

Climate, Disease, and Upheaval in the Turkic World in the 14th-15th Centuries

Uli Schamiloglu 

uli.schamiloglu@nu.edu.kz

Nazarbayev University, Astana, Kazakhstan

Abstract

This paper examines the role of climate and disease as a major factor resulting in disruption and upheaval in the Turkic world in the 14th-15th centuries. The first issue the paper addresses is the beginning of the climatic downturn in circa 1280, which will ultimately culminate in the Little Ice Age of the late 15th-18th centuries. The paper cites recent work on the role of climate in the history of Iran. While the author has explored this issue in detail for the history of the Golden Horde, the impact of climate change on Iran in the 14th-15th centuries is a topic which has yet to be investigated adequately by historians. More importantly, climate change is associated with the spread of the Black Death, both in the original point of its spread and especially in the lower Volga River delta. The paper addresses the role of the Black Death (1346-) as a disruptive factor in the history of the Golden Horde and the Chağatay Khanate. Citing recent research, it also considers legacy of the Black Death in the political, socio-economic, and cultural history of the Il-Khanate and what it meant for the rise of the Aqqoyunlu state. In the Golden Horde, Central Asia, and the Ottoman Empire, the Black Death led to a decline or disappearance in the earlier Islamic Turkic literary language. The earlier archaic literary language was replaced by a newer literary language closer to the vernacular or spoken language of the people. There is also evidence of cultural responses to plague written in the new language.

Keywords: Black Sea, Golden Horde, Ottoman Empire, Il-Khanate, Aqqoyunlu, climate change, Black Death, Azerbaijani Turkic.

Introduction

This conference dedicated to the 600th anniversary of the birth of the Aqqoyunlu leader Uzun Hasan (1423-1478) is an occasion to reflect on aspects of the world of the Oğuz Turks in the 14th-15th centuries which are rarely considered, namely the role of climate and disease in their lives. I do not pretend to be a specialist on the Aqqoyunlu, medieval Azerbaijan, or Iran, though I am proud to have studied under Richard W. Bulliet, the well-known specialist on the history of medieval Iran. I have worked, however, on the role of climate and disease in the history of the Golden Horde. I hope I can draw upon the insights I have gained from that research

to contribute some new ideas to the discussion of the world of the Oğuz Turks against the background of the world of the Turks in this turbulent period.

The opening of the Black Sea (1204)

The first element which we must consider as setting the stage for understanding the 14th-15th centuries is not an issue related to the environment, but rather it is an event of great significance helping to redefine the region which the Aqqoyunlu would later dominate. This event is the opening of the formerly “closed” Black Sea following the Latin conquest of Constantinople in 1204 (Jacobi, 1999). Henceforth, the gradual commercial inroads of the Italian maritime republics would lead to the establishment of colonies in Crimea and the mouth of the Don River, with Sinop and Trebizond playing an important role as ports on the northern shore of Anatolia this period. This resulted in active commerce across the Black Sea integrating Crimea, Trebizond, Sinop and those areas which connect to them. In Central Anatolia there was a caravan route from Sinop to Amasya, Tokat, and Sivas, from where one could travel to Malatya and beyond to various points in SE Anatolia. A more easterly route went from Trebizond to Gümüşhane, Erzincan, Elazığ, and Diyarbakir, with another route leading from Trebizond to Gümüşhane, Bayburt, and areas further to the east. These important trade routes, a continuation of trade routes which existed in earlier periods in the history of Anatolia as well (Kaya, 2019), flourished during the period of active commerce in the Black Sea would then connect to the territories forming the core of the Aqqoyunlu territories, including the cities in their western territories such as Erzerum, Amida, Mosul, and Baghdad. For a high-resolution map of caravan routes, caravansarays and bridges in Anatolia in the Middle Ages, see: https://openseadragon.github.io/openseadragonizer/?img=https://i.redditmedia.com/B9A_Namtab1vgP9-k54ntfmSHg61v5IDFOTygzCXu7U.jpg?s=69e233c9e3a6337b8341844826bfe026 (accessed: 3 October 2023).

The significance of the Italian presence in the Black Sea is not to be underestimated. Not only did the Black Sea become commercially integrated into the world of the Mediterranean Sea, it meant by extension that these territories were slowly integrated into the markets of the Atlantic Ocean ports. No small wonder, then, that in 1463 the Venetian Senate sent Lazzaro Querini and later Caterino Zeno in 1471 as ambassadors to Uzun Hasan. Among the important sources for the history of the Aqqoyunlu we may include the accounts of the later Venetian ambassadors Giosafat Barbaro and Ambrogio Contarini. Of course, Uzun Hasan sent his own ambassadors to the Venetians, too (Lockhart, 1986: 377-378;

Roemer, 1986b: 168-188; Babinger, 1992: 305-307). This meant that in the mid-15th century Venice was a very important strategic partner for the Aqqoyunlu in their foreign relations, including their adversarial relationship with the Ottoman Empire, their great rival to the west.

The beginning of the climatic downturn (1280-)

In Western Eurasia 1280 appears to have marked the beginning of a long-term climatic downturn which would eventually culminate in unbearable conditions for nomadic populations in parts of northern Eurasia where nomads had dominated in the Chinggisid period, if not for millenia earlier, going back at least to the time of the Scythians. This climatic downturn would have a variety of direct and indirect consequences for the Black Sea region. As I have argued elsewhere, the first immediate impact of increased precipitation in the catchment basin of the upper reaches of the Volga River led to increased inflow, affecting the level of the Caspian Sea (Schamiloglu, 2016). The rise in the level of the Caspian Sea beginning in approximately 1280 must have affected habitation in the lower Volga delta region. Not only was this an area where the Golden Horde ruler Batu Khan established his first settlements, including his first (?) capital, these must have served as important nodes of commerce which eventually relocated further to the north to avoid the inundation of lands in the southern region, actually moving closer to the portage with the Don River, which was an important route for commerce. Another consequence of the flooding of the lower reaches of the Volga River was the submerging of areas that had been very important sources of biomass which historically attracted pastoral nomads and their large herds to this southwestern region of the Eurasian steppe.

Another apparent consequence of the shifting climatic patterns was indirect evidence suggesting an expansion of grain production further to the north along the Volga River to the region of Saratov, where the Golden Horde city Ükek was located (Schamiloglu, 2018). The rise of satellite agricultural settlements around Ükek in the first half of the 14th century is likely indicative of an increase in grain production to meet the demands of Italian merchants visiting the ports of the Black Sea region in search of wheat. This demand was driven by the flooding of fields in Italy beginning in the late 13th century, an example of an indirect consequence of climate change in this period, albeit in southwestern Europe.

No doubt the most dramatic consequence of the flooding of the lower Volga delta would be the creation of a new human-animal vector for the transmission of disease. This may have been a key element in setting up the spread of the disease,

which arrived in Crimea in 1346, to spread in 1347 from Crimea to Constantinople and then to Alexandria and Sicily, from where it spread throughout the Middle East and Europe with devastating consequences. (This will be addressed in the next section.) The spread of the plague from the Genoese colony of Kaffa in Crimea to Constantinople and beyond to the Middle East and Europe was no doubt facilitated by the fact that the Italian maritime republics plied the Black Sea and the Mediterranean with their ships (Schamiloglu, 2004, 2009).

What evidence do we have for a climatic downturn in the territories of the future Aqqoyunlu state? Recently scholars have argued that we should take into consideration information about climate change for Iran, too (Bulliet, 2009; Mikhail, 2016; Frenkel 2019). Notably Richard W. Bulliet has argued, drawing upon dendrochronological studies, that Iran experienced a significant cold spell in the first half of the fourth/tenth century, followed by prolonged climatic cooling in the fifth/eleventh and early sixth/twelfth centuries. In his view, one of the results of this cold spell was agricultural decline in the Iranian plateau and folk migration into northeast Iran of Oğuz Turks. Ellenblum continues this line of reasoning to argue that hunger caused Oğuz tribesmen in the Oxus region to migrate south in the 1030s (Ellenblum, 2012).

Just as there are studies which propose environmental arguments for the earlier migrations of the Oğuz, I have also identified above certain climatic information which are of direct relevance for understanding the socio-economic history of that state in the 13th-14th centuries and later (see below). Mikhail (2016) has identified certain climate data which may serve as proxy data for understanding what was going on in Iran over the course of the second millennium CE, including the period in which Uzun Hasan rose to lead the Aqqoyunlu. Clearly by the time we reach the peak of the Little Ice Age, as in the case of the Ottoman Empire, conditions eventually result in the highly destructive Celali Rebellion (1595-1610), as shown by White (2011). For an even later period, Matthee (2015) studies the climatic factors in the decline of the Safavid Empire in comparative perspective.

The Black Death in Central Asia, the Golden Horde, and the Middle East

In this section I would like to summarize some of my findings regarding the role of the Black Death in the Golden Horde and the Turkic world in the 14th-15th centuries and later. Since 2016, we have known that the origin of the polytomy or explosion of genetic variation in the development of the bacterium *Yersinia pestis* responsible for the First Pandemic in the time of the Emperor Justinian (6th-8th centuries), the Second Pandemic (14th-15th centuries and later), and the Third

Pandemic (late 19th century until the present day) was located at the crossroads of the Silk Roads and Horse-Tea Roads in the Qinghai-Tibet Plateau (Schamiloglu, 2016, 2021, 2023). Monica Green has argued for the establishment of the disease bubonic plague caused by transmission of this bacterium from rodents to human beings to Kyrgyzstan and then further to the west in the 14th century and even as early as the 13th century (2020). As noted above, the rising level of the Caspian Sea beginning in the late 13th century would have resulted in rodents native to the lower Volga delta region coming into closer contact with human beings. Once a focus of plague had established itself there, it was only a matter of time before plague was transmitted to human subjects. I would argue that the impact of the Second Pandemic in the Golden Horde was as devastating, if not even more devastating, than the Black Death in medieval Europe, where in certain areas up to 90% of the population died in a relatively short period of time. As we now know, the genetic makeup of the sample of *Yersinia pestis* found in Bolgar at the Volga-Kama confluence is identical with the genetic makeup of the bacterium which caused this pandemic in Europe and the Middle East (Spyrou et al., 2016, 2019).

In the case of the Golden Horde, I have argued for demographic collapse, including the sudden decline of population in sedentary centers, especially densely populated urban centers. This was no doubt the case in Central Asia, since the plague arrived in Kaffa from Khorezm, as far as we know. The sudden collapse of the Chağatay Khanate and its division into Transoxiana and Moğolistan is no doubt a result of this sudden demographic collapse and the political anarchy which followed it. I have argued extensively that this was the case in the Golden Horde after the death of Berdibek Khan in 1359. For me, the only surprise is that the Golden Horde, whose territories had been experiencing waves of plague going back to the 1340s if not earlier, managed to survive as a unitary state until 1359. From 1360 on, however, the Golden Horde devolved into competing factions and no longer existed as a unitary state. The Yüan dynasty faced internal problems beginning in the 1330s-1340s as did the Il-Khanate following the death of Abū Sa'īd (1335). The Black Death is usually not offered as a fundamental factor in the collapse of centralized authority in any of these states except for now the Golden Horde.

In the case of Anatolia, I have argued that the Black Death was responsible for depopulation and instability in Anatolia as well as devastation along the Aegean and Mediterranean coastline, since the plague was transmitted along maritime shipping routes as well as by overland routes (Schamiloglu, 2004). It was not only the Karamanids and other powerful *beyliks* which suffered, it was also maritime *beyliks* such as Menteşe (the region in which modern-day Bodrum is located)

which were wiped out. There are numerous indications in the source regarding unharvested crops, feral herds, etc. I would go so far as to tie the decline of Cilician Armenia to the ravages of the plague. We also have studies of the impact of the Black Death throughout the Middle East. What about Iran and the future territories of the Aqqoyunlu? After all, these are immediately to the east of the territories.

The recent contribution by Fazlinejad and Ahmadi offers the first detailed review of the sources for the course of the Black Death in Iran from Khorezm to Azerbaijan. They offer a catalog of occurrences in Iran, beginning with 1346 (one of which is actually for Khorezm) and continuing with citations for 1347, 1348, 1360 (one of which is for Khorezm again), 1361, 1369, 1382, 1406, 1407, 1433, 1434, 1435, 1462, and 1486 (Fazlinejad and Ahmadi 2018:63). They also offer evidence supporting that in this era plague affected not just Tabriz, but Samarqand and Herat as well. Of course, many medieval Islamic sources often refer to the plague using the broader Arabic term *wabā'*. In the case of obvious (based on the historical context) outbreaks of bubonic plague we may consider renderings as 'cholera' a mistranslation leading to confusion. For a discussion of the various terms referring to bubonic plague including *ṭā'ūn* and *wabā'*, see Dols (1977: 38); Conrad (1982); Morony (2007: 61); and Fazlilnejad and Ahmadi (2018: 56-57, cf. 64-65).

Aharī is among the first to record the disease in Azerbaijan for 1346-7 in his *Ta'rix-e Shayx Uvays* (Fazlinejad and Ahmadi, 2018: 64). They cite a more detailed description from the *Zayl-i ta'rix-i guzīda* (1391) by Zayn al-Dīn Mustavfī b. Ḥamd Allāh Mustavfī Qazvīnī:

There was a great cholera epidemic in 1346 in Tabriz; Malek Ashraf's cruelty had reached its peak and most people abandoned their homes and city. Fearing cholera, Malek Ashraf left the city and stayed near Ahar, and left for Qarābāgh when the winter came so as to make his way toward Shirvān. (Fazlinejad and Ahmadi, 2018: 65)

Fazlinejad and Ahmadi seem somewhat hesitant, however, to reject the translation 'cholera' altogether (cf. 2018: 64-65). It should be translated as 'plague'.

Fazlilnejad and Ahmadi (2018: 65) follow 'Avn-Allāhī (2008) in noting that while Tabriz had been a bustling city a decade earlier, it had declined by the 1340s. Azerbaijan and Tabriz suffered from additional waves of plague after the initial wave of 1346. Between 1360 and 1362, the plague once more hit Azerbaijan and

its surrounding regions as far as the Caucasus and the Black Sea. Ḥāfīz-i Abrū speaks of a plague in Azerbaijan and Arrān, describing how Sultān Shaykh Uvays fled to the countryside because of fear of the disease. In 1369-1370, another major wave of plague swept through Tabriz. Based on reports from the *Zayl-i ta'rīx-i guzīda*, during that autumn, the entire city was affected and around three hundred thousand people died. Nevertheless, he goes on to say that the large death toll hardly affected Tabriz's prosperity and population (in contrast to what the sources report for the 1340s, see above). On the other hand, another author from the 19th century reports that the number of fatalities at the time was so high that the city's cemetery could not accommodate the number of corpses. In 1406-1407, Azerbaijan again experienced an outbreak of plague (Fazlinejad and Ahmadi, 2018: 66-67; 2019: 228).

The various sources assembled by Fazlinejad and Ahmadi provide sufficient evidence to allow us to conclude that the Black Death decimated the local urban population across Iran, including Azerbaijan and also resulted in a decline in trade. The authors note that the sources indicate that the northern coast of Iran, Isfahan, as well as Sistan were also affected by the pandemic. We may assume that much of Iran—perhaps the entire region—was affected, but the written reports are quite sparse and do not allow a complete and detailed picture. Indeed, according to Fazlinejad and Ahmadi, “Azerbaijan and its capital, Tabriz, suffered from the plague more than any other region of Iran” (2019: 228).

Flight from cities during outbreaks of plague is another well-known phenomenon from medieval Europe and perhaps the Golden Horde as well. Of course, the pandemic was a universal phenomenon in the Old World. We know from medieval Europe that while some neighborhoods lost 90% of their population, others remained unaffected. Thinking more expansively, I have argued elsewhere that the decline in the population of Byzantium (including the precipitous decline of the population of Constantinople by the time of its conquest in 1453) was one side of the equation in the rise of the Ottoman Empire from a *beylik* in 1299 to a major empire expanding into the now depopulated Balkans in the second half of the 14th century. The other was the relative growth in the strength of the Ottomans because they were nomads living in a semi-arid zone where they were not affected comparably by the pandemic, if at all. There rival *beyliks*, including both the inland *beyliks* such as the Karamans and the coastal *beyliks* such as Menteşe practically disappeared, while the Ottomans were able to make inroads into the Balkans and finally capture Constantinople only the better part of a century later.

In the case of the Golden Horde, we see the implosion of the centralized Golden Horde state following the decimation of the population in the urban and sedentary centers. It was replaced beginning in 1360, while waves of plague were still a reality, by competing Chinggisids and tribal leaders. The nomadic elements surviving the demise of the Golden Horde included the “Great Horde” consisting of the Qongrat, Qıyat, Mangit, and Sicivut, which used to be the core elements of the Golden Horde. The new tribes arriving in the heavily depopulated western territories with Toqtamış—the Şirin, Barın, Arğın, and Kıpçak—would form the basis of the later Khanates of Kazan and Crimea. I interpret the establishment of the Khanate of Kazan in the 1430s and the Crimean Khanate in the 1440s as sign of a modest demographic recovery (supplemented by fresh populations from the less severely depopulated east) enabling the formation of new political units which were miniscule in size compared to the original “Golden Horde”—actually the “White Horde”—the western part of the ulus of Jochi established by Batu in the 1230s (Schamiloglu, 2018). The pandemic was the cause of the demographic collapse which led to the falling apart of centralized state institutions in the Golden Horde after the death of Berdibek Khan in 1359, leading to a total and utter collapse of the state and the rise of nomadic confederations. Similarly, in the 1340s the Chağatay Khanate, which began to suffer from plague even before it had reached the Golden Horde or Iran, also disintegrated into the regions of Transoxiana and Moğolistan. (We noted above that plague afflicted Samarqand and Herat, too.) Just as Toqtamış Khan united the Golden Horde, Timur, the son of the leader of the Barlas tribe, succeeded in uniting the former territories of the Chağatay Khanate, adding Khorezm to his possessions as well. The territories of the former Golden Horde remained in anarchy until the rise of new khanates in the 1430s-1440s. There may have been a similar population rebound in Transoxiana in this period, too, but the first southern raids by Shibanids in 1430-1431 led to disruption in Transoxiana beginning in this period. I have argued elsewhere that this was a direct result of the beginning of intolerable conditions associated with the onset of the Little Ice Age, at the height of which life from the Middle Volga region to the region of Tümen~Tobol must have been quite harsh indeed, certainly unable to support the nomadic armies of a power such as the Shibanids beginning around the winter of 1430-1431 (Schamiloglu, 2019). These incursions which continued through the time of Muhammad Shibani (d. 1510) would also have served to push even more Türkmen nomads into Iran.

Similarly, we can speak of the decline in strong central ruler in the Il-Khanate from the 1330s, as Abū Sa‘īd was followed by a succession of a long line of short-term rulers for over two decades (Roemer 1986). While the death of Abū Sa‘īd in 1335

is sometimes attributed to plague, the year of his death precedes the first report of plague by over a decade. Some scholars posit earlier outbreaks of plague to the western territories, even as early as the mid-13th century, but with no lasting effects (Fancy and Green 2021). According to Ibn Baṭṭūṭa he was poisoned by his jealous wife, Baghdād Khātūn (Ibn Baṭṭūṭa/Gibb, ii: 340). Further research is required to establish whether outbreaks of plague were present in Iran as early as 1335, but probably not (certainly not based on the information we have at hand). In that case we need to consider other internal factors in this period of instability.

Applying the same model to the Aqqoyunlu, we can contextualize the background to the rise of Uzun Hasan as follows. The outbreak of bubonic plague known as the Second Pandemic, better known as the Black Death, in the 1340s (or earlier?) led to a period of instability in the Il-Khanate following the death of Abū Saʿīd in 1335. The pandemic resulted in a significant decline in urban populations across Iran, just as was the case for the rest of the Middle East, Central Asia, the Golden Horde, and of course Europe, for which the population history is documented in great detail. This demographic implosion shook the foundations of centralized rule by sedentary seats of power. At the same time, there may have been some regions where sedentary populations were less directly impacted, and we may generalize that all the nomadic populations in Iran were as a whole less severely affected by plague, if at all. Thus, the rise of competing new competing loci of power in Iran beginning in the mid-14th century (including the Chobanids) was accompanied by a relative strengthening of the nomadic confederations, including the Türkmén, who had been arriving in Iran since the 10th century. If the Golden Horde is any indication, there may have been the beginning of a demographic recovery by the 1430s.

According to Ömer Lütfi Barkan (1949-1950), the dynamism of the Turkish population in Anatolia meant that Anatolia was probably saturated with nomadic tribes who arrived during and after the Mongol invasions. (Barkan 1949-1950: 529) There were already large numbers of Türkmén in Anatolia in mid-14th century, according to Togan. (Barkan 1949-1950: 542-543). Not only did the Ottoman Empire need to deal with overpopulated Turkmen regions, by the 15th-16th centuries the state needed to find additional land to accommodate its growing nomadic population (Barkan 1949-1950: 544). The solution with which the Ottoman Empire came up to deal with this was forced resettlement (*sürgün*) in the Balkans (Schamiloglu, 2018b). Can we also see this as supporting the notion that the Türkmén population a relatively short distance away in Azerbaijan and elsewhere in Iran was also growing rapidly in size and relative strength?

Finally, in the Golden Horde and Central Asia we see evidence of vernacular cultural responses to plague. In medieval Europe we observe an obsession with morbidity and an increase in religiosity. Just as the Catholics in medieval Europe considered that they were being punished by God for their sins, the Muslim response must also have been that they were being punished by Allah for not being sufficiently devout Muslims. As I argue elsewhere, the titles of two Turkic-language works, one from the Golden Horde in the mid-14th century written in the archaic language of the Golden Horde and one from Anatolia in the early 15th century in a hauntingly simple and beautiful Turkish, provide strikingly similar messages in their title. These are the *Nehc ül-feradis: Uştmaxlarnıñ açuq yoli* written in Saray in 1358/1360 by Muhammad b. Muhammad b. Xusrev el-Xorezmi (also known as Mahmud el-Kerderi) and the *Vesilet ün-necat* written in Bursa in 1409 by Süleyman Çelebi. The title of the former work may be translated as “The Salvation of Paradise: The Clear Path to Paradise” (with the title in Arabic and the subtitle in Middle Turkic), while the title of the latter work (in Arabic) may be translated as “The Way to Salvation”. Both works are focused on salvation, with the former work offering an overview of Islam as a religion (Schamiloglu, 2008) and the latter composed as a *mevlid* or poem in honor of the birth of the Prophet Muhammad (Burrill 2012). Both are early vernacular expressions of religiosity in an era of plague, with the latter composed in a language closer to the spoken language of the people.

What can we say about the parallel rise of Azerbaijani Turkic as a vernacular language in this period? The earliest known verses in Azerbaijani language are attributed to İzzeddin İsfara'ini, known as Hasanoğlu or Pur-i Hasan, from the late 13th century. This predates the Black Death, which began in the mid-14th century (Javadi and Burrill 1988). There were two poets who rose to prominence in Azerbaijan in the second half of the 14th century following the first waves of the Black Death, namely Kadı Burhaneddin (1345-ca. 1398), on whom see also Özeydin (2001), and the great Hürufî mystical poet Nesimi (ca. 1369/70-ca. 1418/19), on whom see Azmi Bilgin and İlyas Üzüm (2007). This rise in the use of the local Turkic vernacular in the wake of the first period of the Black Death in the mid-14th century can be seen as fitting the same pattern as elsewhere in the Turkic world. Can we say that the development of Hürufism is also parallel to the rise in religiosity in the Golden Horde in the mid-14th century and in Anatolia and Central Asia in the first half of the 15th century? This requires further research. On Nesimi and Hürufism see Burrill (1972). By the time of Khaṭa'i (the pen name of Shah Ismail) and Fuzuli in the late 15th-16th centuries, the Azerbaijani language has established itself as a literary language.

In conclusion, the same historical forces which we see at play in the Chāġatay Khanate, the Golden Horde, and the Ottoman Empire must have been a factor in medieval Azerbaijan and Iran as well. The rise of Uzun Hazan fits neatly within this model as the leader of a tribal confederation who rose to power in the period of weakened centralized states in the period following the extended waves of plague during the Second Pandemic better known as the Black Death, with, it appears, all the other phenomena expected in a time of plague.

References

- S.A. ‘Avn-Allāhī, tr. P.Z. Shāh-marasī, *Tārīx-i pānsad sāla-yi Tabrīz az āghāz-i dawra-yi Mughūlān tā pāyān-i dawra-yi Şafavīyān*. Tehran, 1387/2008.
- Franz Babinger, trans. Ralph Manheim, ed. William C. Hickman. *Mehmed the Conqueror & His Time*, Princeton: Princeton University Press, 1992.
- Barkan, Ömer Lütfi 1949-1950. Osmanlı İmparatorluğu’nda Bir İskân ve Kolonizasyon Metodu Olarak Sürgünler. İstanbul Üniversitesi İktisat Fakültesi Dergisi 11, 524-569.
- Azmi Bilgin and Ilyas Üzüm, "Nesîmî", TDV İslâm Ansiklopedisi, Volume 33 (2007). pp. 3-5
- Bulliet, Richard W. Cotton, Climate, and Camels in Early Islamic Iran: A Moment in World History. New York: Columbia University Press, 2009.
- Kathleen R.F. Burrill, *The quatrains of Nesimi, fourteenth-century Turkic Hurufi: with annotated translations of the Turkic and Persian quatrains from the Hekimoġlu Ali Pasa ms* (Berlin: De Gruyter Mouton, 1972/2014)
- Burrill, Kathleen, 2012. Süleymān Ćelebî, Dede”, in: *Encyclopaedia of Islam, Second Edition*, Edited by: P. Bearman, Th. Bianquis, C.E. Bosworth, E. van Donzel, W.P.
- Heinrichs. First published online: 2012. Print edition: Leiden: Brill, 1960-2007.
- Conrad, L.I., 1982. “*Tā’ūn* and *Wabā*: Conceptions of Plague and Pestilence in Early Islam”. *Journal of the Economic and Social History of the Orient* 25, 268-307.
- Michael W. Dols, *The Black Death in the Middle East* (Princeton, 1977).
- Ellenblum, R. (2012). The collapse of the Eastern Mediterranean: Climate change and the decline of the East, 950-1072 (pp. 61-87). Cambridge: Cambridge University Press.
- Fancy, Nahyan and Green, Monica H. (2021). “Plague and the Fall of Baghdad (1258)”. *Medical History* 65: 2, 157–177.

- Fazlinejad, A., and Ahmadi, F. (2018). The Black Death in Iran, according to Iranian Historical Accounts from the Fourteenth through Fifteenth Centuries. *Journal of Persianate Studies*, 11(1), 56-71.
- Fazlinejad, Ahmad, and Farajollah Ahmadi. "The Impact of the Black Death on Iranian Trade (1340s-1450s AD)," *Iran and the Caucasus* 23, no. 3 (2019), 221-232
- Frenkel, Y. (2019). The Coming of the Barbarians: Can Climate Explain the Saljūqs' Advance?. In: Yang, L., Bork, HR., Fang, X., Mischke, S. (eds) *Socio-Environmental Dynamics along the Historical Silk Road*. Springer, Cham. DOI: 10.1007/978-3-030-00728-7_13
- Green, Monica H. (2020). "The Four Black Deaths". *The American Historical Review*, Volume 125(5), 1601–1631.
- Ibn Battūta, *Rihla*, trans. H.A.R. Gibb, *The Travels of Ibn Battūta, A.D. 1325-1354*, i-iii, Works Issued by the Hakluyt Society, II, 110, 117, and 141 (Cambridge, 1958-1971).
- Jacobi, David (1999), "The Latin empire of Constantinople and the Frankish states in Greece". In: *The New Cambridge Medieval History, Volume V: c. 1198–c. 1300*, ed. David Abulafia. Cambridge: Cambridge University Press, 525–542.
- Javadi, H. and Burrill, K. (1988). "AZERBAIJAN x. Azeri Turkish Literature". In Yarshater, Ehsan (ed.). *Encyclopædia Iranica*, Volume III/3: Azerbaijan IV–Bačča(-ye) Saqqā. London and New York: Routledge & Kegan Paul. pp. 251–255.
- Tülin Kaya, "Understanding the Use of Byzantine Routes in Central Anatolia (ca. 7th-9th Centuries)". *Studia Ceranea* 9, 2019, p. 259-278
- Laurence Lockhart, "European Contacts with Persia, 1350-1736". In: *The Cambridge History of Iran. Volume 6: The Timurid and Safavid Periods*, ed. Peter Jackson and Laurence Lockhart. Cambridge: Cambridge University Press, 1986, 373-411.
- Matthee, Rudi. "The Decline of Safavid Iran in Comparative Perspective." *Journal of Persianate Studies* 8 (2015): 276-308. DOI: 10.1163/18747167-12341286
- Alan Mikhail (2016) *Climate and the Chronology of Iranian History*, *Iranian Studies*, 49:6, 963-972.
- Michael G. Morony, "For Whom Does the Writer Write? The First Bubonic Plague Pandemic According to Syriac Sources". In: *Plague and the End of Antiquity. The Pandemic of 541-750*, ed. Lester K. Little (Cambridge: Cambridge University Press, 2007), 59-86.

- Abdülkerim Özeydin, "Kadi Burhâneddin", *TDV İslâm Ansiklopedisi*, Volume 24 (2001), pp. 74-75.
- H.R. Roemer, "The Jalayirids, Muzaffarids and Sarbadârs". In: *The Cambridge History of Iran. Volume 6: The Timurid and Safavid Periods*, ed. Peter Jackson and Laurence Lockhart. Cambridge: Cambridge University Press, 1986, 1-39.
- H.R. Roemer, "The Türkmen Dynasties". In: *The Cambridge History of Iran. Volume 6: The Timurid and Safavid Periods*, ed. Peter Jackson and Laurence Lockhart. Cambridge: Cambridge University Press, 1986b, 147-188.
- Uli Schamiloglu, "The End of Volga Bulgarian", *Varia Eurasistica. Festschrift für Professor András Róna Tas* (Szeged, 1991), pp. 157-163.
- Uli Schamiloglu, "Preliminary Remarks on the Role of Disease in the History of the Golden Horde", *Central Asian Survey* 12:4 (1993), pp. 447-457.
- Uli Schamiloglu, "The Rise of the Ottoman Empire: The Black Death in Medieval Anatolia and its Impact on Turkish Civilization". In: *Views From the Edge: Essays in Honor of Richard W. Bulliet*, ed. Nequin Yavari, Lawrence G. Potter, and Jean-Marc Oppenheim (New York: Columbia University Press, 2004), 255-279.
- Uli Schamiloglu, "The Islamic High Culture of the Golden Horde". In: *Proceedings of the Second International Symposium on Islamic Civilization in the Volga-Ural Region: Kazan, 24-26 June 2005*, ed. Rafik Muhammetshin–Zeynep Durukal–Güler Doğan, Sources and Studies on the History of Islamic Civilization 17 (Istanbul: Research Centre for Islamic History, Art and Culture, 2008), 19-39.
- Uli Schamiloglu, "Torgovlya Ulusa Djuçi so stranami Sredizemnemor'ya", *Istoriya Tatar s drevneyšix vremen v semi tomax: iii. Ulus Djuçi (Zolotaya Orda). XIII–seredina XV v.* (Kazan, 2009), Part IV, Chapter 2.4, 287-294.
- Uli Schamiloglu, "Ortaçağ Dillerinden Modern Dillere: Avrupa ve Türk Dünyasında Yeni Edebi Dillerin Varlığa Gelmesi". In: *IV. Dünya Dili Türkçe Sempozyumu Bildirileri. 22-24 Aralık 2011, Muğla*, i-ii, ed. Mehmet Naci Önal (Ankara, 2012), i, pp. 501-507.
- Uli Schamiloglu, "Climate Change in Central Eurasia and the Golden Horde", *Golden Horde Review / Zolotoordïnskoe obozrenie* 4:1 (2016), pp. 6-25.
- Uli Schamiloglu, "The Plague in the Time of Justinian and Central Eurasian History: An Agenda for Research". In: *Central Eurasia in the Middle Ages. Studies in Honour of Peter B. Golden*, ed. Osman Karatay and István

- Zimonyi. *Turcologica* 104 (Wiesbaden: Harrassowitz Verlag, 2016b), 293-311.
- Schamiloglu, Uli 2017. The Impact of the Black Death on the Golden Horde: Politics, Economy, Society, and Civilization, *Golden Horde Review / Zolotoordinskoe obozrenie* 5: 2, 325-343.
- Uli Schamiloglu, “Reflections on Regional Variation in the Impact of the Black Death on the Golden Horde”. In: *Epidemii i prirodniye kataklizmi v Zolotoy Orde i na sopredel'niy territoriyax (XIII-XVI vv.)*. *Sbornik nauçnix statey*, ed. I.M. Mirgaliyev (Kazan: Sh. Marjani Institute of History of the Tatarstan Academy of Sciences, 2018), 20-22.
- Uli Schamiloglu, “Revisiting ‘Randosmanisch’: A Hypothesis on the Black Death and the Turkification of the Balkans”. In: *Building Bridges to Turkish. Essays in Honour of Bernt Brendemoen*, ed. Éva Á. Csátó, Joakim Parslow, Emel Türkler and Einar Wigen. *Turcologica* 116 (Wiesbaden: Harrassowitz Verlag, 2018b), 285-294.
- Uli Schamiloglu, “The Rise of Urban Centers in the Golden Horde and the City of Ükek”, *Golden Horde Review / Zolotoordinskoe obozrenie* 6:1 (2018c), 18-40.
- Uli Schamiloglu, “Climate Change, Disease, and the History of Western Siberia in the Medieval and Early Modern Periods”. In: *Materiali Vserossiyskogo (s mejdunarodnim uçaстиem) simpoziuma “Kul'turnoe nasledie narodov Zapadnoy Sibiri: sibirskie tatory”, posvyashçennogo 100 letiyu Foata Toaç-Axemotaviça i 20-letiyu Sibirskogo simpoziuma “Kul'turnoe nasledie narodov Zapadnoy Sibiri” (10-12 dekabrya 2018 g.)*, ed. Z.A. Tiçinskix (Tobol'sk, 2019), 180-188.
- Uli Schamiloglu, “Historical Pandemics in the Turkic World: An Agenda for Research”. In: *Sosyal Bilimler Perspektifinden Salgın Hastalıklar ve Toplumsal Dönüşüm. İzmir Demokrasi Üniversitesi Uluslararası Beşerî Bilimler Kongresi 19-21 Kasım 2021*, Bedriye Tunçsiper and Dilek İnan (İzmir Demokrasi Üniversitesi Yayınları, 2021), 35-46.
- Uli Schamiloglu, “Medieval Nomads and the First Pandemic: Theoretical Considerations”, *Nomads and Their Neighbors in the Medieval Period, Chronica* 21 (2023), 21-34.
- Maria A. Spyrou et al., “Historical *Y. pestis* Genomes Reveal the European Black Death as the Source of Ancient and Modern Plague Pandemics”, *Cell Host & Microbe*, Volume 19, Issue 6, 2016, Pages 874-881,
- Maria A. Spyrou et al., “A Phylogeography of the Second Plague Pandemic Revealed through Analysis of Historical *Yersinia pestis* Genomes,” *Nature Communications* 10, no. 1 (2019): 1–13.

Varlık, Nükhet 2015. *Plague and Empire in the Early Modern Mediterranean World: The*

Ottoman Experience, 1347-1600. New York: Cambridge University Press.

Sam White, *The Climate of Rebellion in the Early Modern Ottoman Empire*. Studies in Environment and History (Cambridge: Cambridge University Press, 2011).