

# Late Medieval Plague Waves in Eastern Germany and Bohemia

Combining Narrative, Administrative, Epigraphic,  
and Pictorial Sources with Quantitative Approaches

Martin Bauch 

Leibniz Institute for the History and Culture of Eastern Europe (GWZO), Reichsstraße 4–6, 04109  
Leipzig, Germany; [martin.bauch@leibniz-gwzo.de](mailto:martin.bauch@leibniz-gwzo.de)

Christan Oertel 

Leibniz Institute for the History and Culture of Eastern Europe (GWZO), Reichsstraße 4–6, 04109  
Leipzig, Germany; [christian.oertel@leibniz-gwzo.de](mailto:christian.oertel@leibniz-gwzo.de)

Received 25 March 2024 | Accepted 10 June 2024 | Published online 24 July 2024

**Abstract.** This paper aims to enhance our knowledge about late-medieval epidemic outbreaks in specific parts of Eastern Central Europe. The first part on modern-day Eastern Germany discusses narrative evidence and its use in the current research on plague history, before bringing in municipal records on testaments and conveyances from Görlitz and Stralsund for the reconstruction of seasonality and mortality rates, as well as funeral inscriptions and pictorial evidence from Erfurt as indirect indicators of plague waves. After a brief discussion of the scarce narrative sources, the second part of the paper concerning Bohemia works with the evidence of the *Libri Confirmationum*, a source originating from the chancellery of the archbishops of Prague. Every new appointment to a benefice was supposed to be approved by one of the vicars general of the archbishop, and this confirmation usually gives the reason for the vacancy. Expanding on Eduard Maur's research, death statistics and their frequency are analyzed statistically. The paper provides insight into new evidence for the reconstruction of plague waves, mortality rates and seasonality, and thereby highlights the characteristics of the plague in Eastern Central Europe.

**Keywords:** Bohemia, Eastern Germany, Erfurt, Görlitz, Stralsund, Black Death, *pestis secunda*, *pestis tertia*, mortality, *Libri Confirmationum*, municipal books, inscriptions, testaments, memory

The history of the plague has again become a highly dynamic field on the overlapping margins of environmental history, the history of medicine, and paleogenetics research. The heated debates of the past—about the type of disease the

medieval plague actually was<sup>1</sup>—are concluded, as *Yersinia pestis* has been identified as undoubtedly the bacterium responsible for the Black Death.<sup>2</sup> In the meantime, new academic battlefields have emerged, and historians are deeply involved in answering these questions: Where and when did the Black Death start<sup>3</sup>, and how did it move towards Western Eurasia?<sup>4</sup> How large and regionally varied was its demographic impact?<sup>5</sup> Where did subsequent plague waves reemerge in the fourteenth and fifteenth centuries? In what mode—in concentric waves or metastatic leaps—did they move across Europe?<sup>6</sup> In finding answers, the combination of paleogenetic evidence with written sources seems to be the only worthwhile approach to follow. While the heuristic potential of scientific data on aDNA and written sources is certainly large, a more traditional approach based on narrative and administrative sources alone may be very fruitful: it has been underlined for the Italian peninsula and elsewhere that our reconstructions of plague outbreaks during the Black Death are largely based on outdated, incomplete, and often uncritical nineteenth century compilations of chronicle accounts and their derivative academic work.<sup>7</sup> One glance at the rather traditional diplomatic history of Venetian-Genoese-Mongol relations in the Black Sea region during the 1340s provides the most plausible theory that the Black Death arrived in Italy in 1347 by grain shipments, not by infected sailors.<sup>8</sup> Thus, the undisputed standard work by the Norwegian medievalist Ole Benedictow, *The Complete History of the Black Death*,<sup>9</sup> as the title of this encyclopedic monograph claims with some emphasis, is perhaps not the last word on written sources and the history of the Black Death in Europe. Unsurprisingly, even the second edition of this impressive and groundbreaking undertaking cannot do full justice to its author's claim of reliably tracing the spread of the epidemic and its mortality for all European regions, as critical studies for East Central Europe have recently shown.<sup>10</sup> Furthermore, based on scientific data, it has been argued that no

---

1 Cohn, "The Black Death: End of a Paradigm"; Cohn, *The Black Death Transformed*; Benedictow, *What Disease Was Plague?*

2 Bos et al., "A Draft Genome of *Yersinia Pestis*."

3 Cp. Green, "The Four Black Deaths"; Spyrou et al., "The Source of the Black Death in Fourteenth-Century Central Eurasia."

4 Cp. Green, "Out of the East (or North or South)"; Slavin, "From Tien Shan to Crimea."

5 Cp. Izdebski, "Paleological Data."

6 Cp. Slavin, "Out of the West."

7 Cp. Toubert, "La peste noire dans les Abruzzes."

8 Cp. Barker, "Laying the Corpses to Rest."

9 Cp. Benedictow, *Black Death*.

10 This is especially true for Poland: Guzowski, "Did the Black Death Reach the Kingdom of Poland"; and also for the territory of present-day Slovakia, critical remarks can be found in: Mesiarkin, "Stredovýchodná Európa Na Mape Čiernej Smrti"; a less recent publication like Fichtner, "Der Schwarze Tod" is not questioning the spread of the Black Death in East Central

relevant demographic impact of the Black Death can be proven for East Central Europe.<sup>11</sup> This article is dedicated to two parts of East Central Europe that have largely been out of the focus of recent historical research on the plague: the territory of today's Eastern Germany has been very much neglected, and Bohemia has found attention mainly by Czech scholars.<sup>12</sup> Both regions provide some narrative sources, but beyond them, there is a wealth of administrative documents both of secular and ecclesiastic origin, and epigraphic information that will help us clarify the extent to which the two regions were affected by plague waves in the second half of the fourteenth century.

In the first part, Martin Bauch will critically discuss Benedictow's account for contemporary East Germany and, for the first time, also draw on quantifiable sources from Görlitz, Stralsund and Erfurt.<sup>13</sup> Christian Oertel's approach for Bohemia aims at a renewed discussion and refined analysis of the sinecure confirmations of the Archbishop of Prague, which the Czech demographic historian Eduard Maur so fruitfully introduced into the discussion of the history of the plague in Bohemia. The combination of two neighboring regions and comparing and contrasting narrative and serial sources should help demonstrate the potentials and limitations of a quantifying approach.

## Eastern Germany

### The Black Death east and west of the Elbe and Saale Rivers

The presence of the Black Death on the territory of present-day Eastern Germany—for which no reliable regional studies are available to date<sup>14</sup>—is much harder to verify than it appears to be in Benedictow's monograph, whose information will be critically discussed here. Following the main direction of the plague's invasion as reconstructed by Benedictow, we begin on the Baltic coast, the main towns of which are said to have seen plague outbreaks as early as 1349: for Pomerania, it is the chronicle of the Cistercian monastery of Oliva near Gdańsk that provides hints at a raging Black Death in 1349,<sup>15</sup> but it refers to areas that were sometimes many

---

Europe in an adequate source-critical discussion.

11 Cp. Izdebski et al., "Paleological Data."

12 Mediated to anglophone audiences mainly by Mengel, "A Plague on Bohemia" and, more recently by Nodl, "Impacts of the Plague Epidemic."

13 The information on the mass grave in Neuses, as well as the initial survey of the funerary inscriptions is based on research by Annabell Engel (Leipzig).

14 Unfortunately, the claims made for Central Germany in Uhl, *Der Schwarze Tod*, cannot be verified in a source-critical way.

15 Perlbach, ed., *Ältere Chronik von*, 622.

hundreds of kilometres away. The occurrence of the Black Death in what is now Western Pomerania (*Vorpommern*) is therefore beyond doubt if we stick to narrative evidence; what testaments can tell about this in the case of Stralsund will be discussed later. The findings for Wismar clearly stand out from this, as an inscription and a plague letter clearly show the presence of the Black Death in 1350.<sup>16</sup> Benedictow provides clear evidence for the presence of the Black Death in what is now Lower Saxony, but points to a gap in local charter proliferation for Halberstadt in the plague years,<sup>17</sup> which is admittedly not a valid argument. The situation is not much better for Thuringia and Saxony: an outbreak of the plague in Meiningen remains without a source indication,<sup>18</sup> while a chronicle compilation created at the end of the fifteenth century is cited for Leipzig, which does not provide any site-specific information.<sup>19</sup> Benedictow wrongly places the monastic historiography of Loccum Abbey on the Weser in the village of Lucka in the Altenburger Land, in the eastern part of Thuringia.<sup>20</sup> A regionally relevant but not contemporary source, the annals of the Saxon monastery of Alzelle, report—not mentioned by Benedictow—in very general terms an outbreak of a great pestilence, maybe the Black Death, albeit in the obviously incorrect year of 1346.<sup>21</sup> If we look east of the Elbe, the evidence cited by Benedictow for the outbreak of the Black Death in Frankfurt an der Oder turns out to be a note in a sixteenth century chronicle, which cannot be considered for reasons of source criticism. The entire Brandenburg region is without any written evidence of an outbreak of the Black Death around 1350. It should therefore be noted that the presence of the Black Death in the territory of present-day Eastern Germany can be verified without hesitation only in four cities closely linked to the respective supra-regional trade networks: Wismar and Stralsund (see below) as two important members of the Hanseatic League, Wismar being in close proximity to Lübeck, which was undoubtedly affected; Magdeburg, also a member of the Hanseatic League and linked to its trade flows via the Elbe; and further south Erfurt, without any significant trade by water, but situated on the *Via Regia*, which led from Frankfurt to Krakow and even further east. The description for Erfurt is detailed and comes from a most contemporary source:<sup>22</sup>

16 Cp. *Mecklenburgisches Urkundenbuch*, vol. 10, no. 7097, 406; no. 7096, 405.

17 Cp. Benedictow, *Black Death*, 565.

18 Cp. Benedictow, *Black Death*, 574.

19 Cp. Marquis, “Werner, Thomas” for the so-called “*Chronica brevis (Lipsiensem dixeris)*,” col. 55: Item 50. “Magna pestilencia per univrsum orbem, que ad duos annos duravit.”

20 Cp. Benedictow, *Black Death*, 574, footnote 175.

21 “*Annales Vetero-Cellenses*,” 45: “1346 [...] Isto anno fuit pestilencia magna et werra.”

22 The *Chronica S. Petri Erfordensis moderna* is located in the Erfurt St. Peter’s Monastery (OSB) and is continued until 1355, cp. Eifler, “*Cronica S. Petri*.”

“In the same year [1350], a great epidemic pestilence broke out in Thuringia and nearly throughout all of Germany, especially in Erfurt, to the extent that more than a tenth of the population perished, as the disease was contagious. Furthermore, in consultation with physicians, the citizens were forbidden to carry out any further burials there. Such was the multitude of graves everywhere that two or three bodies were placed in a single grave. Subsequently, eleven pits were dug in the cemetery of the village of Neuses near Erfurt, to which around twelve thousand bodies were taken in wagons and carts. The corpses were transported continuously, three or four at a time, starting from the feast of Saint James [25 July 1350] to Candlemas [2 February 1351]. Many other bodies were secretly buried in the city and in the surrounding villages.”<sup>23</sup>

The special feature of the plague report for Erfurt therefore lies in the apparently realistic mortality figures, the description of the epidemic hygiene discussions within the city’s ruling élite, the measures they took, and the precise location of the plague mass graves. The spread of the plague to the close and more distant surroundings of the city is explicitly stated. As already noted by Benedictow, the plague may have come to Erfurt either via Magdeburg or via Frankfurt. It is hard to decide which route is more plausible: direct trade contacts between Erfurt and Frankfurt are documented for the spring of 1350<sup>24</sup>, but chronology is difficult: the Black Death was present in Frankfurt until 2 February 1350,<sup>25</sup> but emerged in Erfurt only from 25 July 1350 onwards. The local fair in Erfurt, a perfect occasion for the import of the plague, took place between 11 April and 6 May 1350, too early for an outbreak more than ten weeks later. The plague ravaged Magdeburg from 15 May 1350, but no specific trade between Magdeburg and Erfurt is documented that might have transported the plague bacterium. What unites the two cities is the creation of special plague cemeteries in 1350, a practice otherwise only known from Kiel.<sup>26</sup> The report in the *Magdeburger Schöppenchronik*, a municipal historiography in Low German up to 1372, is particularly significant:

“In that same year [1350], there was great mortality in this town from Pentecost [15 May] to St Michael’s Day [28 September], and countless people died so that they could no longer be buried in the churchyards.

23 Holder-Egger, ed., “Chronica S. Petri Erfordensis moderna,” (Continuatio II A) 396–7 (Translation: Authors).

24 Cp. *Urkundenbuch Erfurt*, vol. 2, 836, no. 25–6.

25 *Annalen eines Anonymus / Acta aliquot Francofurtana*, 144–45: “Anno eodem a die Mariae Magdalena ad diem purificationis (p. 145) Mariae proxime Francoforti pestilentia totius mundi.”

26 Cp. Fouquet, “Die Pest in Lübeck und Schleswig-Holstein,” 278.

Every day they had to go out with carts and a wagon and make large ditches in Rottersdorf; the dead were thrown into them. [...] It is difficult for me to write about all the sadness and the damage that Magdeburg suffered from this mortality. The brightest and the neediest of this city perished in large numbers. Laymen and priests, old and young, rich and poor people died. Death was not unique to Magdeburg, it was everywhere in the country. [...] Here in the Franciscan monastery, no more than three friars have survived. I was in a house where, apart from myself, one other person remained alive and eight died.<sup>27</sup>

In Magdeburg too, the impact of the epidemic beyond the city limits is emphasized, and the construction and filling up of mass graves is described in detail; the information on mortality is more nuanced but credible in its local dimension. What both narrative sources also seem to confirm, however, is the absence of the Black Death in the vast majority of present-day Eastern Germany, while later waves of the plague are certainly recorded up to the end of the fifteenth century.<sup>28</sup>

### The quantification of fear: testaments in Görlitz and Stralsund

For numerous Italian cities<sup>29</sup> and also for Lübeck, the availability of contemporary testaments in local archives has been identified as a valid indicator of epidemic outbreaks, in some cases accurate to the month.<sup>30</sup> The assumption that a rise in testaments is an indicator of fear that spread in the face of an occurring outbreak also applies to our study region, as implied by comments from Magdeburg.<sup>31</sup> Beyond that, we will take a comparative look at the situation in Stralsund in the second part of this section. First, a relatively new edition of urban accounts allows us to reassess the case of Görlitz in eastern Saxony due to numerous entries, especially testaments, for the period under investigation.

27 von Lammespringe, “Die Magdeburger Schöppenchronik,” 218–19 (Translation: Authors).

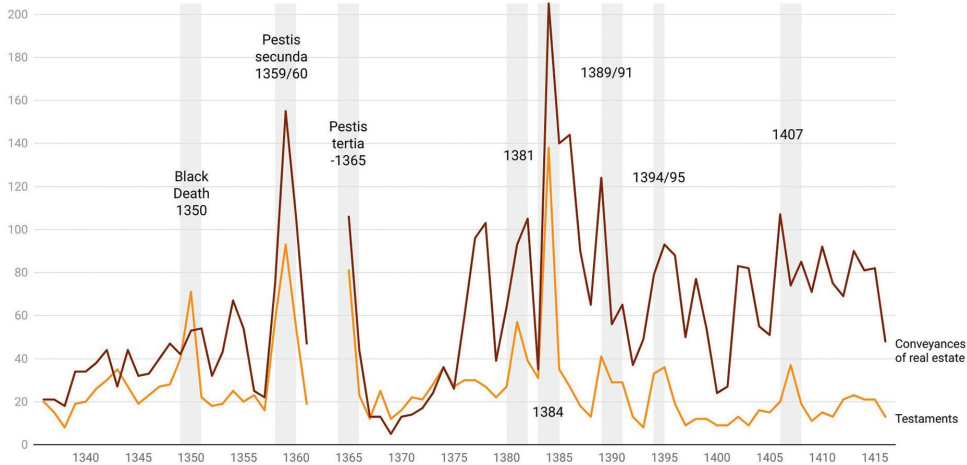
28 Reference should be made to the new epidemiological database [www.epimeddat.net](http://www.epimeddat.net). The following overviews are relevant: Bauch and Wozniak, “Erfurt”; Bauch and Wozniak, “Thuringia”; Bauch and Wozniak, “Magdeburg.”

29 Cp. Cohn, *Black Death Transformed*.

30 For Lübeck, see: Benedictow, *Black Death*, 552–56; Fouquet, “Die Pest in Lübeck und Schleswig-Holstein.”

31 For Magdeburg, the *Schöppchronik* mentioned above provides the first evidence that a legal act related to testaments, the *donatio pro remedio animae*, was quantitatively directly related to the mortality caused by the plague, cp. von Lammespringe, “Die Magdeburger Schöppenchronik,” 219: “I also heard myself say that the Augustinian monks received 1200 pieces of clothing from men and women that year as a testamentary donation for the salvation of their souls.” (Translation: Author).

The oldest Görlitz Municipal Book (*Stadtbuch*), the so-called *Rotes Buch*, dates back to the beginning of the fourteenth century, but its entries cannot be reliably dated before 1336. From 1304 onwards, the Magdeburg Legal Notice the source recorded the legal transactions witnessed by the council and aldermen in a book in Görlitz.<sup>32</sup> Most of the entries relate to the provision or maintenance of spouses and other family members. Two categories of entries are of particular interest: on the one hand, (marital) dispositions *mortis causa*, which, strictly speaking, were not the testators' unilaterally decreed wills but, instead, were irrevocable legal transactions made bilaterally by the testator and heirs. On the other hand, conveyances of real estate (*resignationes*) are important, in which there was a change of ownership due to a purchase or a gift; according to Magdeburg law, this was mandatory for the sale of real estate.<sup>33</sup>



**Figure 1** Entries in the Municipal Book of Görlitz of testaments (dispositions *mortis causa*) and conveyances of real estate (*resignationes*) for the entire period available with an annual dating.

**Source:** Fokt, Speer, and Mikula, eds., *Liber vetustissimus Gorlicensis*, passim

The dispositions *mortis causa* which, for the sake of simplicity can be called testaments, were therefore made during the testator's lifetime, and in our context they can be quite plausibly seen as a precautionary act in the face of perceived danger

32 Cp. Fokt, Speer, and Mikula, eds., *Liber vetustissimus Gorlicensis*, vol. 1, 11–2, 20–6: during the session, the most important key facts of the case were briefly noted down on strips of paper or wax tablets. Only those acts that had a long-term effect were transferred to the Red Book: if debts were repaid quickly, they were not entered. The note-like, very brief records only had probative value in conjunction with the sworn testimony of aldermen and councilors; there are no complete document texts here. The entries were made in a fairly chronological order and, therefore, varied in subject matter. It was mainly townspeople who appeared before the Görlitz court.

33 Cp. Fokt, Speer, and Mikula, eds., *Liber vetustissimus Gorlicensis*, vol. 1, 28–30.



to life and limb. The conveyances provide indirect evidence of economic transactions, for example, when heirs sold real estate or when land had to be turned into money in times of famine. If the conveyances were to be regarded as indirect evidence of increased mortality, a time delay in the peaks compared to the wills would be expected. Finally, it is important to emphasize that, unlike in the case of Lübeck or the Italian cities, the recorded wills cannot be dated to exact months, as they were included in the Görlitz Municipal Book without a date.

A quantitative analysis of the entries in the Görlitz Municipal Book is possible on an annual basis for the period 1336–1415 with a gap at the beginning of the 1360s, yielding significant results: a first peak of testaments emerges for 1350, although we have no evidence in narrative sources from Lusatia or neighbouring regions that Görlitz may have been affected by the Black Death. The only moderate increase in the number of wills compared to later plague waves clearly indicates heightened uncertainty among burghers; however, economic transactions remained stable in 1350 and 1351. Overall, this shows a fear of the Black Death, but neither proves nor excludes an actual plague outbreak in Görlitz.<sup>34</sup> As there were no outbreaks of the plague in neighbouring Silesia<sup>35</sup> or in Bohemia (see below), we might assume that in 1350 Görlitz was spared. The amount of property tax within and outside the city of Görlitz before and after 1350 does not show any abrupt change either, especially in view of the fluctuations in previous years (Table 1).

**Table 1** Taxation of property within and beyond the city walls of Görlitz, 1337–1352

**Source:** Jecht, ed. *Die ältesten Görlitzer Ratsrechnungen bis 1419*, 1–2.

Date	Taxation of property in mark groschen
1337	372
1343 Jan 7	52
1345	393
1347 Feb 20	452
1350 Jan 26	505
1352 Feb 14	456

In 1354, we find an increase in economic activity, but not in wills. Perhaps this activity correlates with a low-intensity plague that caused up to eight deaths a month in Erfurt up to October 1354.<sup>36</sup> However, the first evidence pointing to an epidemic

34 Ole Benedictow makes a similar and valid argument regarding a (moderate) increase in wills in Lübeck as early as the summer of 1349, before the outbreak of the plague in 1350, which is documented in narrative sources, and also becomes abundantly clear in the number of wills, cp. Benedictow, *Black Death*, 554–55.

35 Cp. Guzowski, “Did the Black Death Reach the Kingdom of Poland,” 195, footnote 4.

36 Holder-Egger, ed., “Chronica S. Petri Erfordensis moderna,” 384.



with a high mortality rate is the remarkable surge in wills and economic transactions in the same year, recorded for 1359. It seems reasonable to assume in this observation the effect of the *pestis secunda* in Görlitz. In the years 1362–1364, there is a gap in the Görlitz Municipal Book, but entries resume in 1365 with a notable increase in wills and conveyances of real estate. This might be due to the *pestis tertia*,<sup>37</sup> the beginning of which in the town cannot be precisely recorded due to the gap in the records. It is noteworthy that there is divergent evidence for Bohemia (see below), which records a first wave of mortality for the fall of 1362, followed by a higher peak for the fall of 1364. The records of the Görlitz Municipal Book then only show another peak in wills and conveyances of real estate in 1381, with the latter only reaching its maximum level in 1382. The expected delay effect on trade in real estate can, therefore, be observed here for the first time. This is followed, only a few years apart, by the highest number of wills and economic transactions in the entire period of transmission in 1384. The number of conveyances remained at record levels in the following years of 1385–1386. This wave of the plague can only be dated imprecisely: in the previous year of 1383, we know of an outbreak of the plague in Magdeburg,<sup>38</sup> while in the same year of 1384, Polish sources report an epidemic in Silesia, Pomerania, Krakow, Sandomierz, and Bohemia.<sup>39</sup> In the subsequent transmission of the Municipal Book up to 1415, the absolute number of registered wills continues to decline; the previously apparent link between testaments and conveyances is increasingly dissolved, without providing us with any clues to identify the reasons. A smaller parallel peak in both kinds of documents can be verified for the years 1394–1395; in the same period, Magdeburg is reported to have been ravaged for several years by an epidemic that mainly caused infant mortality and was linked to food shortages.<sup>40</sup> There is a final peak in the wills for the year 1407, to which we might associate an outbreak of the plague, at least for Eisenach in Thuringia in the previous year.<sup>41</sup>

A comparison can be made with another city in the territory of today's Eastern Germany, the Hanseatic city of Stralsund in Pomerania. It has been frequently noted that the preservation of testaments in local archives is excellent, they can be easily compared to those in Lübeck, and that there is a considerable peak of testament numbers in 1350.<sup>42</sup> A most useful, chronological reconstruction of Stralsund testaments

37 Their beginning was convincingly located in Mainz in 1364, cp. Slavin, "Out of the West," 39–40, which makes a presence in Erfurt in 1365 seem conceivable.

38 Cp. von Lammespringe, "Die Magdeburger Schöppenchronik," 288.

39 Cp. Joannis de Czarnkow, "Chronicon Polonorum," 751–52.

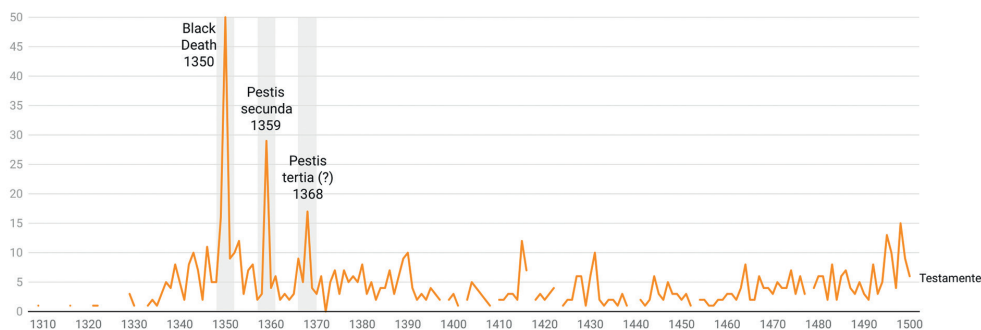
40 Cp. von Lammespringe, "Die Magdeburger Schöppenchronik," 294.

41 Cp. Johannes Rothe, *Thüringische Landeschronik*, 134.

42 Cp. Schildhauer, *Hansestädtischer Alltag*, 11–21. I kindly thank Reviewer A for directing my attention towards the Stralsund testaments.

allows for an almost continuous reconstruction between 1333 and 1500 (Figure 2).<sup>43</sup>

As in the case of Lübeck and most other cities,<sup>44</sup> the peaks in testament numbers in 1350 is the most considerable, with two other peaks in 1359 and 1368. Even earlier than in Görlitz, testament production or proliferation becomes less important, and there are hardly any recognizable patterns for Stralsund in the fifteenth century.



**Figure 2** Number of annually datable testaments of Stralsund citizens in 1309–1500. Highlighted ranges mark presumed or known plague outbreaks.

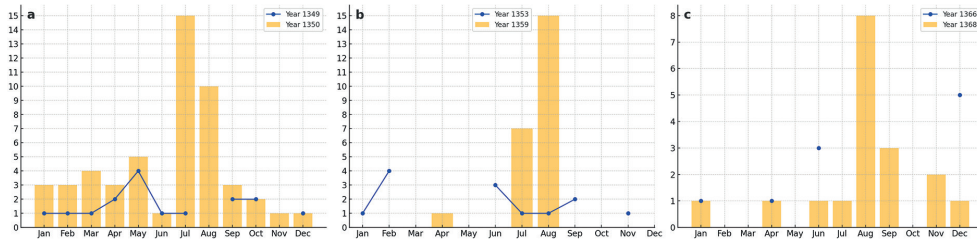
**Source:** Schildhauer, “Stralsunder Bürgertestamente,” 329–51. Graph: Martin Bauch

In Stralsund, we look for a monthly distribution of testament production in remarkable plague years and try to compare them to non-plague years with relatively high numbers of testaments, i.e., eight to sixteen. In 1350 (Figure 3a), we clearly see a peak in July and August 1350, compared to a more regular distribution of testaments in 1349. We find a comparable pattern for 1359 (Figure 3b), another peak in July and August, while there is no peak of testament production during the summer of 1353. There is a slightly different pattern (Figure 3c) with a testament peak in August, and a less pronounced one in September 1368, with a rather different distribution in 1366. But this peak in testament numbers points to a much later plague wave than the *pestis tertia* in both Bohemia and Görlitz. With regard to the Black Death and the *pestis secunda*, the pronounced monthly peaks of testaments in July and August fit perfectly with the plague outbreaks in Lübeck in 1350 and in 1358,<sup>45</sup> hit by the *pestis secunda* one year earlier than the relatively nearby Stralsund. Thus, already for the two plague waves following the Black Death, the outbreaks in Stralsund deviate considerably from those of other cities.

43 Single testaments are preserved from as early as 1309, but annual proliferation—with few gaps—starts in 1333. A comparable graph has been produced by the author of the available data, cp. Schildhauer, *Hansestädtischer Alltag*, 13, yet it seems to be based on different numbers if compared with Schildhauer, “Stralsunder Bürgertestamente”, 327–51.

44 Cp. Cohn, *The Black Death Transformed*.

45 Cp. Cohn, *The Black Death Transformed*, 182.



**Figure 3a–c** Number of testaments a month for the plague years in Stralsund (=yellow bars) compared to normal years (=blue dotted lines): a) comparing 1350 to 1349, b) comparing 1359 to 1353, and c) comparing 1368 to 1366.

**Source:** Schildhauer, “Stralsunder Bürgertestamente,” 329–51. Graph: Martin Bauch and Annabell Engel

### Countable memory: Erfurt funeral inscriptions, pictorial sources, and the plague

A second case of previously unused quantifiable information is available for Erfurt, where not only the availability of narrative sources is dense, but the epigraphic findings are also recorded.<sup>46</sup> In this case, particular attention is paid to the Christian and Jewish burial inscriptions collected in the city,<sup>47</sup> which can be counted to the exact year in the fourteenth and fifteenth centuries (Figure 4).

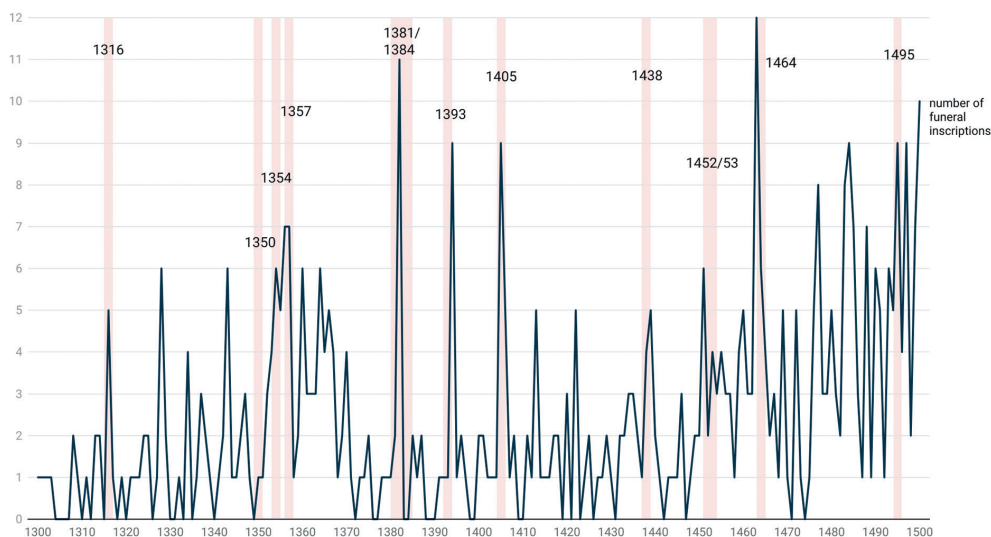
The results show clear peaks of funerary inscriptions in the years 1357, 1382, 1394, 1405, 1463, and 1483. Less pronounced peaks are found in 1316, 1328, 1343, 1354, 1360, 1364, 1413, 1422 1438–1439, 1451, and 1463. In the last two decades of the fifteenth century, the number of inscriptions increases to such an extent that the significance of individual years tends to diminish. However, the correspondence with the reconstruction in the medical-historical literature on outbreaks of the plague and other infectious diseases in Erfurt is remarkable: there, the years 1316—with famine-related mortality, 1350 and 1354—with another kind of infectious disease, not the plague,<sup>48</sup> and 1357, 1381, 1384, 1393, 1405, 1438, 1452–1453, 1464, and 1495 are characterized as years with outbreaks of infectious diseases causing high mortality.<sup>49</sup> The validity of identifying these outbreaks as the plague very much depends on broader contextualization. Far from having a perfect match in all cases, the fairly consistent overlap of many grave inscriptions and epidemic outbreaks allows us to speak of a broad correlation. The absence of inscriptions in the context of the Black Death in 1350 and an elevated

46 Cp. Lorenz, “Die Erfurter Inschriften”; the collection is not above any source-critical objection, but nevertheless forms a valid starting point for further observations.

47 Cp. Lorenz, “Die Erfurter Inschriften,” 8–135.

48 See footnote 36 above.

49 Cp. Rudat, *Die Pest in Erfurt*; Spiegler, *Die Geschichte der Pest in Erfurt*.



**Figure 4** Annual number of funeral inscriptions in Erfurt (1300–1500) with regard to tombstones and memorial plates. Highlighted ranges mark epidemic outbreaks with precise year(s) as taken from the medical-historical literature for Erfurt (cp. footnote 49)

**Source:** Lorenz, “Die Erfurter Inschriften,” 8–135. Graph: Martin Bauch and Annabell Engel

number of inscriptions around 1328, 1343, 1413, and 1422, which do not correspond to any known outbreak of diseases, remain to be clarified. While in the case of 1343, we might think of a reflection of victims during the flood events in Erfurt the previous year,<sup>50</sup> the absence of the Black Death in the city’s inscriptions in 1350 can probably be explained by the shock caused by the high number of deaths, as seen above, and the requirement to bury all plague victims, regardless of their status, outside the city in the churchyard of the village of Neuses. And indeed, a (lost) memorial inscription has been retrieved from Early Modern sources for Neuses<sup>51</sup> which directly echoes the wording in the Erfurt-based *Peterschronik*.<sup>52</sup> Even if it is not possible to determine when the inscription was placed, it convincingly explains why there are no individual memorial inscriptions, as they would have been out of place on a mass grave. In the case of the plague mass grave of 1350, the memory of the deceased is preserved in another way as

50 Cp. Bauch, “Die Magdalenenflut 1342,” 284.

51 Indirectly documented by a plague sermon from Prague in 1681: “At Erfurt, when all the churchyards in the town were full, eleven large pits were made outside the town, into which twelve thousand corpses were thrown, as the verse on the church shows: Hic hominum necifex, necat aere milia bis sex. / Twelve thousand people in Eyl, death has strangled with its arrow” (Pfaltz, “Pragerische Pest-Predigt,” 170). Translation by authors.

52 The close literal proximity of the inscription from the mnemonic verse of the Erfurt Chronicle of St. Peter suggests that it was largely adopted, cp. *Chronica S. Petri Erfordensis moderna*, 382: “Mille trecentenis decies quinis simul annis / Hic hominum necifex locat aer milia bis sex.”

well: through an elaborately illustrated Apocalypse attached to a *Biblia Pauperum*,<sup>53</sup> which was produced between 1340 and 1360 in St Peter's Monastery in Erfurt.<sup>54</sup> The depiction of the fourth apocalyptic horseman, Death (Figure 5), who is shown as a decaying corpse wielding a dragon like a whip, differs considerably from the biblical text: death is not riding a horse like the first three apocalyptic horsemen, but a winged hybrid creature that can be best identified as a lion with eagle wings.<sup>55</sup> In its iconography, it refers to the lion of St. Mark, even if the accompanying quotation from Revelation 6:8 speaks faithfully of the pale horse (*equus pallidus*) of the apocalyptic horseman. The most obvious explanation for the depiction of the lion of St. Mark as an apocalyptic mount refers to Erfurt citizens' procession to Neuses commemorating the plague dead, which was held annually on St. Mark's Day on 25 April.<sup>56</sup> This procession was established in the first five years after the mass grave had been built, presumably before 1355.<sup>57</sup> This elaborate form of collective remembrance of plague victims in performance and book illumination shows that an obvious gap in individual *memoria* in Erfurt was filled elsewhere, and in fact in an impressive way.

Finally, the assumed representation of the *pestis secunda* in 1357 in the Erfurt memorial inscriptions, fitting with Phil Slavin's reconstruction of a concentric spread of the plague from Frankfurt from late 1356<sup>58</sup> deserves further attention: recent paleogenetic scholarship dates the finding of *Yersinia pestis* aDNA in single graves

53 The genre is considered typical for the fourteenth century, cp. Schmidt, *Armenbibeln*, 117–8, is conceived with the same basic scheme with typological illustrations primarily from the image; the illustrations of the Apocalypse break through the textually expected sequence, cp. Behrends, "Versuch zur Datierung und Lokalisierung," 54–5).

54 The dates diverge, but the attribution to the scriptorium of the Erfurt monastery agrees, cp. Frühmorgen-Voss, H. Ott, and Bodemann, *Katalog der deutschsprachigen illustrierten Handschriften*, 316; Behrends, "Versuch zur Datierung und Lokalisierung," 64.

55 Behrends, "Versuch zur Datierung und Lokalisierung," 56 argues for a bear's body with a lion's head because of the paws, which are indeed somewhat irritating for a lion's body. However, the extremely slender torso of the animal does not seem to fit in with this; moreover, a bear–lion–eagle hybrid would be completely unprecedented, so that it should rather be assumed here that a lion's body is depicted in an awkward manner in places.

56 Cp. Löther, *Prozessionen in spätmittelalterlichen Städten*, 183–92.

57 Löther, *Prozessionen in spätmittelalterlichen Städten*, interprets a deed of indulgence from 1351 as the first evidence for the procession according to the somewhat misleading regest (*Urkundenbuch Erfurt*, vol. 2, no. 183: "die um den Kirchhof mit der Prozession umgehen"), whereby in the wording of the deed the indulgence is promised only to "those qui cimiterium dicte ecclesie pie Deum exorantes circumerint" (Hrdina and Studničková, eds., *Frömmigkeit in Schrift und Bild*, 67, no. 6), which would also apply to individual memorial practices; in terms of wording, it is only a donation of soul instruments from 1355 that mentions the procession to Neuses as taking place annually (*Urkundenbuch Erfurt*, vol. 2, no. 447).

58 Cp. Slavin, "Out of the West," 39–40.



at Krakauer Berg near Bernburg on the River Saale to around 1357.<sup>59</sup> While Erfurt is far from this site and has no narrative evidence to offer for 1357,<sup>60</sup> nearby Magdeburg is closer, where an outbreak is recorded for the same year.<sup>61</sup> A hitherto unknown plague outbreak in Mühlberg on the River Elbe is remembered by local Cistercian nuns for 1357.<sup>62</sup> But the *pestis tertia* is already invisible in the funeral inscriptions' record, while it is indeed reported in narrative accounts for 1365.<sup>63</sup>

### Bohemia: The *Libri Confirmationum* as a source of epidemiological history

The chronicler Francis of Prague states very briefly that the plague, which decimated the population in many countries around the world, also 'took place' in Bohemia.<sup>64</sup> How-



Figure 5 Death as the fourth apocalyptic horseman, seated on a winged lion. In the mouth of hell, there is a personification of hunger (*fames*), pointing to her open mouth.

Source: Klassik-Stiftung Weimar, HAAB, fol max 4, f. 15v

59 Cp. Parker et al., "Systematic Investigation of Human DNA Preservation in Medieval Skeletons."

60 Although the *Chronicon Moguntinum* reports a plague outbreak for Thuringia, 6: "Anno predicto facta est magna pestilentia in multibus partibus Rheni et in Hassia et Thuringia et Wedderabia."

61 "Dar na [1350] aver seven jare / wart hir echt ein stervent sware [...] In dem jare wart hir grot stervent in der stadt, und was de suke der lude vor wesen hadde over seven jare, also dat den luden drose worden under den armen edder an dem halse edder boven an den beinen." (von Lammespringe, "Die Magdeburger Schöppenchronik," 223).

62 "[...] pro remedio animarum suae et progenitorum suorum et parentum ac etiam dominarum singularum et sororum nostrarum conventualium dicti nostri monasterii in moritalitate sive pestilentia, quae nuper videlicet de anno domini millesimo trecentesimo quinquagesimo septimo miserabiliter viguit" (*Urkundenbuch des Hochstifts Meißen*, vol. 2, 22, No. 514).

63 "Anno domini 1365 pestilentia magna fuit, ita ut Erfordiae in clastro novi operis a vigilia Petri ad vincula usque ad vigiliam XI milium virginum XLII virgines morerentur, quarum animae sint in domino" (*Annales variorum*, col 231).

64 Zachová, ed., *Chronicon*, 212: "Anno Domini MCCCL in pluribus terris epydimia sive pestilentia genus humanum devastavit, sed tunc in Boemia eciam locum habebat."

ever, in the middle of the fourteenth century most parts of the lands of the Bohemian crown were largely spared from the first wave of the plague, known as the ‘Black Death’. There is evidence that the plague raging in Austria at the time spread as far as Central Moravia and caused considerable damage in this part of the Kingdom of Bohemia while most regions of the realm remained unharmed.<sup>65</sup> David C. Mengel argues that this relative unscathed character of Bohemia by the plague and its representation on an influential map led to little research being conducted in the English-speaking world, even for later outbreaks of the epidemic in Bohemia.<sup>66</sup> František Graus’ short but source-rich 1963 essay and other studies by Czech historians have been largely ignored by Anglophone scholars.<sup>67</sup> In its most extreme form, this gave the impression that Bohemia was a ‘pocket of immunity’ whose inhabitants were not susceptible to the disease transmitted by *Yersinia pestis*.<sup>68</sup>

In a recent essay, Martin Nodl points out that a regional-local perspective should be adopted in relation to the spread of the plague.<sup>69</sup> Based on his own research on Stříbro and Rakovník in Western Bohemia, and that of other Czech researchers, namely Jaroslav Mezník on Brno, Martin Musílek on Prague and Tomáš Klír on Cheb, he points out the chronologically and spatially very different severity of the plague in Bohemia and Moravia.<sup>70</sup> According to Nodl’s explanations, however, a reasonably comprehensive investigation is hindered by the extremely patchy availability of relevant local sources.

Both Mengel and Nodl also discuss in detail Eduard Maur’s research on the *Libri Confirmationum (LC)*. In a series of essays, Maur emphasizes the potential of this corpus of sources for demographic research.<sup>71</sup> The *LC* are a collection of con-

---

65 Flodr, ed., *Pamětní kniha města Brna*, 120, no 232; two charters of Margrave John of Moravia for the towns of Brno and Znojmo offer new burghers, who are willing to replace those killed by the plague, a tax exemption for four years: *Codex Diplomaticus Moraviae*, vol. 8, 95, no 129; 97f., no 133; cp. Mezník, “Mory v Brně.” The raging of the Black Death in Austria in 1349 is widely documented by historiography. cp. “Kalendarium Zwetlense,” 692; “Continuatio Claustroneoburgensis quinta,” 736; “Continuatio Zwetlensis quarta,” 685; “Annales Matseenses,” 829f.

66 Mengel, “Plague on Bohemia?” refers to the map by Carpentier, “Peste noire,” which he reproduces between 4 and 5.

67 Graus, “Peste noire.” Further research on the plague in Bohemia in note 7.

68 Lastufka, “Bohemia during the Medieval Black Death.”

69 Nodl, “Impacts.”

70 Nodl, “Západočeské Stříbro v roce 1380”; Nodl, “Morová epidemie”; Mezník “Mory v Brně”; Musílek, *Patroni, klienti, příbuzní*, 144–48; Klír, *Rolnictvo*, 492–98. Recently, a detailed study was conducted by David Trojan on the deanery of Kouřim which also contains some information about the issues in question: Trojan, “Kouřimský děkanát.” A rather general overview of the impact of the late medieval plague waves on Central Europe is presented by Fichtner, “Der »Schwarze Tod«.”

71 Maur, “Morová epidemie”; Maur, “Sterblichkeit”; Maur, “Demographische Entwicklung.” Unfortunately, I had no access to Maur’s “Příspěvek k demografické problematice.”



firmations of the occupation of benefices, which were issued by the changing vicars general of the Archbishops of Prague in order to confirm the legitimacy of these occupations.<sup>72</sup> For the period analyzed by Maur, i.e., from 1354 to 1418, there are more than 11,000 such confirmations, which were copied into codices in (roughly) chronological order. In addition to the names of the appointed priest and the persons exercising the right of patronage, a typical entry contains the name of the priest who last held the benefice and the reason why the benefice became vacant. There are two main reasons for vacancy: a) the death of the previous holder of the benefice and b) the transfer of the latter to another benefice.

A randomly selected example of a typical entry reads (with abbreviations resolved): “Nicolaus Puchnik etc., quod nos ad ecclesia parrochialis in Luzicz, per resignationem domini Otticonis ex causa permutationis vacant de consensu famosi Otticonis clientis de Luzucz et Elzcze vidue, relicte olim Hermannii ibidem de Luzicz, dominum Johannem, olim plebanus ecclesiae in Holedecz, cum dicto domino Otticone pro dicta ecclesia in Luizicz permutantem, crida etc. Prage anno domini 1401 die XIII Junii.”<sup>73</sup> The archbishop’s vicar general Nikolaus Puchnik confirms here that, after a priest named Ottico had resigned the parish benefice in Luzicz, the priest Johannes could move into this benefice. This would take place with the consent of the holders of the patronage rights to this church, the low nobleman Ottico de Luzucz and Elzcze, the widow of Hermann de Luzucz. Finally, we learn that the two priests Ottico and Johannes exchanged their benefices, i.e., that Ottico moved to the parish of the village of Holedecz, from which Johannes came to Luzicz. The entry ends with the date of issue of the deed.

Eduard Maur used an annual count of the benefices vacated by death to create a graph in which a number of years show a particularly high mortality rate. For these years, he assumes that there were plague outbreaks in the Kingdom of Bohemia. Maur notes such outbreaks for the years 1357–1360, 1362–1363, 1369–1371, 1380, 1390, 1403–1406, and 1414–1415.<sup>74</sup> The outbreaks of the plague and the sources documenting them are discussed below.<sup>75</sup>

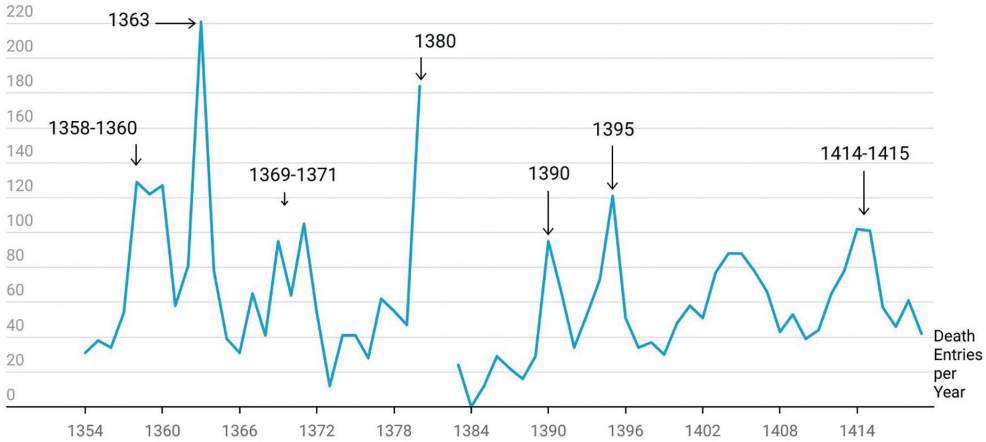
Although this graph (Figure 6) is helpful for an overview of the mortality rates of clergymen in the Bohemian lands in the second half of the fourteenth century and the early fifteenth century, it raises a number of problems that will structure this part of the present paper:

72 Tingl and Emler, eds., *Libri Confirmationum*, vol. I–X.

73 LC VI, 50.

74 Maur printed the figure resulting from the data he collected twice, in 1987 and 2001, respectively: Maur, “Sterblichkeit,” 163, Fig. 2; Maur, “Demographische Entwicklung,” 58, Fig. 1.

75 The corresponding data were newly collected from the *LC* for the present work and form the basis of our Figure 1. Slight differences to Maur’s figures result from the fact that he only considered the parish clergy, whereas our figure is based on all deaths counted in the *LC*.



**Figure 6** Reappointment of benefices after the previous holder's death (1354–1419)

**Source:** Tingl and Emler, eds., *Libri Confirmationum*, Vol. I–X.

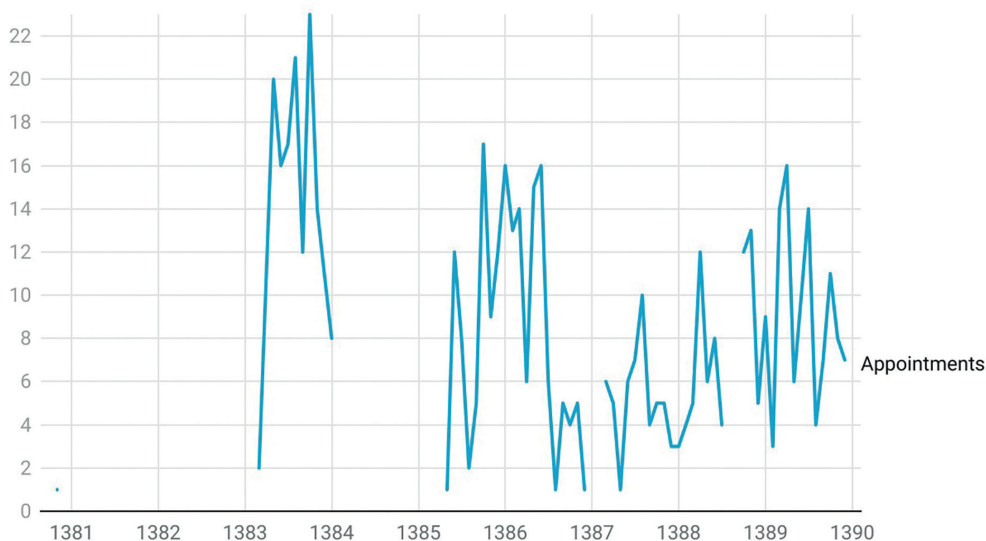
- I Losses in transmission are only visible if they cover at least an entire year (e.g., 1381–1382, but in fact the transmission is lost from the beginning of October 1380 to March 1383).
- II In the event of gaps in the sources lasting several months, the picture of a year is strongly distorted downwards, and a mortality rate that actually increased over several months may escape the researcher's attention.
- III It is not only the absolute numbers that are significant but also their relationship to the overall tradition. For example, a hundred benefices vacated by death have greater statistical weight if there were only 150 movements on the benefice market during the corresponding period than if there were several hundred movements.
- IV Seasonal focal points of the plague outbreaks are not reflected.

Further sections will deal with the problem of the seasonal dating of plague outbreaks (V) and further potentials of the data provided by the *Libri Confirmationum* (VI).

I

The various consequences that losses of transmission may have on the graphical representation of the evaluation of the *LC* data are seen in the two graphs published by Eduard Maur. Losses of transmission are either only visible if they affect at least one whole year (as in Maur's figure from 1987) or data is lost if years are shown as a loss of transmission in which only the transmission for a few months is lost (as in Maur's figure from 2001 for the years 1383 and 1384). A solution to this problem can be

found graphically only by a higher—at least monthly—resolution. This can hardly be achieved in a single graph for the long period covered. For the 1380s, however, where data are particularly patchy, more transparency can be created in this way. In addition to the long gap in records from the beginning of October 1380 to March 1383, further gaps are observed from February 1384 to April 1385, in January and February 1387, and in August and September 1388. This means that in this decade only the years 1386 and 1389 are fully recorded. As the chart in Figure 7 focuses on the situation of the records and not on priest mortality, all appointments to benefices are included, not just those related to the death of the previous benefice holder.



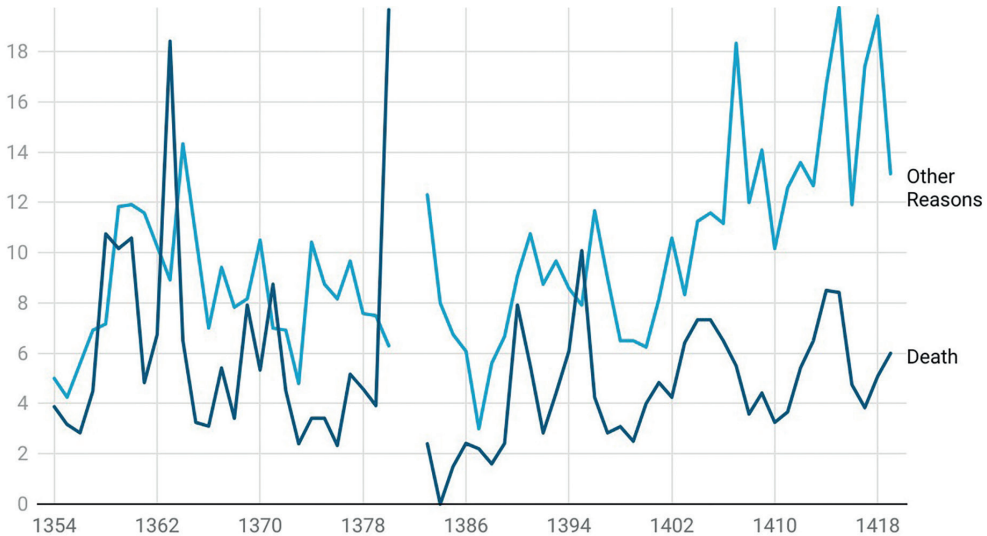
**Figure 7** New appointments to benefices in the years 1381–1389

Source: Tingl and Emler, eds, *Libri Confirmationum*, Vol. I–X.

## II

When recording the number of deceased priests on an annual basis, there is also the problem that in years with a few unrecorded months, the total value is strongly distorted downwards. This problem can be countered by not reporting the total number of those listed as deceased in a year, but by calculating a monthly average and only considering the months for which a record exists. The usefulness of this method is clearly illustrated by the year 1380: while surviving sources agree that it was this year that the most severe of the known plague waves hit Bohemia, the graph in Figure 6 shows a lower figure for this year than for 1363. The reasons for this discrepancy can be found, on the one hand, in the fact that very few vacancies *per mortem* are recorded in the first months of 1380, and these then rise sharply from late summer onwards (Figure 12), while mortality is very high both in the first

and—especially—in the last months of 1363 (Figure 10). In addition, the tradition breaks off after 1 October 1380, so the death figures for nine months of 1380 must ‘compete’ with those that we have for the twelve months of 1363.<sup>76</sup> The dark blue line in Figure 8, therefore, provides more reliable proportions of the chronological distribution of deaths than a simple count.



**Figure 8** Average annual movements on the Bohemian benefice market broken down by the reason for the benefice becoming vacant (1354–1419)

Source: Tingl and Emler, eds., *Libri Confirmationum*, Vol. I–X.

### III

Not only the absolute number of deaths but also their relationship to the overall tradition is significant. Figure 8 shows that from the first years of the fifteenth century onwards, the number of benefices filled *ex causa translationis* rose sharply in comparison to the number of vacant benefices *per mortem*. There are two possible interpretations of this observation. One is that there were more benefices overall due to the creation of new benefices and, therefore, the total numbers increased. However, the new foundations are also recorded in the *LC*, and there is no recognizable wave in this respect at the end of the fourteenth and the beginning of the fifteenth

<sup>76</sup> October, for the first day of which seven vacancies *per mortem* are recorded, was also removed from the calculation. The ratio of one day with no records and thirty days without any records means that taking this one day into account as representative of the entire month is a greater distortion of statistics than not taking it into account at all. The seven vacancies on 1 October were subtracted from the total number of vacancies for the year as a whole when calculating the monthly average.

centuries. Furthermore, this interpretation would not explain why the proportion of new benefices *ex causa translationis* rose so sharply compared to new appointments following a vacancy *per mortem*. I therefore consider the second interpretation to be more likely: in the 1400s, the Archbishop of Prague was able to better assert his claim to confirm the reappointment of a benefice (and to collect fees for it). Martin Nodl has shown that of the twenty parish benefices in the district of Rakovník in the 1380s, only nine appeared in the *LC*.<sup>77</sup> This agrees with Eduard Maur's assessment that only about half of the new grants of benefices were documented by the *LC*.<sup>78</sup> This proportion seems to increase towards the beginning of the fifteenth century. However, if a larger number of changes of benefices are recorded, it is not surprising if the number of documented deaths also increases.

For our epidemiological question, this means that the increased mortality in 1414 and 1415 is somewhat relativized by the higher overall figures. Other sources commenting on diseases during these years confirm this issue. František Graus, for example, quotes a historical note from a Munich astronomical manuscript from the 1450s, which speaks of a *magna mortalitas post Johannis* in the year 1413.<sup>79</sup> In Benessius Minorita's *Chronicon*, we also find the news for this year that a 'great cough' afflicted many people in Bohemia and made them susceptible to numerous other diseases.<sup>80</sup> However, whether this is the epidemic that is reflected in the *LC*, especially in two mortality peaks in the last three months of 1414 and from July to October 1415, seems—due to the considerable time lag—just as doubtful as the answer to the question of whether the 'great cough' should be considered a plague epidemic.<sup>81</sup>

#### IV

A final problem with the annual counting of deaths is the fact that a chronological grid of this size makes it impossible to determine seasonal focal points of increased mortality. Here too—as with the problem of individual months with lost records—the

77 Nodl, "Morová epidemie."

78 Maur, "Morová epidemie," 45. Trojan, "Kouřimský děkanát," 55 assumes that 60–70 percent of the vacancies were covered by the *LC*.

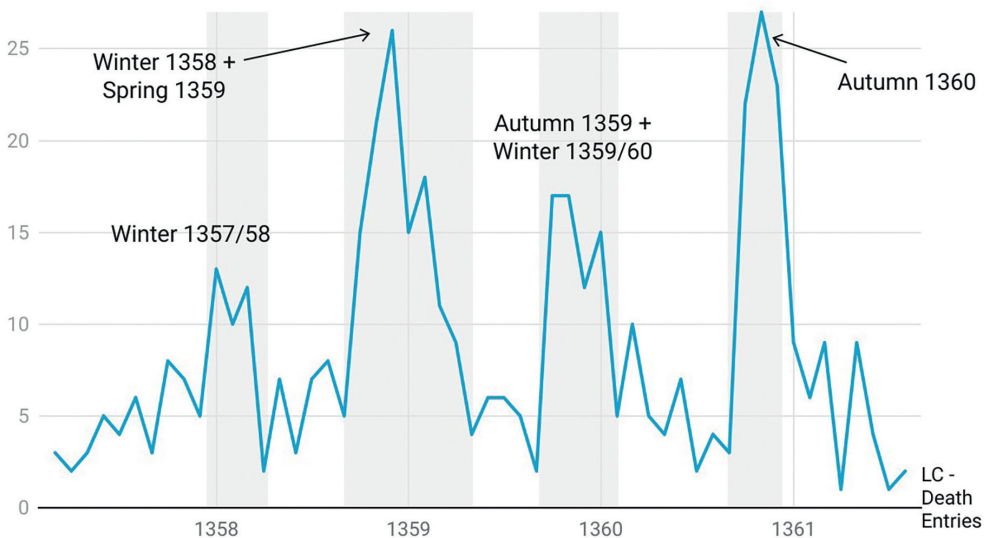
79 Graus, "Peste noire," 724, note 3; the manuscript in question is Munich, Bayerische Staatsbibliothek, Clm 26666, fol. 134v. For the dating of the manuscript, see: Juste, *Catalogus*, 169.

80 Benessius Minorita, *Chronicon*, 67: "Et eodem anno venit tuffis maxima omnibus hominibus communiter in Boemia, per quam gravati multis infirmitatibus sunt oppressi." Maur, "Demographische Entwicklung," 34 finds the same message again for 1415, but does not identify the source.

81 Maur, "Demographische Entwicklung," 35 would like to interpret the 'great cough' as pneumonic plague, but also offers whooping cough as a solution. Pulmonary tuberculosis would be another one of several conceivable alternatives.

only option is to reduce the size of the grid. If we look at the monthly data for the years with increased mortality, it is obvious that there is a clear seasonality of the disease's outbreaks in each of these phases. Increased mortality in the *LC* falls almost regularly in the autumn, winter, and spring months. This is the case for all four seasonal mortality peaks in the years 1357–1360, i.e., in four consecutive years (Figure 9).

For these years, a number of other sources have survived that speak of repeated plague outbreaks. On 15 October 1357, Archbishop Arnošt of Pardubice issued a statute in which he wrote that the plague had already been in Bohemia some time before but had now returned in an even worse form. Previously, the sick would have had three days to atone for their sins, but now they would die on the very day the plague struck them.<sup>82</sup> He issued a document with largely identical wording almost exactly two years later, on 5 October 1359, but with an addendum to the sentence about the earlier occurrence of the plague, stating that it had also appeared in Bohemia the previous year—i.e., in 1358—but had disappeared again in the meantime.<sup>83</sup> For 1359, there is also an entry in the *Chronicon Moguntinum* reporting an outbreak of the plague in Bohemia around the feast day of All Saints (1 November).<sup>84</sup>



**Figure 9** Mortality according to the *Libri Confirmationum* from the spring of 1357 to the summer of 1361

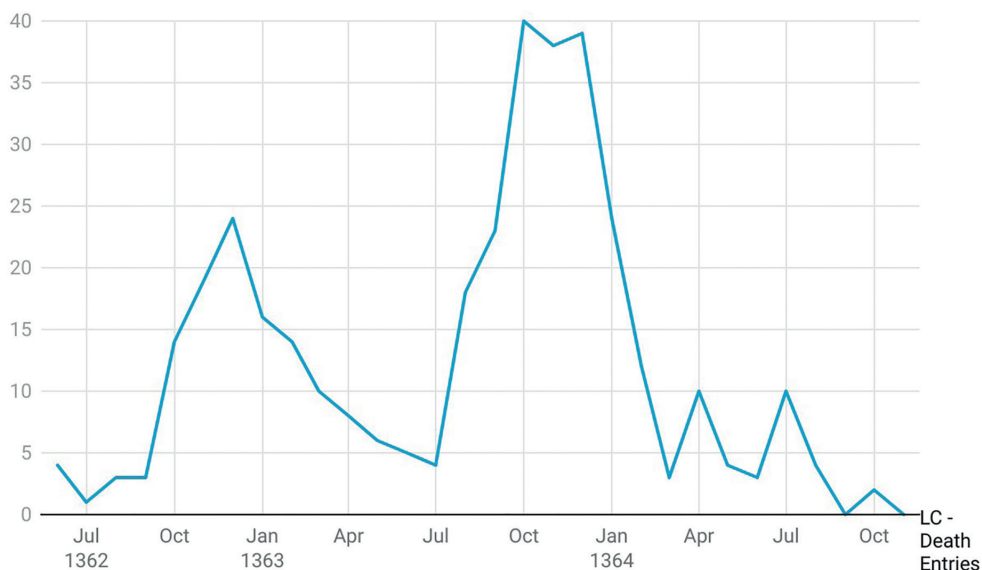
Source: Tingl and Emler, eds., *Libri Confirmationum*, Vol. I–X.

82 Menčík, *Několik statutů*, 15. “Nam cum priori dictae homines ipsius pestilentiae morbo infecti poenitentiae spatium ex misericordia Domini concedebatur per triduum, nunc ipso die, quo inficiuntur, ut plurimum moriuntur subito tamquam animalia insensata.”

83 Borový, ed., *Libri erectionum*, vol. I, 11–13.

84 *Chronicon Moguntinum*, 8.

While according to the records of the *LC*, the year 1361 was unremarkable in terms of mortality among the clergy, the chronicler Beneš Krabice of Weitmil writes: “In this year [...] many thousand people died of famine and others of a plague which ruled until then.”<sup>85</sup> He probably refers here to the outbreak of the plague that preceded the famine of 1361, the peak of which the *LC* records as falling in the autumn of 1360 (Figure 9).



**Figure 10** Mortality according to the *Libri Confirmationum* from the summer of 1362 to the autumn of 1364

Source: Tingl and Emler, eds., *Libri Confirmationum*, Vol. I–X.

From October 1362 to January 1364, the 1357–1360 pattern is roughly repeated (Figures 9 and 10): the number of deaths greatly increases from October 1362 to March 1363. Relatively few deaths are recorded from April to July, but this time the figures rise already in late summer from four deaths documented in July to forty deaths in October, and numbers continue to be high until January 1364. This high mortality rate over long stretches of 1363 explains why this year leads the 1354–1419 statistics with 221 documented deaths. For 18 October 1362 an appeal of the archbishop is recorded to celebrate the *missa contra pestilentiam* due to the threat of a recurring plague. In this decree, he states that “according to a flying rumor, the same dreadful and dire pestilence is spreading in our neighbouring regions.”<sup>86</sup> By mid-October—at least according to the

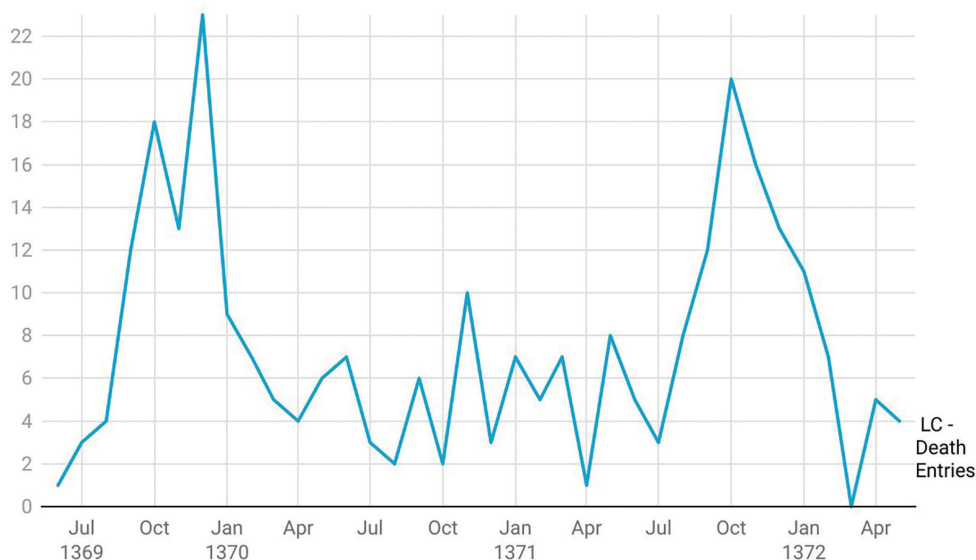
85 Beneš Krabice of Weitmil, *Cronica ecclesie Pragensis*, 527: “Eodem anno [...] mortua sunt multa milia hominum per fame et alii ex pestilencia, que adhuc vigebat.”

86 Borový, ed., *Libri erectionum*, vol. I, 39f.: “[...] et nunc iterum ipsa pestilencia terribilis et dira certo rumore volante in vicinis nostris partibus crassatur.”



archbishop's information—only the news of its occurrence in neighbouring regions had reached Bohemia, rather than the plague itself.

The plague outbreaks of 1369 and 1371–1372 were again similar (Figure 11). Increased numbers of deaths are recorded for September to December 1369, and for September 1371 to January 1372. Beneš Krabice of Weitmil notes for 1369 that on 20 August Emperor Charles IV came to Prague with his wife Elisabeth of Pomerania, who had been crowned empress that year, but they quickly left due to the plague.<sup>87</sup> Beneš also reports outbreaks of the plague in Bohemia in 1370 and 1371.<sup>88</sup>



**Figure 11** Mortality according to the *Libri Confirmationum* from the summer of 1369 to the spring of 1372

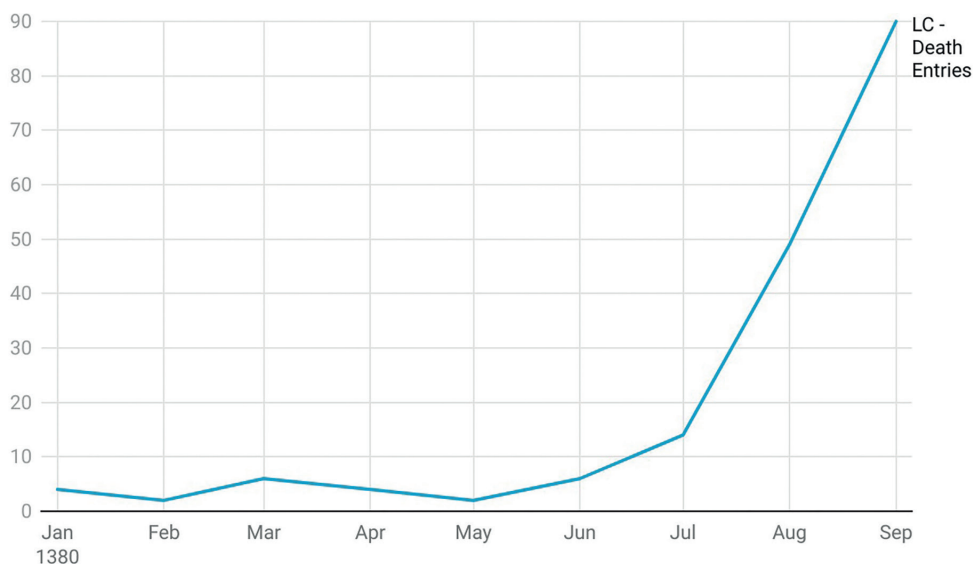
**Source:** Tingl and Emler, eds., *Libri Confirmationum*, Vol. I–X.

The most intense outbreak of the plague hit Bohemia in 1380 (Figure 12). Probably due to its particular severity, this outbreak is noted by a large number of narrative sources in Bohemia and even beyond.<sup>89</sup> It is due to their very brief information that, apart from the fact that Bohemia was hit by the plague at a certain time of the year 1380 (which varies depending on the source), hardly any additional information (e.g., on death figures or regional focal points) is provided.

<sup>87</sup> Beneš Krabice of Weitmil, *Cronica ecclesie Pragensis*, 539f.

<sup>88</sup> Beneš Krabice of Weitmil, *Cronica ecclesie Pragensis*, 542, 545.

<sup>89</sup> Benessius Minorita; *Chronicon Bohemiae Lipsiense*, 5; *Chronicon Bohemicum Pragense*, 11; *Kronika Bartoška z Drahonice*, 628; *Secundum continuator Pulkavae*, 133; *Chronicon Moguntinum*, 46.



**Figure 12** Mortality in 1380 according to the *Libri Confirmationum*  
**Source:** Tingl and Emler, eds., *Libri Confirmationum*, Vol. I–X.

The plague of 1394–1395 shows a somewhat unusual course compared to previous outbreaks. Whereas in the cases considered so far, months with low and high mortality alternated seasonally, here—with the exception of the summer of 1394—we see a consistently high to—in the autumn of 1395—very high mortality in the *LC* records (Figure 13). It would therefore appear that there were either different patterns in the spread of the plague or that a series of smaller regional outbreaks may have occurred one after the other in 1394–1395, suggesting a consistently high overall mortality rate in the kingdom. More detailed information on this question can only be obtained through a chronological mapping of the data in the *LC* (more on this below).<sup>90</sup>

## V

One piece of information that most annalistic reports of the great 1380 outbreak contain is the chronological dates of the raging plague. Benessius Minorita gives the duration from Ascension Day (3 May) to St Michael's Day (29 September), while the *Chronicon Bohemiae Lipsiense* speaks of Pentecost (13 May) to St Wenceslas's Day (28 September). The *Chronicon Bohemicum Pragense*, the second continuation of the

<sup>90</sup> The increased mortality in the years 1404–1405 remains below the threshold of a hundred deaths a year (Figure 6) or eight deaths a month (Figure 8) and is, therefore, not discussed here. For the increased values in 1414 and 1415, see the discussion above.

Pulkava Chronicle and the *Kronika Bartoška z Drahonice* have the Great Dying begin on St Margaret's Day (13 July), the *Chronicon Moguntinum* more generally places it 'in the month of July'. The *Kronika Bartoška z Drahonice* gives the autumn as the end of the outbreak, the *Chronicon Bohemicum Pragense* says that the plague lasted until winter, and the continuator from Pulkava gives All Saints' Day (1 November) as the end date of the disease. As the entry begins with *Anno Domini MCCCLXXX & 81*, it remains unclear whether *duravit usque festum Omnium Sanctorum* refers to 1 November 1380 as the end of the first outbreak followed by a second in 1381, or whether the author gives 1 November 1381 as the end of a very long plague period. The start dates in early/mid-May show a relatively large deviation from the accumulation of new appointments deceased per month benefices *per mortem* recorded in the *LC*. There, the numbers of the deceased clergy are very low up to June, giving between two and six deceased, with numbers rising sharply in July (fourteen dead) and August (forty-nine dead) to reach their absolute peak in September with ninety registered deaths (Figure 12). The fact that only on the first day of October seven more deaths were recorded indicates that by September the peak of the outbreak had not yet been reached. Unfortunately, as the *LC* breaks off after 1 October 1380, no statement can be made about the final dates mentioned in the chronicles.

This discrepancy between some of the chronicle and annalistic reports and the information obtained from the *LC* about the beginning of the outbreak of 1380 raises the fundamental question of the time that would pass between the death of a benefice holder and the replacement of his position or until the replacement was recorded in the *LC*. Maur assumes a latency of between one and three months—without explaining this in detail—but seems to reckon with three months (or more), as he mentions in several places that the plague outbreaks in Bohemia regularly reached their peak in the summer months, while the data material discussed above primarily documents an increased mortality rate during the respective winter half-years.<sup>91</sup> It seems plausible that it could take some time for a successor to be found for a benefice and for the new appointment to be reported to Prague. Let us take a closer look at the sources in this regard:

---

91 Maur, "Morová epidemie," 38: "Většinu krizí lze identifikovat jako morová léta, a to nejen vzhledem k výši ztrát na obyvatelstvu, ale i k typicky sezonnímu průběhu mortalitní křivky /vrchol v létě, dočasné nebo trvalé vyhasnutí v zimě/ [...]"; Maur, "Demographische Entwicklung," 33: "Der für 1395 feststellbare Mortalitätsanstieg weist insofern einen atypischen Zeitverlauf auf, als es keinen Höhepunkt in den Sommermonaten gab," 35: "Die meisten dieser Krisen lassen sich durch die hohen Verluste unter der Bevölkerung, den typischen jahreszeitlichen Verlauf der Mortalitätskrise (Höhepunkt in den Sommermonaten, zeitweiliges oder endgültiges Erlöschen im Winter) und die hohe Synchronität mit den ganz Europa periodisch erfassenden Seuchenzügen als Pestjahre identifizieren."



**Figure 13** Mortality according to the *Libri Confirmationum* from the winter of 1393–1394 to the winter of 1395–1396

**Source:** Tingl and Emler, eds., *Libri Confirmationum*, Vol. I–X.

The first diploma of Archbishop Arnošt of Pardubice from 15 October 1357 actually dates two to three months before the increased mortality among Bohemian clergy is documented in the *LC* (from January 1358). However, the two other documents of this archbishop discussed above, dated 5 October 1359 and 18 October 1362, are expedited about the same time as the beginning of the respective outbreak in the *LC*. For the year 1360, there are two short notes about the occurrence of the plague *circa festum Assumpcionis s. Marie* (15 August) and *circa festum Nativitat. s. Marie* (8 September), while in the *LC* an increased mortality is only noted from October onwards.<sup>92</sup> Beneš Krabice of Weitmil's entry for 1361 indicates that the famine of 1361 directly followed the last outbreak in 1360. While in the *LC* the outbreak in the autumn-winter of 1360 subsides from January 1361 onwards, according to Beneš it would have to be extended by at least a few months into 1361. The same author writes about 1369 that Emperor Charles IV left Prague at the end of August because of the danger of the plague. This again fits in very well with the *LC* tradition, which records an increase in mortality precisely for this month.

If we look at the beginnings of the outbreaks of the plague in the various traditions, we see two cases with a large chronological gap between the dates in the narrative sources and the information in the *LC* (1357: two or three months, and

92 Ms. Bibl. of the Prague Cathedral chapter, Ms D. LXXV, fol. 9; Munich, BSB, Clm 26666, fol. 134, both cited after Graus, "Pestes noire," 722, note 6.

1360: approximately one month). In contrast, there is no latency between the news about the plague in the narrative sources and the higher numbers of deaths in the *LC* whatsoever in the messages for 1359, 1362, and 1369. The most difficult problem to deal with is the different chronistic and annalistic reports for the year 1380, which give two approximate dates for the beginning of the devastating outbreak of the plague: early/mid-May and mid-July. As increased mortality in the *LC* is also visible from July; it depends on the evaluation of the narrative sources whether we want to assume a latency or not. On the basis of source-critical considerations, it is impossible to decide in favor of one of the two dates; both are handed down by authors writing relatively close in time. Therefore, a more precise delimitation of the time span between the death of a priest and the reoccupation of his benefice cannot be made on the basis of the information analyzed here, and it is likely that in practice the times differed from case to case and varied between a few weeks and several months.<sup>93</sup> In order to determine a middle ground in this discussion, other sources that also comment on sinecure appointments would have to be related to the *LC*.

## VI

A further potential of the *LC* regarding research into the outbreaks of the plague in Bohemia lies in the exact spatial recording and chronological mapping of the surviving vacancies, which, however, could not be done within the framework of the present study. Here, too, Eduard Maur has already presented important research results. He has published maps for the outbreaks of 1360, 1363–1364, 1369–1370, and 1380, in which he manages to clearly delineate regional clusters of deaths.<sup>94</sup> While the map for 1360 shows an accumulation of deaths in the Glatz (Kłodzko) region, in 1363–1364, Northern and Western Bohemia appear to have been the centre of the plague's rage. In 1369–1370, however, this centre of gravity appears to have shifted to Southern Bohemia. With modern methods of (digital) cartography, today it would be possible to go well beyond Maur's results. As already discussed above, the chronological mapping of deaths in 1394–1395 could provide information on a possible regional sequence of the spread of the disease. A more precise chronological breakdown of deaths in the years already documented by Maur could also provide new insights into the spread of the plague in these periods. In the case of the

---

93 Robinson, "Black Death" has recently analysed the same procedure in five English dioceses after the first plague wave of 1349. He arrives at an average time for the reoccupation of a vacancy of twenty-six days and states (133): "Patrons and diocesan administrators seem to have coped with the consequences of the plague remarkably well."

94 Maur, "Sterblichkeit," 161f., Maps A–D.

map for the outbreak of 1380,<sup>95</sup> a combination with a map of old routes would possibly show that the plague of this year—in contrast to the other outbreaks analysed here—spread primarily along important trade routes. Many of the deaths symbolized by dots in Maur's map appear to be lined up like pearls on a string, while in all other maps we find a regionally clustered distribution. If the assumption is correct, this type of spread along the connections between densely populated towns and regions would be a possible explanation for the particularly devastating impact of the disease this year. The earlier outbreaks, which were limited to certain regions of Bohemia, may have been more frequently confronted with gaps in the transmission of the pathogen in less densely populated regions.<sup>96</sup>

Apart from questions of epidemiological history, maps drawn up from the *LC* could provide information on whether vacant benefices in all regions of Bohemia were reported to the archbishop's chancellery in a similar density or whether differences can be identified here. Further, the hitherto little-utilized potential of the *LC* lies in the possibility of tracing the careers of clergymen, the number and distribution of patronage rights of persons and groups of persons, and in establishing whether and, if so, to what extent these rights could represent economic resources for their holders, i.e., whether they changed hands more frequently. However, the answers to these questions must be left to later research.

## Conclusion

Narrative sources are an often-neglected key feature in current plague histories. Yet, as we have seen, in combination with quantified epigraphic and administrative data, they provide the strongest evidence, down to the information on the seasonality of plague outbreaks in Stralsund in full agreement with Cohn's results for Lübeck. Even under-researched regions like Eastern Germany or well-researched, but seemingly unpromising regions like Bohemia can hence provide new information. These written sources are indispensable to frame and guide paleogenetic results, which will certainly expand our knowledge about late-medieval plague waves. There will never be a complete history of the Black Death or the subsequent waves of plague, not only in East Central Europe. Pointing out unreliability and overlooked evidence in existing 'grand narratives' does not relativize the achievements of the responsible scholars, but it does relativize the (sometimes self-formulated) expectations of those

---

95 Maur, "Sterblichkeit," 162, Map D.

96 The less dense population in Bohemia could also explain why the calculated mortality rates were significantly lower here than in the densely populated regions of Southern and Western Europe. For estimates of population losses, see for example: Nodl, "Impacts."

studies. However, there are quantifiable written sources such as testaments, funerary inscriptions, or the confirmation of benefices in East Central Europe, and with a little luck of source preservation, they are by no means of poorer quality than in other regions of the continent. For Eastern Germany, the article has shown the first attempts to quantitatively develop and interpret such information of epigraphic or legal nature, or to correct their previous treatments in plague histories of larger geographical focus. For Bohemia, it has been shown how relevant new information can be wrested from a long-known and well-edited source corpus through differentiated observation and careful reinterpretation, and how this data can go hand in hand with narrative sources outside the lands of the Bohemian crown. Interestingly, we find a clearly different seasonality of plague outbreaks with peaks in summer for the Baltic coast and peaks in autumn and winter for Bohemia. An explanation for this discrepancy is still out of sight.

Another unresolved task is to compare the regional results for Eastern Germany and Bohemia with what we know about the Black Death's impact on other regions. Philip Slavin has recently suggested an interesting approach to compare plague impact in different parts of Eurasia. He argues that there is a very much comparable ratio of mortality in plague years, or actually the first year the Black Death hit a locality, to non-plague years, or more precisely: pre-Black Death years. Based on different source categories like funeral inscriptions, testaments, and other mortality indicators he proposes a ratio of roughly 15:1 to 17:1 across Western Eurasia and Northern Africa.<sup>97</sup> This seems to confirm chroniclers' claims of the unprecedented mortality during the onslaught of the Black Death.

As this contribution has considered very similar types of epigraphic and testamentary data, it is worth checking if these ratios apply to Eastern Germany and Bohemia. Starting on the Baltic Sea coast, we should note that Slavin's ratio could not be verified for the case of Stralsund,<sup>98</sup> where we see an impressive, yet clearly different ratio of mortality in plague years (1350–1359–1368) vs. non-plague years (1333–1370) of 9:1 or, with regard to pre-Black Death years (1333–1347), of 10:1.<sup>99</sup>

97 Cp. Slavin, "Death by the Lake," 65, Fig. 2.

98 The source base for Slavin's figures on Stralsund is somewhat unclear: he does not draw upon Schildhauer, "Stralsunder Bürgertestamente," and it is unclear where the numbers for the years 1325–1357 in Slavin, "Death by the Lake," Fig. 2, for Stralsund in combination with Lubeck come from, when it is clearly a different time period; annual continuity for Stralsund testaments starts only in 1333 and the actual number of available, yearly dated testaments between 1333 and 1370 is no less than 286, cp. Schildhauer, "Stralsunder Bürgertestamente," 328–36.

99 Based on an average of 5.68 testaments a year for 1333–1370, excluding the plague years 1350, 1359, and 1368; alternatively, the period of 1333 to 1347, thus the actual pre-Black Death years, show an average of 4.93 testaments a year. With regard to fifty testaments in 1350, by far the



If we look at the Erfurt funeral inscriptions, we can still try to apply the same methodology: looking for the ratio between Erfurt's most pronounced plague year of 1382 and all non-plague years between 1300 and 1390, we see a ratio of roughly 7:1.<sup>100</sup> A ratio of mortality of pre-Black Death years up to the first plague outbreak cannot be calculated for Erfurt, as we have seen the almost complete absence of preserved inscriptions for 1350 and its potential reasons. We can try to apply the same methodology to Görlitz, setting different points of reference with regard to an overall period of non-plague years:<sup>101</sup> if we take the invasion of the *pestis secunda* in 1359 as our point of reference, the ratio of mortality in a plague year and pre-plague years (1333–1358) is about 6:1, if we have a look at the period 1333–1383 with the major plague year 1384 in focus, the ratio is 5:1. If we take the Bohemian evidence from the *LC* starting in 1354, with 1358 as first peak year of plague mortality in Bohemia, we have a plague year to pre-plague-years mortality ratio of a little over 3:1.<sup>102</sup>

In any case, these mortality ratios are considerably lower for Eastern Germany (based on testaments and inscriptions) and much lower in Bohemia (based on the *LC*) than Slavin's results for Kyrgyzstan and the indexes he calculates as generally retrievable for other places in Western Eurasia. These findings of our paper seem to be in accordance with recent research by Izdebski et al. that presents fossil pollen evidence indicating a less severe grip of the Black Death and subsequent plague waves in East Central Europe.

As another conclusion, this paper has added further evidence to reconstruct the Black Death and the *pestis secunda* (1357/59) in different places. Also the *pestis tertia* appeared in 1365 in Erfurt, Görlitz, and Bohemia, while it remains unclear if the 1368 outbreak in Stralsund should be considered part of it. The *pestis tertia* seems to be the last wave that affected somewhat synchronously our region of interest.

---

highest mortality peak in this period, the ratio of both periods under consideration—pre-Black Death and non-plague years—is considerably more moderate than the numbers proclaimed as generally applicable for first-time plague outbreaks in Slavin, “Death by the Lake,” 65.

100 This means ignoring the documented plague years 1357, 1365, and 1382, leaving us with an average of 1.66 funeral inscriptions a year. The peak of funeral inscription in 1382 is 11, which constitutes the ratio.

101 The overall period covers 1333–1390, while the years 1359, 1365, and 1384 are considered plague years, and 1350 a year of plague-scare. Furthermore, a data gap is to be considered for the years 1362–1364. We therefore have an average of almost 27 testaments a year in Görlitz.

102 We define the years 1354–1357 as pre-plague years for Bohemia, with an average of 39.25 dead clerics a year or between 2.83 and 4.5 clerics a month mentioned in the *LC*. In the first plague year of 1358, this number rose to 129 a year or 10.75 a month, with comparable numbers in 1359 (122 a year / 10.17 a month) and 1360 (127 a year / 10.58 a month).

And finally, we know more about the seasonality of plague outbreaks in East Central Europe—at least in the second half of the fourteenth century. While plague deaths peaked during summer months, i.e., in July and August, in Stralsund and Lübeck, we may assume a similar pattern for Magdeburg and Erfurt (although this is indicated only by the starting dates of the outbreaks in the narrative sources), and a very different result is found for Bohemia, where different mortality peaks are seen in autumn and wintertime. It seems as if summer peaks in plague mortality were a characteristic of the Black Death or if they were explicable by a spread across maritime trade links also for later plague waves. In more continental Central Europe, namely in Bohemia during the *pestis secunda* and *tertia*, mortality peaked later in the year in the cold season; this finding could also hint at the ways in which the plague was travelling once it had established its Central European reservoirs from which it emerged at least twice.

## Acknowledgement

This research was funded by the DFG (Project number 464607492) “Climate, Famine and Plague: A Pilot Study of the Fourteenth-century Mass Graves of Erfurt from an Interdisciplinary Perspective“, the Volkswagen Foundation’s Freigeist Fellowship “The Dantean Anomaly: Phase 2 – Climate, Famine and the Black Death” and the Saxon State Ministry for Science and Cultural Affairs (SMWK), Dresden, within the funding line TG 70, Project “Historische Datensammlungen für nachhaltige Entwicklung: Die Umwelt- und Seuchengeschichte des osteuropäischen Kontaktraums (inklusive Ukraine) seit dem hohen Mittelalter.”

## Manuscript sources

Bayerische Staatsbibliothek (BsB), Munich

Codices latini monacenses - Clm. 26666

Prague Cathedral chapter, Prague

Ms. D. LXXV.

Herzogin Anna Amalia Bibliothek, Klassik-Stiftung Weimar, (HAAB)

Fol max 4.

## Printed Sources

Annalen eines Anonymus / Acta aliquot Francofurtana. In *Quellen zur Frankfurter Geschichte*. Edited by Johann Friedrich Boehmer, 136–48. Frankfurt, 1884.

Annales Matseenses. In *Monumenta Germaniae Historica SS*, vol. 9. Edited by Georg H. Pertz, 823–37. Hannover: Hahn, 1851.

- Annales Variorum. Erfurt von 1365 bis 1525. In *Anzeiger für Kunde des deutschen Mittelalters*, edited by Josef Mone and Auffeß, vol. 3, col. 231. Nürnberg, 1834.
- Annales Vetero-Cellenses. In *Monumenta Germaniae Historica SS*, vol. 16. Edited by Georg H. Pertz, 41–7. Hannover: Hahn, 1859.
- [Beneš Krabice of Weitmil]. *Cronica ecclesie Pragensis*. In *Fontes rerum Bohemicarum*, vol. IV. Edited by Josef Emler, 457–548. Praha: Nákladem Musea Království Českého, 1884.
- Benessius Minorita. *Chronicon*. In: *Monumenta Historica Boemiae*, vol. IV. Edited by P. Gelasius Dobner, 23–78. Praha: Literis Johanna Sophiae Clauserianae, Reg. Typogr. Factore Mathie Glatz, 1779.
- Borový, Clemens, ed. *Libri erectionum archidiocesis Pragensis saeculo XIV–XV*, vol. I (1358–1376), Praha: Ottomar Beyer, 1873.
- “Chronica brevis (Lipsiensem dixeris) de quibusdam novissimis temporibus actis in partibus Missne et Thuringie.” In *Scriptores rerum Germanicarum praecipue Saxonicarum*, vol. 3. Edited by Johann Burkhard Mencke, cols. 55–64. Leipzig: Johann Christian Martin, 1730.
- “Chronicon Bohemiae Lipsiense.” In *Fontes rerum Bohemicarum*, vol. VII. Edited by Josef Emler, 5–8. Prague: Grégr, s.a.
- “Chronicon Bohemicum Pragense.” In *Fontes rerum Bohemicarum*, vol. VII. Edited by Josef Emler, 10–3. Prague: Grégr, s.a.
- “Chronicon Moguntinum.” In *Monumenta Germaniae Historica SS rer. Germ.*, vol. 20. Edited by Karl Hegel. Hannover: Hahn, 1885.
- Codex Diplomaticus Moraviae*, vol. VIII. Edited by Vincenz Brandl. Brno: Verlag des mährischen Landes-Ausschusses, 1874.
- Cronica S. Petri Erfordensis moderna*. In *Monumenta Germaniae Historica SS. rer. Germ.*, vol. 42. Monumenta Erphesfurtensia saec. XII. XIII. XIV. Edited by Oswald Holder-Egger, 150–398. Hannover: Hahn, 1899.
- “Continuatio Claustroneoburgensis quinta.” In *Monumenta Germaniae Historica SS*, vol. 9. Edited by Georg H. Pertz, 735–42. Hanover: Hahn, 1851.
- “Continuatio Zwetlensis quarta.” In *Monumenta Germaniae Historica SS*, vol. 9, edited by Georg H. Pertz, 684–9. Hanover: Hahn, 1851.
- Flodr, Miroslav, ed. *Pamětní kniha města Brna z let 1343–1376 (1379)* [Memorial Book of the City of Brno from 1343–1376 (1379)]. Brno: Maticе Moravská, 2005.
- Fokt, K., Ch. Speer, M. Mikuła, and R. Koszellni, eds. *Liber vetustissimus Gorlicensis. Das älteste Stadtbuch von Görlitz/Najstarza księga miejska zgorzelecka 1305–1416 (1423)*. Görlitz: Verlag Gunter Oettel, 2017 / Krakow: Societas Vistulana, 2022.
- Heinrich von Lammespringe. “Die Magdeburger Schöppenchronik.” In *Die Chroniken der niedersächsischen Städte. Magdeburg*, vol. 1, *Die Chroniken der deutschen Städte vom 14.- bis in’s 16. Jahrhundert*, 7. Edited by Karl Janicke, 1–421. Leipzig: Hirzel, 1869.

- Jecht, Richard, ed. *Die ältesten Görlitzer Ratsrechnungen bis 1419*. Codex Diplomatics Lusatiae superioris 3. Görlitz: Oberlausitzer Gesellschaft der Wissenschaften, 1905–1910.
- Joannis de Czarnkow, “Chronicon Polonorum.” In *Monumenta medii aevi historica res gestas Poloniae illustrantia*, vol. 2. Edited by August Sokolowski, 619–756. Kraków: NAUK w drukarni Czasu, 1876.
- Johannes Rothe. *Thüringische Landeschronik und Eisenacher Chronik*, edited by Sylvia Weigelt. Deutsche Texte des Mittelalters 87. Berlin: Akademie Verlag, 2007.
- “Kalendarium Zwetlense.” In *Monumenta Germaniae Historica SS*, vol. 9. Edited by Georg H. Pertz, 689–98. Hanover: Hahn, 1851.
- “Kronika Bartoška z Drahonice.” In *Fontes rerum Bohemicarum*, vol. V. Edited by Josef Emler, 589–628. Prague: Nákladem nadání Františka Palackého, 1893.
- Libri confirmationum ad beneficia ecclesiastica Pragensem per archidioecesim*, vol. I–X. Edited by Franz Tingl and Josef Emler. Prague: Typis Grégerianis et al., 1867–1889.
- Mecklenburgisches Urkundenbuch 1346–1350*, vol. 10. Edited by Verein für Mecklenburgische Geschichte und Altertumskunde. Schwerin: Stiller, 1877.
- Menčík, Ferdinand, ed. *Několik statutů a nařízení arcibiskupů pražských Arnošta a Jana I. (1355–1377)* [Several Statutes and Decrees of Archbishops of Prague Arnost and John I (1355–1377)], Prague: Edv. Grégra, 1882.
- Perlbach, Max. *Die ältere Chronik von Oliva*. Göttingen: Vandenhoeck & Ruprecht, 1871.
- Pfaltz, Christian Augustin. “Pragerische Pest-Predigt, gehalten in der hohen Dohm-Kirchen s. Viti anno 1681 nach der Pest.” *Folia philologica* 129, no. 1–2 (2006): 161–76.
- “Secundum continuator Pulkavae.” In *Monumenta Historica Boemiae*, vol. IV. Edited by P. Gelasius Dobner, 131–7. Pragae: Literis Johannaе Sophiae Clauserianae, Reg. Typogr. Factore Mathie Glatz 1779.
- Zachová, J. ed. *Chronicon Francisci Pragensi* [Francis of Prague]. *Fontes rerum Bohemicarum*. Series nova 1. Prague: Nadace Patriae, 1998.

## Literature

- Bauch, Martin and Thomas Wozniak, eds. “Erfurt.” *EpiMedDat*, <http://epimeddat.net/index.php?title=Erfurt>; Accessed: 07 February 2024. (Version: 21 March 2024.)
- Bauch, Martin and Thomas Wozniak, eds. “Thuringia.” *EpiMedDat*, <http://epimeddat.net/index.php?title=Thuringia>. Accessed: 07 February 2024. (Version: 21 March 2024.)

- Bauch, Martin and Thomas Wozniak, eds. "Magdeburg." *EpiMedDat*, <http://epimed-dat.net/index.php?title=Magdeburg>. Accessed: 07 February 2024. (Version: 21 March 2024.)
- Bauch, Martin. "Die Magdalenenflut 1342 am Schnittpunkt von Umwelt- und Infrastrukturgeschichte. Ein compound event als Taktgeber für mittelalterliche Infrastrukturentwicklung und Daseinsvorsorge." *NTM. Zeitschrift für Geschichte der Wissenschaften, Technik und Medizin* 27, no. 3 (2019): 273–309. <https://doi.org/10.1007/s00048-019-00221-y>
- Behrends, Rainer. "Versuch zur Datierung und Lokalisierung der Weimarer Handschrift." In *Biblia Pauperum Apocalypsis: Die Weimarer Handschrift*, edited by Rainer Behrends, 52–65. Leipzig: Edit, 1977.
- Benedictow, Ole J. *The Complete History of the Black Death*. Melton: Boydell & Brewer, 2021. <https://doi.org/10.1017/9781787449312>
- Benedictow, Ole J. *What Disease Was Plague? On the Controversy over the Microbiological Identity of Plague Epidemics of the Past*. Leiden–Boston: Brill, 2010. <https://doi.org/10.1163/ej.9789004180024.i-746>
- Bos, Kirsten I., Verena J. Schuenemann, G. Brian Golding, Hernán A. Burbano, Nicholas Waglechner, Brian K. Coombes, Joseph B. McPhee, Sharon N. DeWitte, Matthias Meyer, Sarah Schmedes, James Wood, David J. D. Earn, D. Ann Herring, Peter Bauer, Hendrik N. Poinar, and Johannes Krause. "A Draft Genome of *Yersinia Pestis* from Victims of the Black Death." *Nature* 478, no. 7370 (2011): 506–10. <https://doi.org/10.1038/nature10549>.
- Carpentier, Elisabeth. "Autour de la peste noire: Famines et épidémies dans l'histoire du XIV<sup>e</sup> siècle." *Annales. Économies, Sociétés, Civilizations* 17, no. 6 (1962): 1062–92. <https://doi.org/10.3406/ahess.1962.420916>.
- Cohn, Samuel Kline. *The Black Death Transformed: Disease and Culture in Early Renaissance Europe*. London: Arnold, 2003.
- Cohn, Samuel Kline, Jr. "The Black Death: End of a Paradigm." *The American Historical Review* 107, no. 3 (2002): 703–38. <https://doi.org/10.1086/532493>
- Eifler, Matthias. "Cronica S. Petri Erfordensis moderna." In *The Encyclopedia of the Medieval Chronicle*, edited by Graeme Dunphy, 421–2. Leiden–Boston: Brill, 2010.
- Fichtner, Christoph. "Der »Schwarze Tod« und seine Auswirkungen in Ostmitteleuropa." *Zeitschrift für Siebenbürgische Landeskunde* 1 (2015): 10–30.
- Fouquet, Gerhard. "The Plague in Lübeck and Schleswig-Holstein during the 14<sup>th</sup> and 15<sup>th</sup> Centuries." In *Die Coronavirus-Pandemie und ihre Folgen*, edited by Ulrich Stephani, Konrad Ott, and Claudia Bozzaro, 269–95. Kiel: Universitätsverlag Kiel, 2022. <https://doi.org/10.38072/978-3-928794-82-4/p12>
- Frühmorgen-Voss, H., N. H. Ott, and U. Bodemann. *Katalog der deutschsprachigen Handschriften des Mittelalters*, vol. 2. Munich: Beck, 1996.

- Graus, František. "Autour de la peste noire au XIV<sup>e</sup> siècle en Bohême." *Annales. Économies, Sociétés, Civilizations* 18 (1963): 720–4. <https://doi.org/10.3406/ahess.1963.421041>
- Guzowski, Piotr. "Did the Black Death Reach the Kingdom of Poland in the Mid-Fourteenth Century?" *The Journal of Interdisciplinary History* 53, no. 2 (2022): 193–223. [https://doi.org/10.1162/jinh\\_a\\_01832](https://doi.org/10.1162/jinh_a_01832)
- Hrdina, Jan, and Milena Studníčková, ed. *Frömmigkeit in Schrift und Bild. Illuminierte Sammelindulgenzen im mittelalterlichen Mühlhausen*. Petersberg: Michael Imhof, 2014.
- Izdebski, Adam, P. Guzowski, R. Poniat, L. Masci, J. Palli, C. Vignola, M. Bauch, C. Cocozza, R. Fernandes, F. C. Ljungqvist, T. Newfield, A. Seim, D. Abel-Schaad, F. Alba-Sánchez, L. Björkman, A. Brauer, A. Brown, S. Czerwiński, A. Ejarque, M. Fiłoc, A. Florenzano, E. D. Fredh, R. Fyfe, N. Jasiunas, P. Kołaczek, K. Kouli, R. Kozáková, M. Kupryjanowicz, P. Lagerås, M. Lamentowicz, M. Lindbladh, J. A. López-Sáez, R. Luelmo-Lautenschlaeger, K. Marcisz, F. Mazier, S. Mensing, A. M. Mercuri, K. Milecka, Y. Miras, A. M. Noryśkiewicz, E. Novenko, M. Obremaska, S. Panajiotidis, M. L. Papadopoulou, A. Pędziszewska, S. Pérez-Díaz, G. Piovesan, A. Pluskowski, P. Pokorny, A. Poska, T. Reitalu, M. Rösch, L. Sadori, C. Sá Ferreira, D. Sebag, M. Słowiński, M. Stančíkai, N. Stivrins, I. Tunno, S. Veski, A. Wacnik, and A. Masi. "Palaeoecological Data Indicates Land-Use Changes across Europe Linked to Spatial Heterogeneity in Mortality during the Black Death Pandemic." *Nature ecology & evolution* 6 (2022): 297–306. <https://doi.org/10.1038/s41559-021-01652-4>
- Juste, David. *Catalogus Codicum Astrologorum Latinorum, I: Les manuscrits astrologiques latins conservés à la Bayerische Staatsbibliothek de Munich*. Documents, études et répertoires de l'Institut de Recherche et d'Histoire des Textes 81. Aubervilliers: CNRS Editions, 2011.
- Klíř, Tomáš. *Rolnictvo na pozdně středověkém Chebsku. Sociální mobilita, migrace a procesy pustnutí* [Peasantry in the Late Medieval Cheb Region. Social Mobility, Migration and Processes of Desertification]. Prague: Karolinum Press, 2020.
- Lastufka, Ken. "Bohemia during the Medieval Black Death: A Pocket of Immunity." *East European Quarterly* 14 (1985), 275–80.
- Lorenz, Wilhelm. "Die Erfurter Inschriften bis zum Jahr 1550: 2 Teile." *Mitteilungen des Vereins für Geschichte und Altertumskunde von Erfurt* 36 (1915): 1–180.
- Löther, Andrea. *Prozessionen in spätmittelalterlichen Städten: Politische Partizipation, obrigkeitliche Inszenierung, städtische Einheit*. Cologne–Weimar–Vienna: Böhlau, 1999.
- Marquis, Bettina. "Werner, Thomas." In *The Encyclopedia of the Medieval Chronicle*, edited by Graeme Dunphy, vol. 2, 55. Leiden–Boston: Brill, 2010.
- Maur, Eduard. "Morová epidemie roku 1380 v Čechách" [A Plague Epidemic in Bohemia in the Year 1380]. *Historické demografie* 10 (1986): 37–71.



- Maur, Eduard. "Sterblichkeit in den böhmischen Ländern im 14. Jahrhundert." *Sborník národního muzea v Praze* 43 B, no. 2–4 (1987): 160–3.
- Maur, Eduard. "Příspěvek k demografické problematice předhusitských Čech (1348–1419) [A Contribution to the Demographic Problems of Pre-Hussite Bohemia (1348–1419)]." *Acta Universitatis Carolinae – Philosophica et historica* no. 1 (1989): 7–71.
- Maur, Eduard. "Die demographische Entwicklung Böhmens in vorhussitischer Zeit (1346–1419)." In *Gutherrschaft und „zweite Leibeigenschaft“ in Böhmen. Studien zur Wirtschafts-, Sozial- und Bevölkerungsgeschichte (14.–18. Jahrhundert)*, edited by Eduard Maur, 11–58. Sozial- und wirtschaftshistorische Studien, Institut f. Wirtschafts- und Sozialgeschichte, Universität Wien 26. Munich–Vienna: Oldenbourg–Verl. Für Geschichte und Politik, 2001.
- Mengel, David C. "A Plague on Bohemia? Mapping the Black Death." *Past and Present* 211, no. 1 (2011): 3–34. <https://doi.org/10.1093/pastj/gtq069>
- Mesiarkin, Adam. "Stredovýchodná Európa Na Mape Čiernej Smrti: Krátky Komentár K (Nielen) Najnovším Príspevkom Do Diskusie a Potenciálu Výskumu [Central Eastern Europe on the Black Death Map: a Brief Commentary on (Not Only) Recent Contributions to Discussion and Potential Research]." In *Teoretické Koncepty a Prax Medicíny V Dejinách* [Theoretical Concepts and Practice of Medicine in History], edited by Matej Gogol, 11–39. Bratislava: Universitas Comeniana Bratislavensis Facultas Medica, 2023.
- Mezník, Jaroslav. "Mory v Brně ve 14. století [Plagues in Brno in the Fourteenth Century]." *Mediaevalia Historica Bohemica* 3 (1993): 225–35.
- Musílek, Martin. *Patroni, klienti, příbuzní. Sociální svět Starého Města pražského ve 14. století* [Patrons, Clients, Relatives. The Social World of the Old Town of Prague in the Fourteenth Century]. Prague: Václav Žák – Casablanca, 2015.
- Nodl, Martin. "Impacts of the Plague Epidemic on the Kingdom of Bohemia in the Second Half of the Fourteenth Century and at the Beginning of the Fifteenth Century." *Studia Historica Gedanensia* 12 (2021): 44–62. <https://doi.org/10.4467/23916001HG.21.004.14986>
- Nodl, Martin. "Morová epidemie na Rakovnicku v roce 1380. Modelová studie k životu farního kléru [A Plague Epidemic in Rakovník in 1380. A Model Study on the Life of the Parish Clergy]." In *Facta probant homines. Sborník příspěvků k životnímu jubileu Prof. Dr. Zdeňky Hledíkové* [Facta probant homines. Proceedings of the Life Anniversary of Prof. Dr. Zdeňka Hledíková], edited by Ivan Hlaváček and Jan Hrdina, 301–10. Prague: Scriptorium, 1998.
- Nodl, Martin. "Západočeské Stříbro v roce 1380 (Kvantitativní analýza vlivu moru na demografický vývoj města středověkého města) [West Bohemian Stříbro in 1380 (Quantitative Analysis of the Influence of the Plague on the Demographic Development of the Medieval Town)]." *Minulostí západočeského kraje* 29 (1994): 7–14.



- Parker, Cody, Adam B. Rohrlach, Susanne Friederich, Sarah Nagel, Matthias Meyer, Johannes Krause, Kirsten I. Bos, and Wolfgang Haak. 2020. "A Systematic Investigation of Human DNA Preservation in Medieval Skeletons." *Scientific reports* 10, no. 1: 18225. <https://doi.org/10.1038/s41598-020-75163-w>
- Robinson, David. "The Black Death and Clerical Prospects in England." In *Fourteenth Century England XII*, edited by James Bothwell and J. S. Hamilton, 129–50. Woodbridge: The Boydell Press, 2022. <https://doi.org/10.1515/9781800105904-011>
- Rudat, Klaus-Dietrich. "Die Pest in Erfurt." PhD diss., Faculty of Medicine, University of Jena, 1944.
- Schildhauer, Johannes. "Stralsunder Bürgertestamente vom Anfang des 14. bis zum Ausgang des 16. Jahrhunderts: Listen sämtlicher Testatoren in chronologischer und alphabetischer Reihenfolge." In *Akteure und Gegner der Hanse – Zur Prosopographie der Hansezeit*, edited by Detlef Kattinger and Horst Wernicke, 327–404. *Abhandlungen zur Handels- und Sozialgeschichte* 30. Weimar: Verlag Hermann Böhlaus Nachfolger, 1998. [https://doi.org/10.1007/978-3-476-02966-9\\_26](https://doi.org/10.1007/978-3-476-02966-9_26)
- Schildhauer, Johannes. *Hansestädtischer Alltag: Untersuchungen auf der Grundlage der Stralsunder Bürgertestamente vom Anfang des 14. bis zum Ausgang des 16. Jahrhunderts*. *Abhandlungen zur Handels- und Sozialgeschichte* 28. Weimar: Verlag Hermann Böhlaus Nachfolger, 1992.
- Schmidt, Gerhardt. *Die Armenbibeln des 14. Jahrhunderts*. Veröffentlichungen des Instituts für Österreichische Geschichtsforschung 19. Graz–Cologne: Böhlau, 1959.
- Slavin, Philip. "Death by the Lake: Mortality Crisis in Early Fourteenth-Century Central Asia." *The Journal of Interdisciplinary History* 50, no. 1 (2019): 59–90. [https://doi.org/10.1162/jinh\\_a\\_01376](https://doi.org/10.1162/jinh_a_01376)
- Slavin, Philip. "Out of the West: Formation of a Permanent Plague Reservoir in South-Central Germany (1349–1356) and its Implications." *Past and Present* 252, no. 1 (2021): 3–51. <https://doi.org/10.1093/pastj/gtaa028>
- Slavin, Philip. "From the Tian Shan to Crimea: Dynamics of Plague Spread During the Early Stages of the Black Death, 1338–46." *Journal of the Economic and Social History of the Orient* 66, no. 5–6 (2023): 513–627. <https://doi.org/10.1163/15685209-12341601>
- Slavin, Philip. "A Rise and Fall of a Chaghadaid Community: Demographic Growth and Crisis in 'Late-Medieval' Semirech'ye (Zhetysu), circa 1248–1345." *Journal of the Royal Asiatic Society* 33, no. 2 (2023): 513–44. <https://doi.org/10.1017/S135618632200044X>
- Slavin, Philip. "The Birth of the Black Death: Biology, Climate, Environment, and the Beginnings of the Second Plague Pandemic in Early Fourteenth-Century

- Central Asia.” *Environmental History* 28, no. 2 (2023): 300–34. <https://doi.org/10.1086/723955>
- Spiegler, Hanni. “Die Geschichte der Pest in Erfurt von den Anfängen bis zum Beginn des 17. Jhdts.” PhD Diss., Medizinische Akademie Erfurt, 1962.
- Spyrou, Maria A., Marcel Keller, Rezeda I. Tukhbatova, Christiana L. Scheib, Elizabeth A. Nelson, Aida Andrades Valtueña, and Gunnar U. Neumann. “Phylogeography of the Second Plague Pandemic Revealed through Analysis of Historical *Yersinia Pestis* Genomes.” *Nature Communications* 10, no. 1 (2019): 4470. <https://doi.org/10.1038/s41467-019-12154-0>
- Spyrou, Maria A., Lyzzat Musralina, Guido A. Gneccchi Ruscone, Arthur Kocher, Pier-Giorgio Borbone, Valeri I. Khartanovich, and Alexandra Buzhilova 2022. “The Source of the Black Death in Fourteenth-Century Central Eurasia.” *Nature* 606, no. 7915 (2022): 718–24. <https://doi.org/10.1038/s41586-022-04800-3>
- Toubert, Pierre. “La Peste Noire dans les Abruzzes (1348–1350).” *Le Moyen Age* 120, no. 1 (2014): 11–26. <https://doi.org/10.3917/rma.201.0011>
- Trojan, David. “Kouřimský děkanat. Jeho struktura a topografie farního kleru v době předhusitské [The Deanery of Kouřim. The Structure and Topography of the Parish Clergy in the Pre-Hussite Period].” *Sborník archivních prací* 72 (2022): 7–202.
- Uhl, Matthias. *Der Schwarze Tod: Die Pest in Mitteldeutschland 1349–1683*. Erfurt: Landeszentrale für Politische Bildung, 2020.

