

The Black Death in the Maghreb

*A Call to Action**

ABSTRACT The Black Death in the Maghreb is severely understudied. There is little scholarship on the Maghrebi experience of the second pandemic in general. That which exists bases its conclusions on Al-Andalusi and Middle Eastern sources and does not incorporate the paleoscientific data which has shed light on plague outbreaks for which there is less traditional evidence. As a result, little is known about the Maghrebi Black Death, and this ignorance is detrimental to our understanding of the Black Death in adjacent regions, especially Sub-Saharan Africa. This paper surveys the existing scholarship on plague in fourteenth-century North Africa and argues that the field both needs and deserves further attention. It then suggests directions for further study grounded in an interdisciplinary approach incorporating paleoscience, plague ecology, archaeology, and a reexamination of Maghrebi primary texts. **KEYWORDS** plague, Black Death, Maghreb, *Yersinia pestis*, Second Plague Pandemic, paleoscience, archaeology, Ibn Khaldun

The Black Death in the Maghreb is a glaring hole in plague historiography. Despite detailed eyewitness accounts and a scholarly consensus that the outbreak, the first of the second plague pandemic, devastated the region, hardly anything has been written on plague in 14th-century North Africa. The scholarship which exists is often as fragmentary and cryptic as the extant medieval evidence, and there has been little effort to use newly available paleoscientific data or to examine medieval plague in this region through the lenses of climate or disease ecology. As a result, we are more ignorant of the Black Death in the Maghreb than we are of the Black Death in regions for which we have fewer sources, but which have attracted more scholarly and popular attention.

This paper presents the state of existing scholarship on the second plague pandemic in the Maghreb and demonstrates that it is fragmentary and contradictory. It also illustrates how ignorance of the outbreak in this region negatively impacts our understanding of the Black Death writ large using, as a case study, late medieval plague transmission to Sub-Saharan Africa, a topic which has recently attracted both scholarly and popular attention. Then, drawing on first-hand accounts, paleoclimate science, plague ecology, and archaeology, it suggests directions for further study and argues that innovation in this field is both necessary and possible.

Despite its vastness, prominent place in late medieval interregional trade networks, and central location in the well-studied Mediterranean, only two full-length books are devoted to the Maghrebi Black Death, and both fail to differentiate between the plague's impact

* I would like to express my profoundest thanks to Tim Newfield, who read multiple drafts of what follows despite the distractions of a more immediate pandemic. Thanks also to Edward English and the anonymous reviewers for their helpful insights.

in the Maghreb and Al-Andalus.¹ Histories of the Maghreb often omit the Black Death altogether or merely refer to it in passing.² North African plague has no place at all in *The Cambridge History of Islam*, for instance, even though the work covers Abu'l-Hasan 'Ali's attempt to unify the Maghreb under his control, which seems to have been impacted by a plague outbreak at a pivotal battle near Kairouan.³ When scholars do touch on medieval plague in the Maghreb, they draw overwhelmingly from Michael Dols' 1977 *The Black Death in the Middle East*.⁴ Dols' work is a landmark study for a reason; it is wide-ranging, well written, and impeccably researched. But it is also over 40 years old, and its historiographical focuses and methodology reflect its age. Dols and those who draw from him demonstrate a linguistic and textual focus traditional to Islamic Studies.⁵ They cover the Black Death's transmission to and from the Maghreb,⁶ the outbreak's theological and philosophical effects,⁷ and its political consequences.⁸ This is not to say that there has been no innovation in the field since the 1970s; Justin Stearns redefined our understanding of 14th-century Maghrebi conceptions of contagion within the last decade.⁹ But there has been little to no scholarship on more recent historiographical concerns, such as plague's gender history or the influence of climate on plague outbreaks. There has also been no attempt to incorporate plague ecology or genetics into the study of the Maghrebi Black Death, although this has become standard practice in the study of late medieval plague outbreaks in other regions.¹⁰

1. Namely, Mohammed Melhaoui, *Peste, Contagion et Martyre: Histoire du fléau en Occident musulman médiéval* (Paris: Publisud, 2005) and Justin K. Stearns, *Infectious Ideas: Contagion in Premodern Islamic and Christian Thought in the Western Mediterranean* (Baltimore: Johns Hopkins University Press, 2011), the latter of which focuses on 14th-century conceptions of contagion rather than plague itself.

2. See, for instance, David Powers, "Conflicting Conceptions of Property in Fez, 741-826/1340-1423," in *Law, Society, and Culture in the Maghrib, 1300-1500* (Cambridge, UK: Cambridge University Press, 2002), 141-3; Ole J. Benedictow, *The Black Death, 1346-1353: The Complete History* (Woodbridge: Boydell Press, 2004), 65-7; Allen James Fromherz, *Ibn Khaldun, Life and Times* (Edinburgh: Edinburgh University Press, 2010), 23, 40-1, 51, 55.

3. Roger le Tourneau, "North Africa to the Sixteenth Century," in *The Cambridge History of Islam*, ed. P.M. Holt, Ann K. S. Lambton, and Bernard Lewis (Cambridge, UK: Cambridge University Press, 1977), 232; Michael W. Dols, *The Black Death in the Middle East* (Princeton: Princeton University Press, 1977), 63-4.

4. Powers' "Conflicting Conceptions of Property in Fez," (see above, n.3) for instance, cites *only* Dols for his description of the outbreak.

5. Miri Shefer-Mossensohn, "A Historiography of Epidemics in the Islamic Mediterranean," in *Plague and Contagion in the Islamic Mediterranean*, ed. Nükhet Varlık (Kalamazoo, Bradford: Arc Humanities Press, 2017), 8-9.

6. Dols, *Middle East*, 63; Benedictow, *Black Death*, 65.

7. This has focused on Maghrebi authors' theological and legal conceptions of contagion and on the effects of the plague on the philosophy of the scholar Ibn Khaldun. See Dols, *Middle East*, 67, 90-8; Fromherz, *Ibn Khaldun*, 40-1, 51; Roger Irwin, *Ibn Khaldun: An Intellectual Biography* (Princeton: Princeton University Press, 2018), 8-9; R. Hopley, "Plague, Demographic Upheaval and Civilisational Decline," *Landscapes* 17 (2016): 182; Justin Stearns, "New Directions in the Study of Religious Responses to the Black Death," *History Compass* 7 (2009): 3-4, 6-7; Stearns, *Infectious Ideas*.

8. Dols, *Middle East*, 63-4.

9. Stearns, *Infectious Ideas*.

10. See, for instance, Monica H. Green, "Putting Africa on the Black Death Map: Narratives from Genetics and History," *Afriques* 9 (2018): <https://journals.openedition.org/afriques/2125>; Monica H. Green, "Taking 'Pandemic' Seriously: Making the Black Death Global," *The Medieval Globe* 1 (2014); Bruce M.S. Campbell, *The Great Transition: Climate, Disease and Society in the Late Medieval World* (Cambridge, UK: Cambridge University Press, 2016); Nükhet Varlık, *Plague and Empire in the Early Modern Mediterranean World: The Ottoman Experience*,

Our understanding of the fundamentals of 14th-century North African plague is therefore woefully incomplete. We do not have an evidence-based answer to the question of the Black Death's impact on the Maghreb, for instance. Most works do not differentiate between the Black Death in Europe, the Middle East, Islamic Spain, and the Maghreb, and thus imply that the pandemic was equally severe in each location. Some authors unthinkingly group these regions together,¹¹ but others consciously conflate the experiences and mortality figures of Egypt and Al-Andalus with those of the Maghreb, as better demographic data is available for these regions. Both approaches result in a maximalist interpretation of the epidemic, for we know that the Black Death devastated at least some of the areas which these scholars use as heuristics. Dols, for instance, argues the "far-reaching significance of the Black Death in Muslim lands," and Melhaoui asserts that the plague "manifested with brutality across the entire region," creating destruction "without precedent," yet their argumentation is based solely upon data from Cairo and Granada which they have extended to the Maghreb.¹²

A handful of scholars argue for a distinction between the Maghreb and the rest of the Mediterranean world, but they disagree over why it is necessary. Some propose the region should be treated separately because it suffered less from the Black Death than Europe did, whereas others argue the reverse, believing the region to have been more gravely impacted yet. The minimalist interpretation is articulated by Kmar Ben Néfissa and Anne Marie Moulin, who hypothesize that, in a lightly touched Maghreb, elites, especially scholars, may have been more susceptible to plague.¹³ On the other hand, Jean Vitaux contends that the Maghreb was "particularly affected" by the Black Death and Jean-Noël Biraben claims that North Africa faced "economic misery and political instability" as a result of the pandemic.¹⁴ Problematically, none of these claims is well supported—the disagreement is not evidence-based, and both maximalist and minimalist claims were probably intended as throwaway speculation. The evidentiary uncertainty in the scholarship on this most fundamental question underscores how little we know about the Black Death and second-pandemic plague in North Africa.

1347–1600 (Cambridge, UK: Cambridge University Press, 2015); Anne G. Carmichael, "Plague Persistence in Western Europe: A Hypothesis," *The Medieval Globe* 1 (2014): <https://scholarworks.wmich.edu/tmg/vol1/iss1/8/>.

11. See Gérard Chouin, "Reflections on Plague in African History (14th-19th c.)," *Afriques* 9 (2018): <https://journals.openedition.org/afriques/2228>, pp. 13, 33; Daphne E. Gallagher and Stephen A. Dueppen, "Recognizing Plague Epidemics in the Archaeological Record of North Africa," *Afriques* 9 (2018): <https://journals.openedition.org/afriques/2198>, pp. 3, 17; Shefer-Mossensohn, "A Historiography of Epidemics in the Islamic Mediterranean," 13; Lizzie Wade, "The Black Death May Have Transformed Medieval Societies in Sub-Saharan Africa," *Science Magazine*, Mar. 6, 2019, <https://www.sciencemag.org/news/2019/03/black-death-may-have-transformed-medieval-societies-sub-saharan-africa>, pp. 1.

12. Dols, *Middle East*, 67. Melhaoui, *Peste, Contagion et Martyre*, 14. "...la grande peste, qui allait se manifester avec brutalité dans toute la région. Les dégâts de l'épidémie furent sans précédent." (The translation is mine). This "smearing" approach is common to Black Death scholarship. Consider also Benedictow, *Black Death*, 381–384.

13. Kmar Ben Néfissa and Anne Marie Moulin, "La peste nord-africaine et la théorie de Charles Nicolle sur les maladies infectieuses," *Gesnerus* 67 (2010): 30–56.

14. "particulièrement touché." Jean Vitaux, *Histoire de la peste* (Paris: Presses universitaires de France, 2010), 42; "la misère économique et l'instabilité politique." Jean-Noël Biraben, "La Peste Noire en terre d'Islam," *L'Histoire* 11 (1979): <https://www.lhistoire.fr/la-peste-noire-en-terre-dislam>. (The translations are mine).

This lack of understanding, or anything approaching a consensus, negatively impacts our comprehension of the Black Death writ large. One area that is particularly affected is our grasp of second-pandemic plague in Sub-Saharan Africa. Genetic evidence has revealed that some of the plague found south of the Sahara today descended from the Black Death, and predates the third pandemic, when plague was introduced to Africa again.¹⁵ The onset of the second plague pandemic in Sub-Saharan Africa has been dated to the late 14th or early 15th century,¹⁶ and theories about how it arrived south of the Sahara are popular, both in scholarly circles and increasingly in popular publications.¹⁷ It is generally assumed that the bacillus was carried south across the Sahara by nomadic traders. It has also been proposed that Saharan rodents called jirds, which can host plague asymptotically, and camels, which can carry plague long distances, facilitated the disease's transmission south from the Maghreb.¹⁸

This is fascinating, important work, but its failure to address Maghrebi primary sources problematizes its conclusions. Ibn al-Khatib, who lived through the Black Death in Granada but had contacts in the Maghreb, recorded in his plague treatise of 1362 that “tent-dwelling and nomadic Arabs in Ifriqiya and elsewhere remained healthy” during the Black Death, even as people in cities and the countryside died in droves.¹⁹ Ibn al-Khatib may have been misinformed or using a topos,²⁰ but if his report is accurate, it is unlikely that nomadic traders could have shuttled plague across the Sahara without ever contracting it. It is not impossible that second-pandemic plague did travel across the Sahara even if the Al-Andalusi polymath is correct and traders did not contract the disease. This is particularly likely if plague had been introduced to local rodents, which with the help of their fleas could comfortably maintain and spread the disease within their own populations without infecting humans.²¹ It is also possible that the traders did contract plague, but not in a form that Ibn al-Khatib would have recognized. Several cases of gastrointestinal plague among Maghrebi nomads which were sourced to eating infected camel or

15. Historians and archaeologists are now using ancient DNA to track many historical disease outbreaks in Sub-Saharan Africa. See Susan Pfeiffer, “Disease as a Factor in the African Archaeological Record,” *African Archaeological Review* (2020) for an overview, albeit one that omits most of the scholarship on *Yersinia pestis* in the region. Gérard Chouin and Christopher Decorse, “Prelude to the Atlantic Trade: New Perspectives on Southern Ghana’s Pre-Atlantic History (800–1500),” *Journal of African History* 51 (2010), pp. 123–145, reinvigorated interest in the Black Death in Sub-Saharan Africa.

16. Green, “Putting Africa on the Black Death Map,” pp. 4, 56–66.

17. For a popular take, see Wade, “Medieval Societies in Sub-Saharan Africa.”

18. Green, “Pandemic,” 32–4. That second-pandemic plague reached Sub-Saharan Africa from India has been refuted: Green, “Putting Africa on the Black Death Map,” pp. 5–7, 57–59.

19. “Sicher ist die Nachricht, dass die zeltbewohnenden und nomadischen Araber in Ifriqiya und andere gesund blieben.” (The translation is mine). Ibn al-Khatib, “Ibnkhatibs Bericht über die Pest,” trans. M. Müller, *Sitzungsberichte der königl. bayer. Akademie der Wissenschaften* (1863): 19. Green does not refer to this source in either her 2014 or 2018 paper.

20. It would be productive to consult earlier Islamic medical treatises, such as those by Ibn Rushd and Ibn Tufayl, to determine whether they too remark that nomadic peoples were spared during outbreaks of disease, which could indicate that Ibn al-Khatib was following a convention of his genre in reporting this occurrence. However, the *Encyclopédie Berbère* does not seem to refer to such a topos. See *Encyclopédie Berbère* 1–36 (1985–2015): <https://journals.openedition.org/encyclopedieberbere/>.

21. The jirds that Green identifies carry plague asymptotically, which would further decrease the likelihood of transmission to humans, as rodent fleas seek non-rodent hosts when their own hosts succumb to disease. Green, “Pandemic,” 32–4.

goat meat occurred in the late 20th century.²² The same phenomenon could have occurred in the 14th century, and contemporaries may not have been able to identify the resulting illness as plague, as the gastrointestinal presentation of the disease can differ markedly from the bubonic.²³ It is therefore possible that scholars who argue that nomadic traders conveyed plague across the Sahara are correct, even if Ibn al-Khatib's account was ostensibly true at the time. But Ibn al-Khatib's evidence suggests that an alternate route of transmission to Sub-Saharan Africa may be more likely, and his account deserves to be considered alongside non-textual evidence of plague's journey south of the Mediterranean. This phenomenon furthermore reveals that we cannot fully understand the second pandemic's effects in adjacent regions without better understanding how it affected the Maghreb, which is a pressing concern as interest in the Sub-Saharan Black Death spreads beyond the academy.

Our knowledge of the Black Death in the Maghreb is therefore fragmentary, contradictory, and vital. But the way forward is not obvious. Traditional historical methods are not of much use, as Moroccan archives are “quasi absent” for the period of the Black Death and no detailed fiscal records exist which would allow us to estimate the Maghrebi population immediately before or after the pandemic.²⁴ These evidentiary gaps may partially explain why there is so little scholarship on this subject. But the scientific techniques which have yielded such transformative results when applied to other plague outbreaks can provide directions for further study.

For instance, we can use medieval climate data, archaeology, and plague ecology to question the use of Egypt and Iberia as stand-ins for the Maghreb. Plague is sensitive to climate and altitude, since it is transmitted by rodents and ectoparasites which behave differently in different ecological situations.²⁵ Many also believe human ectoparasites, such as fleas and lice, contributed to the spread of second-pandemic plague, and there is no reason to believe human populations across the Mediterranean were equally burdened by these arthropods.²⁶ If exposure to fleas and lice differed wildly then so too may have human plague prevalence. It is therefore quite possible that plague spread differently in coastal Tunis, in the Atlas Mountains, and in the Sahara. The differences would probably

22. Maliya Alia Malek, Idir Bitam, and Michel Drancourt, “Plague in Arab Maghreb, 1940–2015: A Review,” *Frontiers of Public Health* 4 (2016): 4; In “Pandemic,” 32–4, Green argues that consumption is the most common way in which plague is transmitted from camels to humans.

23. Orally contracted plague can present as septicemia, but there are some reported cases of people developing buboes after coming into contact with infected camel meat. See Malek, Bitam, and Drancourt, “Plague in Arab Maghreb,” 4.

24. Melhaoui, *Peste, Contagion et Martyre*, 41, 183.

25. See, for example, Lei Xu et al., “Wet Climate and Transportation Routes Accelerate Spread of Human Plague,” *Proceedings of the Royal Society* 281 (2014): 6, which argues that the presence of a coastline accelerates the spread of plague and that “ruggedness” may slow it down “owing to transportation barriers for humans and/or rodents;” Lei Xu et al., “Nonlinear Effect of Climate on Plague During the Third Pandemic in China,” *PNAS* 108 (2011): 10214–10219, which reveals some of the complex interactions between climate and plague and emphasizes that plague behaves differently in areas with different climates; and Rémi Barbieri et al., “Soil Salinity and Aridity Specify Plague Foci in the United States of America,” *Scientific Reports* 10 (2020): 6186 contends that soil salinity may affect plague's ability to focalize in a region.

26. See Katharine R. Dean et al., “Human Ectoparasites and the Spread of Plague in Europe During the Second Pandemic,” *PNAS* 115 (2011): 1304–1309.

have been even more pronounced among the Maghreb, the Middle East, and the Iberian Peninsula, which have disparate topographies, had different population densities, and were home to different species of rodent, flea, and louse. If the Black Death was partially rodent-borne, as scholars have wagered for more than a century, differences in rodent population size and density between regions, and between large cities, towns and rural settlements, would likewise ensure plague mortality varied within the Maghreb and between it and neighboring regions. Archaeology furthermore tells us that the traditional concept of a single standard Islamic city plan is inaccurate.²⁷ It also reveals that Islamic Spain experienced urbanization in the centuries preceding the Black Death, while the Maghreb experienced a decrease in settled life in favor of nomadism.²⁸ It therefore seems that the urban layouts and population densities of the two regions would have been strikingly different in the 14th century, and both would have affected plague transmission. A survey of commensal rodents present in the 14th-century Maghreb would also go a long way, as would any evidence for human ectoparasites, as the species of plague host and vector can affect the severity and pattern of transmission to humans.²⁹ We know, for instance, that there was an overlap between domestic mouse species in 14th-century Iberia and the Maghreb that was not shared by the Middle East,³⁰ and there were undoubtedly Saharan rodent hosts which did not exist in Iberia.³¹ The introduction of plague ecology to this area may therefore further our understanding of the differences between the transmission and impact of plague in and between these regions, which have traditionally been combined and problematically viewed as a whole for lack of data.

Another area warranting further study is the relationship between drought, famine, and plague in 14th-century North Africa. High-resolution tree-ring-based precipitation proxies show that the mid-14th century was one of the “epochs of highest drought-frequency” in Moroccan history and that the Maghreb’s “most severe multiyear droughts” yet known followed in the late 14th century.³² These droughts, between ca. 1340 and 1420,³³

27. Marcus Milwright, “Towns, Cities and Palaces,” in *An Introduction to Islamic Archaeology* (Edinburgh: Edinburgh University Press, 2010), 75.

28. Milwright, “Towns, Cities and Palaces,” 84; Pierre Guichard, “Sur quelques sites ‘castraux’ du Haut Tell algéro-tunisien,” in *Histoire et archéologie de l’Occident musulman (VII-XV siècles): Al-Andalus, Maghreb, Sicile*, ed. Philippe Sénac (Toulouse: Collection « Méridiennes », 2012), 149.

29. The possibility of transmission by human lice, for instance, has been combined with mathematical models of spread to help explain differing patterns of transmission during the second and third plague pandemics. This research indicates that the organisms responsible for transmitting plague to humans can seriously impact the way in which plague is spread and the severity of outbreaks. See Dean et al., “Human Ectoparasites,” 1304–1309; San Woo Park et al., “Human Ectoparasite Transmission of the Plague During the Second Pandemic is Only Weakly Supported by Proposed Mathematical Models,” *PNAS* 115 (2011): E7892–E7893.

30. *Mus musculus domesticus* and *Mus spretus* are both found in the Maghreb and Iberia, but *Mus spretus* is not found in the Middle East. *Mus spretus* has furthermore existed in the occidental Mediterranean for “several tens of millennia” and was therefore present in the 14th century. Jacques Michaux, “The Mouse, Endemic Rodents and Human Settlement in the Canary Islands,” *DIOGENES* 218 (2008): 68; Jean-Louis Guénet and François Bonhomme, “Wild Mice: An Ever-Increasing Contribution to a Popular Mammalian Model,” *TRENDS in Genetics* 19 (2003): 27, Fig 2.

31. Such as the jirds identified by Green (“Pandemic,” 32–4).

32. Ramzi Touchan et al., “Spatiotemporal Drought Variability in Northwestern Africa Over the Last Nine Centuries,” *Climate Dynamics* 37 (2011): 245–6.

33. Touchan et al., “Spatiotemporal Drought Variability,” 246, Fig. 9.

were accompanied by famine, which was in turn accompanied by recurring second-pandemic plague outbreaks. Occurrences of famine and plague were so closely linked that the Maghrebi scholar Ibn Khaldun, writing in about the year 1377, identified famine as a cause of plague.³⁴ This fits the pattern in Europe, where premodern plague was also often associated with famine, but it is puzzling, as rodent and rodent-flea populations are thought to contract when grain is scarce.³⁵ The underlying mechanics of this linkage must be teased out. Perhaps grain hoarding brought rats into people's homes.³⁶ Plague may also have been shipped repeatedly to North Africa with grain shipments intended to alleviate famine. We know such a shipment was sent from Sicily to Tunis in 1350, and there may very well have been others.³⁷ Grain shipments often carried rats and their fleas, the former of which could be sustained by grain for months.³⁸ Indeed, the grain trade was such a potentially powerful disease vector that it has been suggested that grain shipments from the Black Sea introduced the Black Death to the Mediterranean.³⁹ Or maybe, as Dols argues, famine was a result, not a cause, of the Black Death.⁴⁰ If the depopulation was as great as Dols believes, the outbreak would have devastated the agrarian work force, potentially leaving fields of grain unharvested. This contention contrasts interestingly with the situation in England, which had its worst harvests on record during the Black Death, but did not experience a food shortage because depopulation from plague was so severe.⁴¹ Drought, famine, and plague in the Maghreb furthermore cooccurred and interacted with the effects of Abu'l-Hasan 'Ali's war of conquest in ways that are not yet clear. We do not know how the movement of armies affected plague transmission, but Ibn Khaldun wrote that an outbreak of plague at a key battle was a turning point of the war.⁴² Archival shipping records, palynology, archaeological studies of Maghrebi agriculture, and close attention to the timing and severity of identified droughts and their effects on the agricultural cycles in the Maghreb might shine light on this web of relationships and contrast them with the situation in Europe.

Finally, further study could be conducted on the relative impact of the Maghrebi Black Death. Primary source work in combination with plague ecology could provide a fuller picture of how the outbreak in North Africa compared to those in Europe and the Middle East. Our eyewitness accounts claim that the Black Death was earth-shattering,

34. Ibn Khaldun, *The Muqaddimah: An Introduction to History*, trans. Franz Rosenthal (New York: Pantheon Books, 1958), Vol. I, 136.

35. This latter pattern is the one seen in modern plague outbreaks, which led some scholars to argue against *Yersinia pestis* as the cause of premodern plague in the years before paleogenetics. See Samuel K. Cohn, "Epidemiology of the Black Death and Successive Waves of Plague," *Medical History* 52, no. S27 (2008): 76–7.

36. For this possibility see Morris Silver, "The Plague Under Commodus as an Unintended Consequence of Roman Grain Market Regulation," *Classical World* 105 (2012): 223 n. 98.

37. Dols, *Middle East*, 260.

38. Hannah Barker, "Laying the Corpses to Rest: Grain, Embargoes, and *Yersinia Pestis* in the Black Sea, 1346–1348," *Speculum* 96 (2021): 9.

39. Barker, "Laying the Corpses to Rest," 1–42.

40. Dols, *Middle East*, 260.

41. Bruce M.S. Campbell, "Nature as Historical Protagonist: Environment and Society in Pre-Industrial England," *Economic History Review* 63 (2010): 301–3.

42. Ibn Khaldun, *Muqaddimah*, Vol. III, 264, 471–475.

Ibn Khaldun asserted that plague “devastated nations and caused populations to vanish,”⁴³ and recorded in his autobiography that it killed his parents and almost all the scholars in Tunis.⁴⁴ He provided further evidence for the destruction wrought by the pandemic in his philosophy itself. Scholars of Ibn Khaldun argue that experiencing the Black Death as a teenager deeply impacted his thought, tracing the pessimism, distaste for urban life, and distrust of dynastic stability he professed in the *Muqaddimah* to his memories of the outbreak and its aftermath.⁴⁵ They argue that Ibn Khaldun perceived that “the entire inhabited world changed” as a result of the Black Death and contend that this belief motivated him to write the *Muqaddimah*, a new history for a new world.⁴⁶ Ibn Battuta, the 14th-century traveler, also recorded his mother’s death from plague in Fez,⁴⁷ and the Al-Andalusi intellectual Ibn Khatima wrote in his plague treatise that in a single day 1,202 deaths occurred in Tunis and over 700 people perished in Tlemcen.⁴⁸

These sources ostensibly concur with the maximalist interpretation espoused by Dols and Melhaoui. But there is no reason to trust Ibn Khatima’s figures, to think of them as modern statistics, or to generalize and project them onto smaller settlements and semi-nomadic groups. There are also good reasons to doubt Ibn Khaldun’s report that the Black Death utterly devastated Maghrebi civilization. It has been observed that Ibn Khaldun “described the plague in almost apocalyptic terms,”⁴⁹ and the intensity of his description may indicate that he exaggerated the outbreak’s impact for rhetorical effect. He does not, after all, provide a parallel narrative of the Black Death’s ravages in his autobiography; he merely records which of his acquaintances died of plague.⁵⁰ We must also take into account that Ibn Khaldun was only seventeen when the Black Death arrived in Tunis, that he lost his parents and most of his intellectual community in the pandemic, and that he did not write his description of the outbreak until nearly thirty years later.⁵¹ His account of the outbreak can thus in no way be treated as a dispassionate record of its impact in the region, even if the description in the *Muqaddimah* reflects his unexaggerated perception. It is furthermore notable that these contemporary accounts do not record a single non-elite death, which is not the case in Europe or the Middle East. In fact, our only glimpse of ordinary people during the Maghrebi Black Death came when Ibn al-Khatib expressed surprise that nomadic people did *not* fall ill.⁵² The Black Death may therefore have killed a smaller percentage of the population in the Maghreb than it did in regions less committed to pastoralism and transhumance, especially since

43. Ibn Khaldun, *Muqaddimah*, Vol. I, 64.

44. Ibn Khaldun, *Le voyage d’Occident et d’Orient: Autobiographie*, trans. Abdesselam Cheddadi (Paris: Sindbad, 1980), 72.

45. Fromherz, *Ibn Khaldun*, 51. Irwin, *Ibn Khaldun*, 8, 71.

46. Fromherz, *Ibn Khaldun*, 51. Irwin, *Ibn Khaldun*, 8. Ibn Khaldun, *Muqaddimah*, Vol. I, 64.

47. Ibn Battuta, *Voyages*, trans. C. Defremery and B. Sanguinetti (Paris: Librairie François Maspero, 1982), Vol. III, 365.

48. Ibn Khatima, “Die Schrift von Abī Ġāfar Ahmed ibn ‘Alī ibn Moḥammed ibn ‘Alī ibn Ḥātimah aus Almeriah über die Pest,” trans. Taha Dinanah, *Archiv für Geschichte der Medizin* 19 (1927): 41.

49. Fromherz, *Ibn Khaldun*, 51.

50. Irwin, *Ibn Khaldun*, 101. Ibn Khaldun, *Le voyage d’Occident et d’Orient*, 47, 50, 53, 60, 64–5, 72.

51. Irwin, *Ibn Khaldun*, 9.

52. Ibn al-Khatib, “Ibnkhatibs Bericht über die Pest,” 19.

there was a shift in the Maghrebi population away from urban life towards nomadism just prior to the outbreak.⁵³ Ben Néfissa and Moulin suggest in passing that members of certain professions, including scholars, may have been more often exposed to plague, but do not adequately explain this phenomenon.⁵⁴ New research into Maghrebi society which incorporates plague ecology could argue that elites died *en masse* in cities while the general population did not and seek to explain why. Further research into untranslated texts could likewise look for indications of how seriously the non-elite population was affected. It may also be productive to compare these accounts of the Black Death to Maghrebi accounts of earlier disease outbreaks to determine whether these authors employed a literary topos in describing the outbreak as they did.⁵⁵ But demographic studies will be less successful, both because population estimates are vague guesswork and because it is not possible to separate deaths caused by plague from those caused by the concurrent wars and famines.⁵⁶

Serious modern study of the Black Death and the second plague pandemic in the Maghreb is therefore as possible as it is important. An interdisciplinary approach which reexamines the source material in light of diverse scientific evidence could better our understanding of 14th-century Maghrebi plague. The introduction of scientific data may offset the absence of contemporary Moroccan archives and the dearth of medieval archaeology and paleogenetics in North Africa. We can therefore begin a scholarly debate based on facts instead of conjecture as we seek to fill this historiographical gap. These approaches have been successful in redefining our understanding of earlier disease outbreaks, such as the Justinianic Plague, for which we have even less traditional historical data than we do for the Maghrebi Black Death.⁵⁷ They will hopefully produce similar results in this case. ■

53. Hopley, "Plague, Demographic Upheaval and Civilisational Decline," 77.

54. Ben Néfissa and Moulin, "La peste nord-africaine," 45–6, n.51.

55. Further research could examine manuscripts in the Escorial Collections and earlier medical treatises written by Ibn Rushd and Ibn Tufayl, among others.

56. Dominique Tabutin et al., *L'histoire de la population de l'Afrique du Nord pendant le deuxième millénaire*, Louvain-la-Neuve, Université catholique de Louvain, Département des sciences de la population et du développement, Document de travail 15 (2002), 2.

57. See Lee Mordechai and Merle Eisenberg, "Rejecting Catastrophe: The Case of the Justinianic Plague," *Past & Present* 244 (2019): 3–50; Lee Mordechai et al., "The Justinianic Plague: An Inconsequential Pandemic?" *PNAS* 116 (2019): 25546–25554.