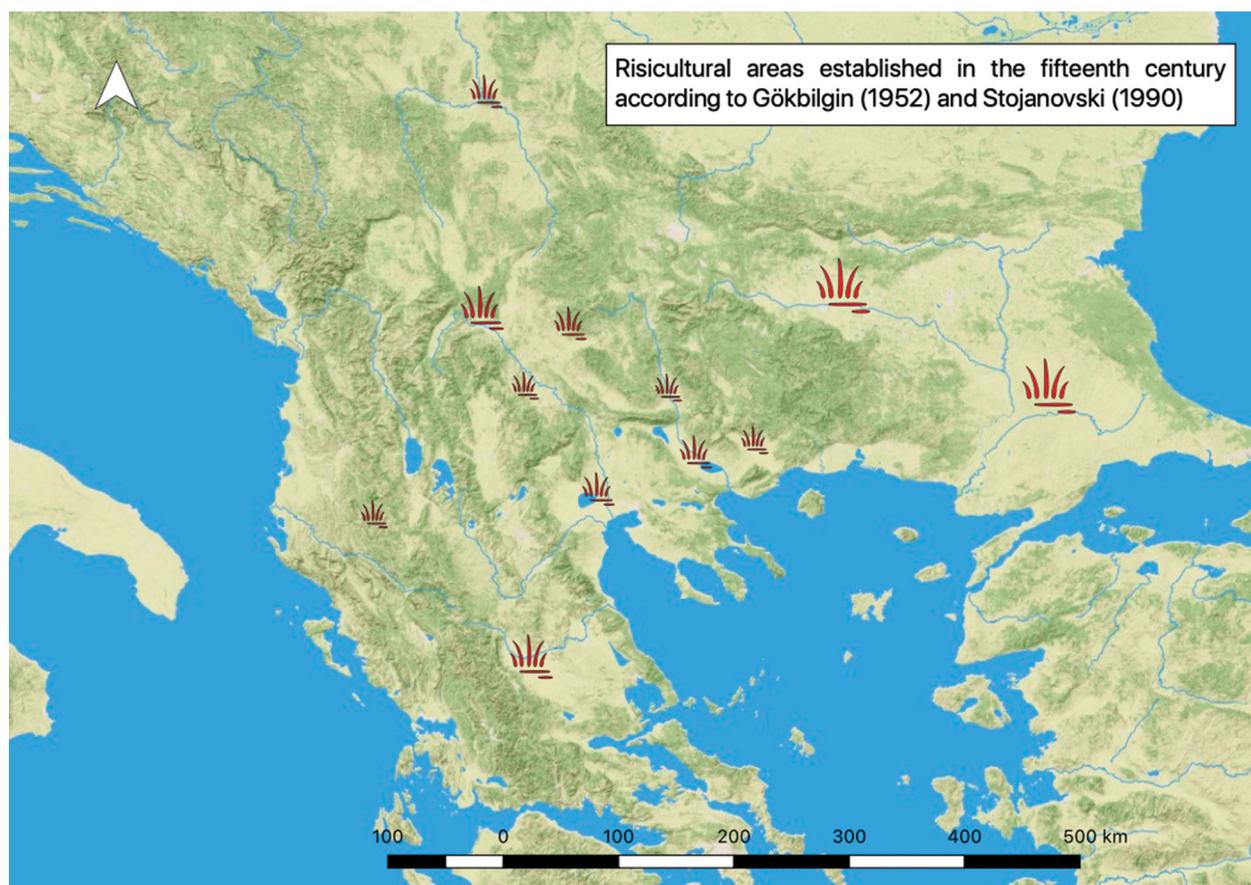


Figure 1 Risicultural areas established in the 15th century according to Gökbilgin (1952) and Stojanovski (1990).

Alphonse de Lamartine (d. 1869), who passed through the town on his return from travels in the Holy Land. Following his stay in the city, Lamartine says he suffered for 20 days from fever and severe fatigue, what may well have been a case of mosquito-borne malaria brought on by the large areas of water surrounding the city (De Lamartine 1845: 231–33).

Filibe's climate, in particular the intense summer heat, was remarked upon by the aforementioned Ottoman official and traveller Evliyā Çelebi. Noting the unbearable heat that forced the city's citizens to retreat to the mountains in the month of July, he, however, blames not the city's rice fields, but rather the city's rocky hills and their absorption and emanation of the sun's heat. Rising abruptly in the western Thracian plain, the syenite (a rare rock similar to granite) hills on which Filibe was built were a peculiarity of the city. But if life for Filibe's residents was unbearable in the summer, the rocky hills made Filibe's winters mild and pleasant, according to Evliyā Çelebi (Evliyā Çelebi 2006(3): 216–17). Indeed, Filibe's mild winters made it one of the main locations for camel breeding in the Ottoman Balkans. Camel caravans played an important role in

Filibe's economy; as mentioned earlier they were frequently utilized to transport rice.

Located on an important road connecting Istanbul and Belgrade, Filibe was one of the main urban centres in the Ottoman Balkans. It was a centre of trade and wool manufacturing. The 16th-century Ottoman tax registers note 140 different trades in the city (Karta 2006: 151). During this period its population, like those of many Ottoman cities, was on the rise. From 644 households in 1472, Filibe's population increased to 1078 households in 1595 (Boykov 2010: 78). References to the city's climate were made in the context of such urban development and population growth. The order that was sent in 1583 to the Ottoman judge in Filibe shows that residents and the central administration understood the city as having its own micro-climate, to which administrative practices had to be adjusted accordingly. According to 'Aşık Mehmed, Filibe was in the sixth climate, together with Istanbul and other cities in the Ottoman Balkans and Anatolia. Drawing from the work of Ptolemy, Muslim scholars divided the surface of the earth into seven climatic zones, distinguished by the duration of the longest day and differing in plant and animal life.

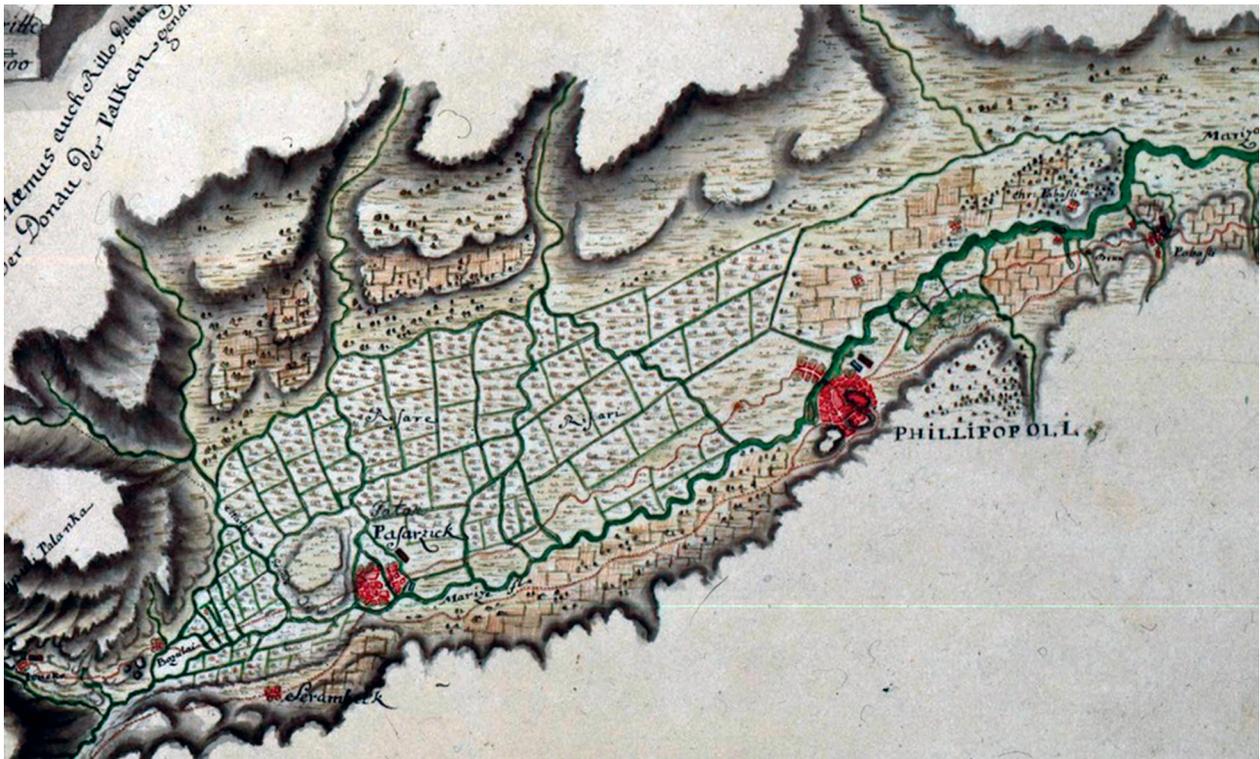


Figure 2 Map (1741) showing canals marked with green in the plain around Filibe (Phillipopol) and Tatar Pazardjik, both marked with red. Source: Vienna, Österreichisches Staatsarchiv, (Kla 4A) 'Mappe der Landlage längs der Hauptstraße von Belgrad nach Konstantinopel'.

These latitudinal zones determined through humoral medicine the temperaments of their inhabitants (al-Azmah 1992), though the theory of the climes was 'understood and applied' by medieval Islamic societies in varying ways (Olsson 2014). Rather than exposing environmental determinism, the 1583 order shows an awareness that human activity can also impact upon local plant life and air quality, which are defining attributes of the climes.

Both 16th-century Ottoman scholars and earlier Muslim medical authors had cited corrupt air as a reason for pestilence and had recognized swamps as causes of corrupted air (Conrad 1982: 274–81; Ünver 1935: 70–88; Varlık 2015: 231–33). The emphasis on air quality in the 16th century was not peculiar to Ottomans. In 16th-century Italy, too, there was a belief that 'the healthiness and sweetness' of air promoted longevity and vitality, and more generally an awareness of the relationship between local climate and human health (Cavallo and Storey 2013: 70–113). Moreover, in the Ottoman state it was already legal to flee an outbreak of plague in order to avoid corrupt air, as earlier 16th-century legal scholars had argued (Varlık 2015: 242–46). However, the 1583 order is striking in that it shows a legal debate about the right to

*temporarily* leave a city during a particular season, when the risk of pestilence was increased by agricultural activity. Facing opposition from local authorities, Filibe's residents petitioned a higher authority, the Imperial Council in Istanbul, for the right to leave the rice-plagued city. The judge's opposition to this summer retreat may have been motivated by personal economic interests, including a desire to continue collecting fees in the summer — or it may have reflected broader societal opposition to the practice. Regardless, the order belongs to the history of public health practices during the Early Modern state formation.

Showing a belief that agricultural activity can create a kind of local microclimate, it also belongs to a general awareness in Ottoman society in this period about connections between climate and agriculture that was driven by the spread of commercial farming around Ottoman cities. 'Āşık Mehmed, in his entry on the city of Izmir — a major city on the coast of western Anatolia — notes that during his visit (in the summer of 1585–1586), he noticed that the orange trees there had lost their leaves. When he asked the locals why, they told him that the winter had been harsh and that the trees were 'burnt' from

the snow and the cold (Âşık Mehmed 2007(2): 901). 'Âşık Mehmed then adds that the grapes and figs grown in Izmir are exceptional, and are exported to Istanbul. Elsewhere in his cosmography, he specifically notes that of all the grains grown in the surroundings of Filibe, 'the rice is especially good' (Âşık Mehmed 2007(3): 1109). Market-oriented specialization in agriculture, which emerged in the Ottoman Balkans and Anatolia during this period, came with serious risks. A pest, or a cold winter, could wipe out one's entire investment. The catastrophic crop failures that can result from modern industrialized forms of monoculture manifest this in the extreme. As Ottoman urban elites began investing in commercial farming, scholars increasingly observed links between climate and agriculture.

Rice requires more water for its production than any other grain. Where it is planted it expands the water surface around settlements, sparking new land and water regimes. Filibe's rice grew in paddies that were flooded with stagnant water from spring through the summer, when the rice plants sprout their stalks. Contrary to the emphasis on broad external causes for environmental distress and political crises in the Ottoman lands, for instance, the 'little ice age' in the second-half of the 16th century (Grove 1988; White 2011), local shifts in land regimes could also induce environmental transformation or crisis. Filibe is a case in point. Risiculture is not attested there prior to the Ottoman conquest of the city in 1372. Scholars have argued that rice arrived in the south-eastern Balkans following the Ottoman conquest at the end of the 14th and beginning of the 15th centuries (Beldiceanu and Beldiceanu-Steinherr 1978; Inalcik 1982; Stojanovski 1990). Moreover, in the 15th century the Ottoman government was resettling rice producers from Anatolia into the newly conquered Balkans (Inalcik 1982: 106). Local Christian communities were quickly appropriating this knowledge and becoming rice producers themselves (Stojanovski 1990: 113–16). Tax surveys from Tatar Pazarcık, which neighbored Filibe to the west, show that the city's Muslim population — which had begun arriving from Anatolia following the Ottoman conquest — precipitously declined in the 16th century, which Machiel Kiel has attributed to the unhealthy environment of the rice fields around the city (Kiel 1997: 57 and 58). Indeed, rice production appears to have been significant in Tatar Pazarcık: an Ottoman survey of 1513 records that one third of all households in the district (697 out of 2230) were employed in rice farming (Kiel 1997: 57). In the 16th century, risiculture would spread as far north as

Ottoman Timișoara in western Romania (BOA, AE. SSLM. II, 1. 46).

Filibe's geography resembles that of the northern Italian cities along the Po River, where risiculture likewise exploded in the 16th century, intensifying in the 17th century when northern Italian rice was exported to the Netherlands (Gelder 2009: 82–83). Just as the Alps protect the Po River valley from harsh northern winds, the Balkan Mountain range protects the upper course of Maritsa River valley, where Filibe is located, from the north-eastern winds that descend from the Steppe north of the Black Sea. In both valleys, warm weather systems are tempered by southern mountain ranges as well: in the case of the Po, the Apennine mountains; and in the case of the plain around Filibe, the Rodopes, which run parallel to the north-eastern Aegean coast. These were the mountains where, according to the Ottoman government order of 1583, mosques, colleges and dervish lodges were established for those citizens who fled Filibe's 'bad air' and the 'fevers' arising from it. The tributaries of the Maritsa, flowing from the mountains that enclosed Filibe's plain to the north and south, provided a steady supply of water for the thirsty rice plant. Indeed, in the imagination of Ottoman scholars and bureaucrats, Filibe was strongly associated with water. In his entries on the rivers Maritsa, Tunca and Arda, 'Âşık Mehmed reminds his readers again and again that the source of all these rivers — which joined near the city of Edirne and continued their southern flow together to the Aegean Sea — was located in the mountains around Filibe.

### **Waqfization, labour, profits**

It was not only suitable hydrological conditions that made Filibe susceptible to rice and its environmental effects. Rather, the establishment of risiculture around the city and in surrounding villages was enabled by the increased endowing of state land to Islamic charitable foundations or *waqf*. Such foundations were heavily invested in agriculture and where they took over land, commercial agriculture tended to spread. This not only changed land and water regimes, but also had an impact on labour practices. The labour for rice agriculture in Filibe was not performed solely by seasonal migrants, as has been assumed of Ottoman risiculture generally, in contrast to the 'stable rice fields' of northern Italy (Tabak 2008: 286). Instead, 16th-century Ottoman tax registers show an increase in the number of rice farmers residing permanently in the city. In 1490, there were seven residents designated as water managers (*sakka*), two rice growers (*çeltukçi*), four organizers

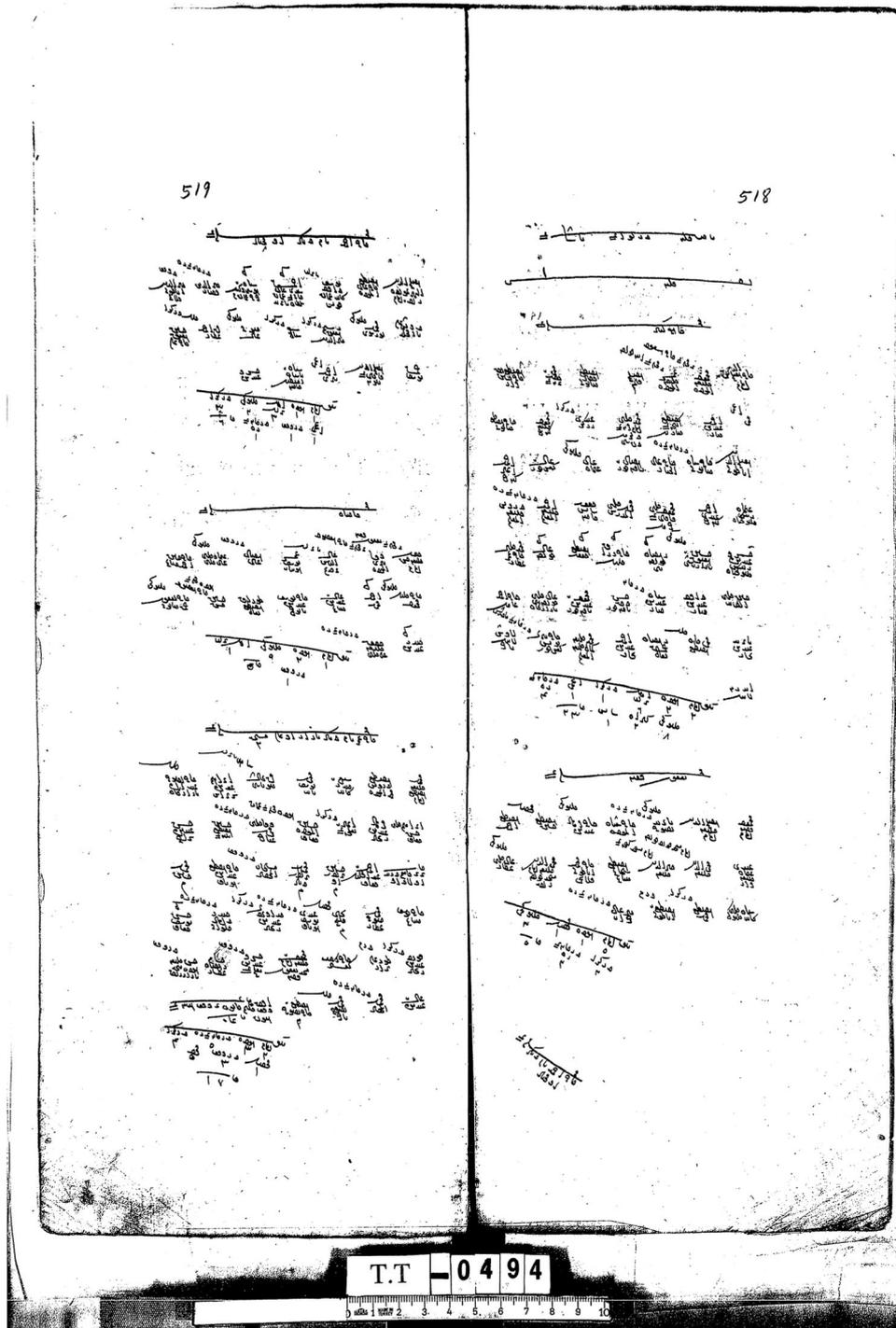


Figure 3 Ottoman survey of the residents in the neighbourhoods of Filibe from 1571 (BOA, TT.d no. 494: 518–19).

(reis) of the work in the rice fields and six rice-field workers (kurekçi) — a total of 19 people involved in rice production (Boykov and Kiprovska 2000: 128–36). A survey of Filibe made in 1570–1571 shows that this number had increased to 55 (BOA, TT.d no. 494, pp. 518–37) (see Figs 3 and 4). The number of neighbourhoods in which rice-growers are recorded as residing also increased. For instance, the Yakub

neighbourhood did not any have rice growers in 1490 (Boykov and Kiprovska 2000: 131) but three by 1570/1571 (BOA, TT.d no. 494, f .518). Not only was rice grown in the immediate vicinity of Filibe, but nearby villagers also converted land into new rice-producing waterscapes. A survey conducted in the district of Filibe in 1517 records, after the city of Filibe, the village of Azizbeglu, in which 17 rice-



Figure 4 Rice fields near Skopje, c. May 1954 (photo credit: Halpern, Joel Martin).

growers (*çeltukçi*) lived (BOA, TT.d, no. 77, f. 560). In the district of Filibe, the survey of 1570–1571 records 404 people as rice-growers, and 35 villages in the same district as producing rice (Borisov 2014(1): 11–360.). In many of these villages, however, rice-growers are not recorded, which may indicate that the production was in the hands of wage labourers and sharecroppers as opposed to customary tenants or *reaya*. In 1490, labourers on rice fields controlled by the *waqf* of Suleyman Pasa were recorded as receiving a salary of 3–4 akçe per day (Inalcik 1982: 115). Whether the total number of wage labourers employed in rice agriculture increased in the 16th century is still unclear. However, we should recall that wage labour played an important role in the aforementioned proposal by the grand vizier Sokollu Mehmed Paşa (d. 1579) and Ferīdūn Aḥmed Beg to initiate large-scale rice production in north-western Anatolia.

While other agricultural producers, categorized by the Ottoman state as customary tenants, were subject to irregular taxation, rice producers were valued so highly by the Ottoman state that they were exempt from such taxation. Such tax-exempt occupations also included salt-making, camel-breeding and the keeping of mountain passes. Indeed, as we have seen, rice with its long shelf life played an important role in Ottoman diets and mobility at the very moment when Ottoman trade and conquest were expanding. The earliest known tax survey undertaken by the Ottoman central government,

dated to 1432, also contains the earliest known mention of rice being grown in the Ottoman Balkans (Inalcik 1954). Recording rice farmers and the amount of rice they were planting on state land in villages around the city of Berat, a major urban centre in southern Albania, the survey suggests that risiculture, its profits and trade were instrumental in the formation of the Ottoman state.

Ottoman sources show the large revenues that flowed from the rice fields around Filibe. An Ottoman dynastic history written by İdrīs-i Bīlīsī (d. 1520) notes that the Ottoman sultan collected 4 million akçe in taxes from the rice grown in the fertile plain of Filibe (Inalcik 1982: 70). İdrīs-i Bīlīsī claims that Filibe's rice was traded in all parts of 'Rumeli', meaning 'the lands of Rome', i.e. western Anatolia and much of the Ottoman Balkans. Between 1487–1488 and 1588–1589, state revenues from rice production in Thrace rose from 1,679,000 akçe to 3,400,000 akçe (Inalcik 1982: 138). A tax-farming register dated to 1588–1589 shows that 166 mūd (about 25,000 kg) of rice from Filibe were sent to the royal kitchen in Istanbul, and another 1067 mūd (163,000 kg) were sold on the market for 1,538,438 akçe (BOA, D.BMK.FLM .d 22629, f. 6). This was just part of the total production of rice around Filibe, as it accounted only for the rice fields on land controlled by the state treasury.

Rice farming around Filibe was connected with a process of urbanization that occurred in the Balkans,

Anatolia and Istanbul in the 15th and 16th centuries and which has been described by Suraiya Faroqhi and others (Faroqhi 1984). In Filibe, this process had been sparked when a charitable mosque complex was established there in the 1440s by Hacı Şihābeddīn Paşa, governor and commander of Ottoman forces in the Balkans and a second vizier in the Imperial Council. The complex incorporated a number of new facilities for the city, such as a public bath, a mosque, a mausoleum, a madrasa and a hospice (Boykov 2012a: 56). This urbanization was in turn supported by the spread of risiculture in Filibe and the surrounding region of Thrace. The Hacı Şihābeddīn Paşa foundation controlled a water-mill with a mill, or *dink*, for dehulling rice and collected revenues from villages and rice fields (Boykov 2008: 5–6; 2012b: 185–86). The earliest record of the tax farming of rice production in Filibe dates to 1455, shortly after the establishment of the foundation (Gökbilgin 1952: 126).

The introduction of rice around Filibe thus coincided with the selling-off of state land to Ottoman officials and military commanders, who endowed it to their Islamic charitable foundations. Such foundations (*waqf*), the administration of which could be inherited, had existed in the Balkans as early as the 14th century, when land was endowed to those participating in the Ottoman conquests (Barkan 1942). However, the endowment of state land in this region accelerated following the Ottoman defeat by Timurid forces in Ankara in 1402 (Filipović 1971: 287–88; Gökbilgin 1952: 175, 183, 198–200; Inalcik 1958: 9; Uzunçarşılı 1939), when selling off state land served as a way to garner political support in the ensuing decades of dynastic struggles and political instability. By the time of the rule of Mehmed II (r. 1451–1481), significantly more land was already in the hands of scholars, Sufi orders and regional power holders.

This process of ‘waqfization’ was instrumental in the spread of commercial farming in the Ottoman Balkans. Indeed, many Islamic charitable foundations incorporated canals for irrigating rice fields and mills for processing rice. Generally, with more control over land there arose a more capital- and labour-intensive agricultural production. The impact of this transformation is shown by the case of Edirne, located on the banks of Maritsa river some 180 km downstream from Filibe. By the 16th century, the land surrounding Edirne was almost completely controlled by the foundation of Bāyezīd II (r.1481–1512), to which it had been endowed in 1488. In 1528–1529, this land was designated in the income records of the foundation

as ‘the vineyards of Edirne’ — *bāğāt-ı Edirne* — and recorded as yielding a total of 76,120 akçe from rents (Gökbilgin 1952: 357–79).

From a series of government orders in 1568, we learn that the waterscape around Edirne had undergone dramatic changes in the preceding decades (BOA, A.DVNSMHH.d, no.7, 495/1428; A.DVNSMHH.d, no.7, 589/1655 and A.DVNSMHH.d, no. 7, 589/1656). That year, the authorities in Istanbul voiced their concern to the judge of Edirne that residents had previously planted poplars and constructed vineyards and orchards along the banks of the Tunca river, which flowed west of the city, obstructing the river’s natural flow and causing flooding. Following its endowment to the foundation of Bāyezīd II, the land around Edirne had begun to be leased by urbanites who established market-oriented farming operations. This agricultural production narrowed the river and prevented its water from flowing into the fenland around the riverbed, which had been turned into enclosed agricultural land. These enclosures dangerously directed the powerful river towards the bridges connecting the city with its western countryside and some of the lower-lying neighbourhoods in the city. Agriculture in Edirne altered the city’s waterscape, as it did in Filibe. Indeed, in his cosmography ‘Āşık Meḥmed, illustrating the powerful economic value of the Maritsa river, notes that rafts loaded with pine and firewood were being sent downstream along the river from Filibe to burgeoning Edirne. He then suddenly mentions that the Maritsa river regularly flooded Edirne in the winter and spring (Āşık Meḥmed 2007 (2): 318–19), subtly connecting the cutting and trade of trees in Filibe to the flooding downstream in Edirne.

The scale of the environmental change caused by rice in Filibe can be discerned in the registers of Islamic charitable foundations. Dozens of canals were dug from tributaries of the Maritsa to supply the rice paddies with water, increasing the land area around the city that was seasonally underwater. At an unspecified location in the district of Filibe, the charitable foundation of the grand vizier Muṣṭafa Paşa (d. 1512) controlled a canal called Kulağuzlu for the irrigation of an area of rice fields that yielded a significant yearly rent of 10,000 akçe to the grand vizier’s charitable mosque complexes in Istanbul and other cities in the Balkans (Barkan and Ayverdi 1970: 366–67). Yet another canal for growing rice (*nehr-i çeltük*), known as Küpsi or Göpsu, was controlled by the charitable foundation of the vizier ‘Alī Paşa, which had been created in 1509. This canal

supported charitable mosque complexes in Istanbul and Edirne (Barkan and Ayverdi 1970: 67–68).

The grid of canals watering the rice paddies around Filibe led to the formation of a cluster of mills for processing rice and the introduction of new technologies and forms of water usage. By the mid-16th century, several villages around Filibe had such mills, which were located along the tributaries of Maritsa river that flowed into the city's surroundings. These included the villages of Eyne Beğce, Ali Fakiyh (about 25 km north-west of Filibe, on the Potoka river), Kara Reis (now called Bolyartsi, about 20 km south-east of Filibe), and Doğancı (about 26 km north of the city) (Barkan and Ayverdi 1970: 428). Another village near Filibe with a *dink* for dehulling rice was Ibn Hızır (Barkan and Ayverdi 1970: 68). By the first half of the 18th century, *dink* would become a general Ottoman term for a processing facility for rice (Barkan 1943: 196 and 331). In addition to watermills, Filibe's countryside in the 16th century was thus dotted with pounding machines powered by water. This proto-industrialization of the countryside required, in turn, new skills and specializations.

As we have seen, by the 16th century Filibe's rice was recognized as a variety with its own particular taste, colour and shape. As sources for this rice, the expenditure records for the kitchen of the Ottoman palace in Istanbul name the rice canals in Çeşnegir and Saray (Bilgin 2004: 201). Today the former is a village some 15 km east of Filibe, just a few kilometres south of the River Maritsa. The village of Çeşnegir appears in the 1546 survey of the charitable foundations in Istanbul as property belonging to the *waqf* of Hüseyin Ağa; it yielded a large income of 8700 akçe, almost one fifth of the foundation's total income, which most likely came from the rice fields around the village. Hüseyin Ağa invested by endowing a mill for processing rice (*dink*) in the same village yielding 1167 akçe per year (Barkan and Ayverdi 1970: 71).

Rice production in and around Filibe thus offered an investment opportunity for members of the ruling class in Istanbul, enabled by the alienation of state land and its transformation into *waqf*. Building canals and transforming them into private property effectively meant the formation of new proprietary rights over water. In the case of the rice fields near the city of Nish in southern Serbia, we learn that rice production was established in the 15th century on what used to be a forest, which was logged to open space for the rice plants (Stojanovski 1990: 114). These rice fields were established by a certain Süleymān Paşa, who obtained the right to the forest from a military fief holder and endowed the rice

fields to the mosque he had built. The *waqfization* of land thus sparked significant changes in the landscape through the logging of forests and redistribution of water sources. More than 200 years since the first breaking of dams to flood the rice paddies near Filibe, Koçi Beg (d. 1650) lamented the loss of state land to charitable foundations in his treatise, which urged reforms to the Ottoman state (Koçi Bey 1972: 33, 47, 57–59, 68–70). This loss of land, according to Koçi Beg, affected the state revenues. His advice was to reverse the process and return the land to the treasury. Indeed, the loss of state revenues from rice produced on *waqf* land would have been significant, as the yield from rice was not taxed by the state (Stojanovski 1990: 141). On state land, however, the treasury received half of the yield from the customary tenants (Inalcik 1982: 111).

Looking further to the west of Filibe, the involvement of urban elites in the introduction of rice around Balkan cities is shown by the case of Üsküb/Skopje, a city in the central Balkans and the capital of present-day Macedonia. Before he died in the 1460s, the Ottoman military commander Isā Beg personally paid for the construction of a water canal near Üsküb specifically for rice production. Isā Beg, who hailed from a family that had participated in the Ottoman conquest of the city in 1392, endowed the canal to his charitable complex in the city (Sokolovski 1971: 539). By 1560, the governor of the province of Üsküb, who resided in the city, complained to the Imperial Council in Istanbul about Üsküb's 'bad water and air' (Šopova 1955: 14–15). Citing this, as well as the damages wrought to his house by the major earthquake of 1555, the governor requested to have his seat moved some 100 km south, to the city of Pirlepe/Prilep. By the mid-16th century, Üsküb, like Filibe, was a city surrounded with villages specializing in rice production. According to an Ottoman tax survey of the district of Skopje made in 1455, rice was being grown in at least four villages west of the city (Sokolovski 1971: 435–37). A total of 68 male taxpayers were registered that year as rice growers, indicating that, together with their families, several hundred people were employed. By contrast, Pirlepe, the town to which the governor requested to be moved, is not on a major river and was not known for rice agriculture.

The environment of Üsküb was also impacted by flooding, which locals in this case attributed to the disposal of garbage in the river. In 1589, the river Vardar flooded the lower right bank of the city, and the residents filed a complaint to the imperial council in Istanbul blaming the city's artisans — most likely



**Figure 5** Workers constructing rice paddies in Lauta, present-day suburb of Filibe/Plovdiv, at the beginning of the 20th century (source: Nikola Alvadziev, *Plovdivska Hronika*, Plovdiv: Khr. G. Danov, 1971).

those working on the other side of the river, just under the city's fortress — for disposing garbage there (BOA, A.DVNSMHH no. 67, 28/66). The garbage had created a sort of dam that diverted the rising water in the winter and spring to the lower parts of the city. This may have been a recurring event in the 16th century when goods, such as wool, were manufactured in Üsküb not only for the Ottoman market, but also for Venice. Hasan and Kara Muştafa, a wealthy felt-maker and a merchant from Üsküb, were ordered to move to Istanbul in 1578 so that they could supply the city with sheep (Şopova 1955: 51, 55, 56). A number of Venetian and Dubrovnik merchants also resided in the city (Şopova 1955: 12, 28, 29). Manufacturing, which increased in the 16th century as Üsküb grew and its citizens became more involved in international trade, generated garbage and caused flooding, which in at least one case was recognized by Üsküb's citizens and the Ottoman government in Istanbul.

### Conclusion

The establishment of rice agriculture changed the environments of Filibe and other cities in the

Ottoman Balkans where risiculture was introduced in the 15th century. The environmental transformation of Filibe and other risicultural centers helped give rise to a new awareness, linking human actions with shifting waterscapes. Filibe became a virtual island surrounded by the stagnant water of its canals and rice fields. As the government order of 1583 shows, the local Ottoman officials were able to escape the rice-afflicted city in the summer months. The new rice production around the city created a microclimate that both local officials and those in Istanbul perceived as a source of pestilence. This article has argued that the spread of risiculture was propelled not only by natural conditions such as the availability of water or a temperate climate. Rather, the rise in the global trade in rice depended on, and stimulated, the increasingly water-intensive forms of agriculture that supported it, and the establishment of forms of control over water. The early history of rice in the Ottoman Balkans involved the construction of canals for irrigating rice (financed by private investments), the privatization of land and its endowment to charitable foundations, the use of wage labour and the formation of a market for the consumption of rice.



**Figure 6** The rice fields and canals in Tsalapitsa, 20 km west of Plovdiv (author's photograph, August 2017).

Rather than seeing these developments as regionally isolated, this article has proposed seeing them as part of global economic processes. In addition to drawing connections between the local and the global, this article has also reconsidered the spaces where rice production took off. Rather than imagining that rice production was occurring only in distant countrysides, the cases of Filibe, Üsküb, Berat and other cities in the Ottoman Balkans, show that urban spaces were in close proximity to risicultural spaces, which are both water- and labour-intensive. As the global trade and consumption of rice emerged, cities like Filibe, which specialized in rice production, saw a drastic change in their waterscapes.

Today, a citizen of Filibe, or Plovdiv as it is now called, might be surprised at how different the city's surrounding landscape looked in the Ottoman period. The rice fields blamed for Filibe's bad air in 1583 are now gone. In the suburban area of Lauta, south-east of the city centre, they have been replaced with an Agricultural University, the soccer stadium of Lokomotiv, parks and residential buildings. In a late 19th-century photograph, reproduced in a monograph about the city in 1941, we see the rice paddies of Lauta in which labourers are working up to their knees in mud and water (see Fig. 5). It is a reminder of the

hardships of rice growing, a theme also depicted in Giuseppe De Santis' film *Riso Amaro* (Bitter Rice). As for Plovdiv, water in the time of global warming is becoming a renewed problem, though not because of humid air and fevers like in 1583. Rather, heavier and more intense rain has contributed in recent decades to the flooding of the river Maritsa, which flows through the city. The low-laying areas that were once rice fields are now developed areas prone to flooding. Rice production has moved much further outside the city, to the Tsalapitsa rice fields, some 20 km west of Plovdiv, which are visible from the highway that connects Plovdiv with Sofia (see Fig. 6). These rice fields are a protected natural reserve, home to 46 bird species, many of which are among Europe's most threatened. The rice fields that emerged in the 15th and 16th centuries around Filibe, remnants of which are still visible today, and that were once harmful to human health now support new ecologies.

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