



BIROn - Birkbeck Institutional Research Online

Henderson, John (2020) "The Invisible Enemy": fighting the Plague in Early Modern Italy. *Centaurus* 62 (2), pp. 263-274. ISSN 0008-8994.

Downloaded from: <https://eprints.bbk.ac.uk/id/eprint/32649/>

Usage Guidelines:

Please refer to usage guidelines at <https://eprints.bbk.ac.uk/policies.html>
contact lib-eprints@bbk.ac.uk.

or alternatively

PRE-PUBLICATION VERSION

“The Invisible Enemy”: Fighting the Plague in Early Modern Italy’, Spotlight issue of *Centaurus: Histories of epidemics in the time of COVID-19*, eds., Erica Charters and Koen Vermeir. (summer 2020).

John Henderson, Birkbeck, University of London

“The Invisible Enemy”: Fighting the Plague in Early Modern Italy’

[Insert Fig. 1]

Introduction

Many are familiar with the image of the plague doctor, popularised by the Venetian carnival (Figure 1). His personal protection equipment includes his famous beak containing herbs and spices to filter and purify the air, a glass lens covers his eyes and a leather mask protects his face, all designed to prevent the inhalation or absorption of the corrupt vapours of plague.

Then, as now, society was fighting what has been characterised as an ‘invisible enemy’, though it is important to underline the period discussed here is well before the pre-laboratory era, and Alexandre Yersin’s discovery of the bacteria causing bubonic plague.¹ At the time pestilence and plague were seen in terms of infected air, rather than rats and fleas. Corrupt air, the cause and vehicle for the transmission of plague, was seen as constituting a poisonous substance generated by putrefaction of matter from bogs to insanitary conditions in cities.² Thus when individuals inhaled ‘mal aria’, it corrupted their bodily humours and plague was created within their systems, and then was spread to others through exhalation.

This was a logical set of beliefs, which underlay not just medical theory, but also served to justify government policy against plague in renaissance and early modern Europe. It forms the background to this article, which examines the strategies to cope with plague in early modern Italy, hailed at the time and by historians as the country which provided the model for developing public health policies for other parts of Europe and later centuries. George Rosen, for example, in his classic study of the history of public health published in 1958 made an explicit connection between the achievements of the Italian Renaissance and developments in public health: ‘the Renaissance is significant ... because it is the dawn of a new period of history, the modern period, within which public health, as we know it, developed’.³ These main strategies included cordons sanitaire, public health boards and substantial isolation hospitals known as Lazaretti. However, it is worth asking how far this heroic vision can be applied across a country, which was far from being a united kingdom, but rather a series of larger and smaller states. Each had different systems of government, which arguably might interpret and implement differently what contemporaries believed were the best measures to deal with plague.⁴ Furthermore, how far were plague regulations actually enforced, given evidence of contemporary resistance? This also raises wider questions about whether it was human intervention or non-human factors, such as environment and climate, which determined the impact of plague in a particular area, a problem which has also been raised in relation to the third plague pandemic in the late nineteenth and early twentieth centuries.⁵ This article does not pretend to answer these questions, but rather, by juxtaposing the recent and less recent historiography on mortality with that on public health in early modern Italy, seeks to raise questions about which plague measures contemporaries believed were efficacious, and how far evidence from more recent historical studies helps to justify those beliefs.

Early modern Italy provides a remarkably well-documented case study to examine public health strategies to deal with plague to combat what has been described as the most serious series of epidemics in northern Italy and southern France since the Black Death.⁶ Mortality rates ranged from 300 to 400 per thousand.⁷ There were two main waves of plague, the first between 1629 and 1631 hit the north and centre and led to frighteningly high numbers of deaths: Milan lost 46% of its 130,000 citizens, Venice 45,000 of 170,000, but even more dramatic were Parma and Verona, which lost 61% of their respective populations of 30,000 and 54,000.⁸ As the epidemic travelled further south, it appears to have become less severe in many places, with Bologna suffering a 25% mortality of 62,000 and Florence 12% of 75,000.⁹ The second wave of plague mainly affected Rome and southern Italy, with wide variations in its impact: Rome lost 8% of its 123,000 inhabitants, while Naples lost half its population of 400,000. The epidemic was then carried north by sea to have a tragic impact on Genoa, leading to the death of 60% of the city's inhabitants, although the disease did not travel beyond Liguria.¹⁰ We will return to these differences and anomalies below.

Just as Rosen made the association between the Italian Renaissance and public health policies, so did contemporaries in other parts of Europe. Admiration for Italian plague measures was part of a much wider intellectual movement through the influence of Renaissance Humanism on writers and doctors, and there was a long tradition of physicians taking degrees at the famous medical faculties of Italian Universities. This also led to interest in Italian health models. For example, sixteenth-century England, which was slow in developing comprehensive plague policies, sought information and advice from abroad about useful measures to adopt.¹¹ For example, in 1570 the Privy Council, the main advisors to the Queen, was sent a short treatise providing advice on how to cope with plague, written in the hand of the Florentine Guido Cavalcanti: 'How it is believed that the City of London can make arrangements for the plague and many other types of calamity which afflict its poverty'.¹² The emphasis on the poor speaks to the increasingly close association in medical and government thinking between poverty and plague. This created challenges for states in dealing with, on the one hand, the insanitary living conditions of the poorer areas of cities, which were seen as generating and exacerbating disease, and, on the other, the necessity to feed those at the lower levels of society, who were worst affected by the epidemic.¹³

The mantra of public health pronouncements today, 'containment, mitigation and quarantine', underlay plague measures throughout Europe, but different strategies were adopted to achieve these aims. While ideas of restricting travel, cleansing streets and infected houses, quarantining the sick and burial of the dead, were widely shared, the extent to which quarantine measures were enforced varied considerably.¹⁴ Intellectual admiration among the elite for foreign models did not always lead to their implementation on the ground, as was the case in England, which failed to adopt the two most significant features of Italian plague measures mentioned by Cavalcanti. The first was the election of a 'Supreme Magistracy' to coordinate policies as the epidemic developed. From the later fifteenth century onwards many Italian cities had elected a small group of leading citizens, advised by doctors, who were granted considerable power both to devise strategies and to enforce them.¹⁵ The second was the construction of a substantial new plague hospital, 'because good orders will never be enacted without having a place where to send the infected'.¹⁶ It is, however, a mistake to treat the whole of Italy as conforming to the same pattern in the development of public health measures. The models of cities, such as Milan, Venice and Genoa, with their permanent health boards and Lazaretti, have tended to dominate the historiography. Other cities often adopted more ad hoc measures or established them much later. Many created temporary Lazaretti in reaction to a particular plague epidemic, and some only gradually established permanent health boards in the later sixteenth century, as in the case of Turin in 1576.¹⁷

Containment

Whichever administrative body or bodies took charge of the campaign against plague, an important aim of the 'containment' policy was to prevent the epidemic arriving by banning trade with infected regions and the establishment of cordons sanitaire. This may help to explain why as plague spread from northern to central Italy over 1630, mortality diminished, with Florence half the level of Bologna. The placing of mounted guards along frontiers may have prevented infected people entering their territories, even though these barriers were in practice more porous than the authorities might have wished.¹⁸

It remains difficult, however, to know how much to attribute varying mortality rates to human agency or regional physical geography. A cordon may have been particularly effective when placed along mountain ranges, such as the Apennines dividing Reggio Emilia from Tuscany, or in the hilly areas in the western part of Piedmont in northern Italy.¹⁹ What is most striking and remains an epidemiological puzzle is the general geographical pattern of plague in seventeenth-century Italy: only the north and centre were affected in 1629-31, while in 1656-7 it principally impacted Rome and southern Italy, and then Genoa.

Even contiguous urban areas suffered from very different mortality experiences, as in the case of two northern Tuscan towns a mere twenty miles apart, Prato and Pistoia, with the former losing 25% of its 6,000 inhabitants and the latter only 1.5% of 8,000.²⁰ Tuscan anomalies do not stop there, for the region south of Siena was almost completely spared in 1630-1.²¹ It could be argued, this was because southern Tuscany was predominantly rural with few large urban settlements. However, rural areas in Tuscany could be as badly affected as urban centres,²² as confirmed by Guido Alfani more broadly in his study of plague mortality in seventeenth - century Italy.

Once plague had entered a city, Italian states employed various levels of containment. These included shutting up people in their houses, closing off streets and sections of the city, and placing the resident population under lockdown. In the case of Rome in 1656-7, it has been argued that the efficiency of the health board measures did restrict the spread of plague.²³ The Health Board traced the first cases in June 1656 to the popular area of Trastevere and made a drastic decision to build a wall around part an area, Montefiore, where mortality was at its worst, followed by the isolation of the Jewish Ghetto.²⁴ Figure 2 shows two scenes during the plague in Rome in 1656 as depicted by a contemporary Louis Rouhier. In the top register we see a street under lockdown, with the only movement represented by the transport of a body for burial and a carriage containing infected clothes to be fumigated outside the city, while around the corner is the barred entrance to the Ghetto.

[Insert Fig. 2]

In contrast, Florence, which also suffered a relatively low mortality rate in 1630-1 (12%), adopted a different strategy, to quarantine the whole resident population for forty days. Before this was implemented on 20 January 1631, there had been considerable debate about whether this was a wise policy, given that the previous September the Bolognese authorities had concluded that those Italian cities which had adopted a general quarantine had suffered as a result.²⁵ A Florentine writer recorded that, on the one hand, 'some condemned it as noxious, because locking up a large number of people in small houses full of foul air for such a long period, they could easily become infected'.²⁶ The pro-quarantine lobby, on the other hand, argued that 'because experience has shown that the contagion is spread by people mixing together, by removing the immediate cause one cuts out the root of the sickness'.²⁷ This argument proved persuasive and when the general quarantine was adopted, it was noted that it did have the effect of restricting the movement of the population; only one male adult per household was allowed to leave the house once a day to obtain food. For the government, this

was a considerable financial investment, for food and wine was provided free to over 34,000 people for forty days.²⁸ Ostensibly, this measure seems to have had the desired effect, since deaths in the city began to fall. However, mortality had already begun to decrease before the quarantine was imposed, so the lock down may have served to accentuate an existing trend: 1849 burials in December, to 694 in January, to 496 in February.²⁹

Mitigation

If the geographical pattern of the spread of plague in the seventeenth century suggests that in some cases cordons sanitaire may have worked, especially when authorities took advantage of the natural topographical features of a region, was this also true of the other elements of ‘mitigation’ and ‘quarantine’? As the 1570 recommendations to the English Privy Council suggest, the main aim was to prevent the spread of plague. As today, governments conducted a campaign to trace Patient Zero, and, once he or she was discovered, to track their contacts, whom they placed in quarantine until they recovered or died. In Florence in August 1630 the finger of blame was pointed at a chicken-dealer, who had had the misfortune to travel towards Bologna to sell his fowl at the beginning of the epidemic. After being refused entry to Florence, he died in Trespiano, a small village five miles to the north. Shortly afterwards a dealer in cloth, who was passing through, became infected and his symptoms developed on return to his home in the city centre.³⁰

This story can be repeated over and over again for different parts of Italy and often the beginning of epidemics was blamed on certain sectors of society, such as foreigners and beggars.³¹ Then, as plague spread, a complex system of contact-tracing and reporting was put into effect, both officially, by local police and public health employees, and unofficially, through informal neighbourhood health watches, who were encouraged by financial inducements to report people who broke the decrees of health boards.³²

Regulations which were put into force included restricting the movement of the population within the city through setting curfews, closing schools, banning mass gatherings, and gradually increasing restrictions on food markets as the plague got worse. Many shops and taverns were closed and many occupations were stopped, particularly those associated with the sale of second-hand clothes, which were seen as harbouring the corrupt vapours of disease. As has been well documented, this led to a considerable number of people breaking the decrees of health boards, leaving one to ask how far government measures were enforced.³³ Given that those cases which came to trial probably only represented a small proportion of actual events, one is led to ask how far government measures were enforced.

Another area that plague could be potentially spread was through public involvement in religious activities. Contemporaries faced a fundamental problem, for if all public religious activity was banned to prevent the spread of plague, it was feared that God would prolong the epidemic to punish citizens for their negligence. While churches were gradually closed as mortality increased, the clergy in some cities, insisted on continuing processions on public religious festivals, as in Milan and Venice during the 1575-77 epidemic and in Naples in 1656. In other cities, such as Florence, processions were re-introduced as the situation improved, to express gratitude for the intervention of the Virgin Mary and patron saints.³⁴

Health authorities across Europe employed a large staff to cope with the impact of plague. These included male doctors and female ‘searchers’ of the dead’ to identify the disease, and medical staff to treat the sick.³⁵ Others were employed to carry the sick to quarantine centres and the dead to be buried, functions undertaken in many Italian cities by members of voluntary fraternities. In Venice this task was undertaken by members of the Scuole Grandi, made famous by their substantial halls and churches decorated by celebrated painters such as Jacopo Tintoretto, and in Florence by the Archconfraternity of the Misericordia, which still runs the city’s ambulance service.³⁶

These initiatives represented very substantial investments on the part of Italian governments in terms of finance and personnel, justified by contemporary belief in their efficacy based on their understanding of the cause of the epidemic. The aim in disinfecting the houses and clothes of the sick and dead was to eliminate the fomites of plague, which were seen as sticking to material and objects. Fumigation of the possessions of a plague victim can be seen in the lower register of Louis Rouhier's etching reproduced in Figure 2. Health Board employees vigorously throw out a range of household objects from the window of an infected house for their companions to fumigate or burn, since this was seen as one of the best ways to remove a major source and transmitter of infection. Not all people were treated alike, however, as can be seen in the bottom register of Figure 3, where a priest is shown leaving his locked-up house, while a note is made of his possessions to be taken away for fumigation. But it was not just infected objects which were removed from houses in Italy, but sick individuals were taken off to be quarantined.

Quarantine

Like the large isolation centres in the United Kingdom today, called 'Nightingale Hospitals', Lazaretti in Italy formed an essential element of 'quarantine', the major third strand of plague policies. In many cities they were stretched to almost breaking-point during the seventeenth-century plague outbreaks. The Milanese Lazaretto, for example, was an enormous open-air structure measuring 378 x 370 square metres, and accommodated 16,000 people in 1630.³⁷ This rectangular shape was surrounded by a series of small rooms along the perimeter to house plague victims, although during the terrible epidemic of 1630, this area was filled with numerous rows of huts to house the sick, made famous in the fictional account by Alessandro Manzoni in his novel *The Betrothed*.³⁸ Venice, on the other hand, established two permanent Lazaretti on islands in the Lagoon. The first, the Vecchio, was for plague victims, while the second, the Nuovo, was designed to quarantine for forty days their contacts and those who had recovered. The Venetian notary Rocco Vecchio recorded that during the 1576-7 epidemic there were 7-8,000 people on the Vecchio, and at the Nuovo another 10,000, both on the island itself and in an 'armada' of boats moored offshore.³⁹

[Insert Fig. 3]

[Insert Fig. 4]

These north Italian models of Lazaretti proved influential across Italy, as echoed at the time in the treatise by Giovan Filippo Ingrassia, the Protophysician of Palermo in discussing isolation facilities in his city.⁴⁰ However, not all states constructed a Lazaretto ex-novo; many adapted existing and secular and ecclesiastical buildings for the duration of the epidemic. Rome, for example, took over the Island of San Bartolommeo in the middle of the River Tiber in 1656, as seen in the top register of Rouhier's etching in Figure 3, which shows the entrance to the Lazaretto and series of fences to regulate the flow of people, emphasizing the porous nature of these institutions.⁴¹ Florence instead converted the large Benedictine monastery and church of San Miniato al Monte on a hill overlooking the city from the south (Figure 4). Here and in other quarantine centres in the surrounding area over 10,300 people were admitted over the course of the epidemic of 1630-31.⁴²

Every effort was made by the medical, nursing and support staff to treat and feed the substantial number of patients in these quarantine centres.⁴³ Contemporary descriptions of Lazaretti at the height of an epidemic usually underlined the frightening conditions of crowded insanitary wards, populated by the cries of the sick and dying, as reflected in the account by Benedetti writing of the 1575-7 plague: 'the Lazaretto Vecchio seemed like Hell

itself. From every side there came foul odours, indeed a stench that none could endure; groans and sighs were heard without ceasing ... Nobody did anything but lift the dead from the beds and throw them into the pits'.⁴⁴

These conditions were reflected in the mortality rates of Lazaretti. In Florence, for example, 60% of patients died in December 1630, a figure which was in line with other Tuscan Lazaretti at the time, even if the average was somewhat lower over the whole year (55%). These mortality rates may seem high, but there was considerable variation between across Italy. During the very severe epidemic of 1575-7, mortality in Venice's Lazaretti was 77%, and in Rome 64% in 1656-7.⁴⁵

Contemporaries and historians have asked how productive was the system for removing the sick to Lazaretti in reducing the epidemic. One way of measuring this is by comparing the ratio of the numbers who entered and then died within Lazaretti with those who died in the city and were then buried in communal plague pits or Campisanti. The more deaths there were within these quarantine hospitals was seen as reflecting the ability of health boards to identify and to remove the really sick from the community. In Florence as mortality began to climb in September 1630, a month after the beginning of the epidemic, 43% of total plague deaths died at the Lazaretti, and October this proportion rose to 71%, suggesting that the system was working. A similar figure was recorded for nearby Prato in 1630-1 and in Rome in 1656-7.⁴⁶ However, in other cities the rates could be much lower and bore little relationship to the size of the population. In 1630 in Padua and Bologna, deaths in the Lazaretti ranged from 24% to 30% of the city's burials, as in the much smaller centre of Carmagnola on the plain of the River Po, with a population of 7610, but in Venice the figure was as low as 15%.⁴⁷

Another central factor to take into consideration in assessing the role of Lazaretti was their mortality rates. Scattered remarks suggest that the population at large saw entry into a Lazaretto as a virtual death sentence; one contemporary recorded they were 'more feared than death itself'.⁴⁸ The statistics generated by these institutions suggest that popular views were justified. In Florence the combined mortality of all admissions to the four main Lazaretti during the 1630-31 epidemic was 54.5%, which more or less coincided with levels in nearby Prato and Pistoia.⁴⁹ However, these figures seem on the low side compared with some other case studies of Italian plague mortality: 77% in the Venetian Lazaretti in 1575-77 and 63.7% in Rome in 1656-57.⁵⁰

Many questions remain concerning the impact and effectiveness of all these measures, which can only be answered by further local studies where data survives. Thus what was the relative survival risk for an individual taken to a Lazaretto compared with remaining in the community? was there any direct correlation between the proportion of people who were taken and died at Lazaretti and the success of plague measures adopted by different cities? Contemporaries asked themselves similar questions, as reflected in the comment of the director of the largest Genoese Lazaretto, Father Antero Maria di San Bonaventura: 'If no measures had been taken to rid the city of the epidemic, would Genoa have suffered greater losses?'.⁵¹ The reasons why there might have been differences between mortality rates in different cities at different times have yet to be examined in depth. In addition to public health measures, there were wider factors affecting the impact of plague, such as the virulence of the disease as it travelled further away from the initial point of infection, the seasonality of the epidemic in different regions and their diverse geographies.

Even when these measures did have a positive result, why did some Italian cities, such as Venice, Milan and Verona in 1629-31, and Naples and Genoa in 1656-57, suffer such high levels of mortality, when each adopted pretty much the same public health strategies? One can understand why ports like Venice and Genoa as centres of international commerce should have been so vulnerable to infection.⁵² Recently it has been claimed that the efficacy of the

health regulations enabled Ferrara to escape plague in 1630-31, but this does not explain the misfortune of other inland cities in northern Italy, like Verona and Padua and Parma, who adopted similar measures and experienced mortality rates of over 50%.⁵³ To answer this properly one would need a detailed comparison between the experience of different Italian cities. This would need to combine the study of government measures with in-depth demographic analysis of surviving data relating to the morbidity and mortality rates of individual areas, linked to a reconstruction of the street-by-street spread of plague in relation to the quality and density of housing. This is an area of study which has a long tradition in Britain, with the classic studies of Roger Schofield for the Devon village of Colyton and Paul Slack's analysis of the spread of plague in Bristol.⁵⁴ Over the years a series of studies have appeared of the relationship between mortality and the socio-economic and topographical characteristics of early modern London during plague epidemics at the level of both parish and street.⁵⁵ These themes deserve to be better explored if we are to understand the differential impact of plague on different regions in early modern Italy and how public health measures may have affected levels of mortality. They would build on the existing local studies of the geographical and topographical impact of plague, including those on renaissance and early modern Florence, the Ghetto in Rome, and most recently those on Nonantola in northern Italy.⁵⁶

Conclusion

This short article has raised more questions than answers in the hope that it will stimulate further research into the question of the effect and effectiveness of public health measures in early modern Europe, from the level of the nation, state, and city down to the neighbourhood and street. The main elements of 'containment, mitigation and quarantine' have, as we have seen, a venerable tradition. Just as today, contemporaries at the time debated the utility and effectiveness of the various elements of their campaign to fight the 'invisible enemy'. Cordons sanitaire, contact tracing and the disinfection of clothes and domestic possessions did evidently have some of the desired effects. Belief in the spread of the disease through the air from person to person and through their infected goods underlay their policy in identifying the source and led to policies of containment. One of the most dramatic was the quarantining of whole quarters, as in Rome, a measure to which contemporaries and historians attribute the prevention of further spread. Where practised, the lockdown of whole cities was believed at the time to have been efficacious. However, in common with the other measures, success depended on their rigorous enforcement, and there is plenty of evidence from records of prosecutions during plague to suggest that people did flout the health boards' decrees. Perhaps most difficult to assess was the contribution of the enormous Lazaretti established in many Italian cities. Contemporaries watched carefully the numbers of those entering and dying to determine the success of the overall campaign, but we must also ask whether or not herding large numbers of sick people into crowded buildings was ultimately more effective in reducing mortality in the overall population than the policy of house quarantine adopted in some other parts of Europe such as England.

References

- Abrate (1972). M., *Popolazione e peste del 1630 a Carmagnola*. Turin, Italy: Centro di Studi Piemontesi.
- Alfani, G. (2010). The effects of Plague on the distribution of property: Ivrea, northern Italy (1630). *Population Studies*, 64, pp. 1-15.

- Alfani, G. (2013). Plague in Seventeenth-century Europe and the Decline of Italy: An Epidemiological Hypothesis. *European Review of Economic History*, 17, pp. 408–30.
- Alfani, G., & M. Bonetti (2018). A Survival Analysis of the Last Great European Plagues: The Case of Nonantola (Northern Italy) in 1630. *Population Studies*, 72, pp. 14–15.
- Alfani, G., & S.K. Cohn Jr. (2007). Nonantola 1630. Anatomia di una pestilenza e meccanismi del contagio. Con riflessioni a partire dalle epidemie milanesi della prima età moderna. *Popolazione e Storia*, 2, pp. 99–138.
- Appleby, A.B. (1980). The disappearance of plague: a continuing puzzle. *Economic History Review*, 33, pp.161–73.
- Asseretto, G. (2011). *Per la comune salvezza dal morbo contagioso. I controlli di sanità nella Repubblica di Genova*. Genoa, Italy: Città di Silenzio.
- Basing, P. & Rhodes, D.E. (1997). English plague regulations and Italian models: Printed and manuscript items in the Yelverton Collection. *British Library Journal*, 23, pp. 60-7.
- Brighetti, A. (1968). *Bologna e la peste del 1630*. Bologna, Italy: Gaggi Editore.
- Brockliss, L. & C. Jones (1997), *The Medical World of Early Modern France*. Oxford, England: Oxford University Press.
- Carmichael, A.G. (1986). *Plague and the Poor in Renaissance Florence*. Cambridge, England: Cambridge University Press.
- Carmichael, A.G. (2014). Plague Persistence in Western Europe: A Hypothesis. *The Medieval Globe*, 1.1, Article 8.
- G. Calvi (1994) *G. Histories of a Plague Year: The Social and the Imaginary in Baroque Florence*. Berkeley, California, USA: California University Press.
- Cavallo, S. (1995), *Charity and Power in Early Modern Italy: Benefactors and their Motives in Turin, 1541–1789*, Cambridge, England: Cambridge University Press.
- Chambers, D., & B. Pullan (Eds.), (1992). *Venice: A Documentary History, 1450–1630*. Oxford, England: Blackwells.
- Champion, J.A.I (1995). *London's Dreaded Visitation: The Social Geography of the Great Plague in 1665*, Historical Geography Research Series, no. 31. London, England: Centre for Metropolitan History.
- Cipolla, C.M. (1973). *Cristofano and the Plague. A study in the history of public health in the age of Galileo*. London, England: Collins.
- Cipolla, C.M. (1981). *Fighting the Plague in Seventeenth-Century Italy*. Madison, Wisconsin, USA: University of Wisconsin Press.
- Cipolla, C.M. (1976). *Public Health and the Medical Profession in the Renaissance*. Cambridge, England: Cambridge University Press.
- Cliff, A.D., M.R. Smallman-Raynon & P.M. Stevens (2009). Controlling the geographical spread of infectious disease: Plague in Italy, 1347–1851. *Acta med-hist Adriat*, 7–1, pp. 197–236.
- Clifton, J. (2009). Art and Plague at Naples. In G.A. Bailey, P.M. Jones, F. Mormando, T.W. Worcester (Eds.), *Hope and Healing. Painting in Italy in a Time of Plague, 1500-1800*, pp. 97 -117. Chicago, USA: Chicago University Press.
- Cohn S.K. Jr (2010). *Cultures of Plague. Medical Thinking at the End of the Renaissance*. Oxford, England: Oxford University Press.
- Cohn, S.K. Jr (2018). *Epidemics: Hate and Compassion from the Plague of Athens to AIDS*. Oxford, England: Oxford University Press.
- Cummins, Neil, Cormac Ó Gráda & Morgan Kelly (1980). Living Standards and Plague in London, 1560-1665. *Economic History Review* 69(1), pp. 3-34.

- Echenberg, M. (2007). *Plague Ports. The Global Urban Impact of Bubonic Plague, 1894-1901*. New York, USA: New York University Press.
- Eckert, E.A. (1996). *The structure of pestilences in early modern Europe. Central Europe, 1560-1640*. Basel, Switzerland: Karger.
- Del Panta, L. (1980). *Le epidemie nella storia demografica italiana (secoli XIV-XIX)*. Turin, Italy: Loescher Editore.
- I. Fosi (Ed.), (2006). *La Peste a Roma (1656–1657)*. In *Roma Moderna e contemporanea*, 14.
- Ficino, M. (1983 ed.). *Consiglio contro la pestilenza*. E. Musacchio (Ed.). Bologna, Italy: Cappelli Editore.
- Fusco, I. (2009). La peste del 1656–58 nel Regno di Napoli: diffusione e mortalità. *Popolazione e Storia*, 10.1, pp. 115–38.
- Fusco, I. (2007). *Peste, demografia e fiscalità nel regno di Napoli del XVII secolo*. Milan, Italy: Franco Angeli.
- Geltner, G. (2019). *Roads to Health. Infrastructure and Urban Wellbeing in Later Medieval Italy*. Philadelphia, USA: Philadelphia University Press.
- Henderson, J. (2019). *Florence Under Siege. Surviving Plague in an Early Modern City*. New Haven, USA & London, England: Yale University Press.
- Henderson, J. (2006). *The Renaissance Hospital. Healing the Body and Healing the Soul*. New Haven, USA & London, England: Yale University Press.
- Henderson, J. & C. Rose (2016). Plague and the City: Methodological Considerations in Mapping Disease in Early Modern Florence. In N. Terpstra & C. Rose (Eds.), *Mapping Space, Sense, and Movement in Florence. Historical GIS and the Early Modern City*, pp. 125–46. London, England: Routledge.
- Heitman (2020, this issue).
- Jones, P.M. (2005). ‘San Carlo Borromeo and Plague Imagery in Milan and Rome. In G.A. Bailey, P.M. Jones, F. Mormando, T.W. Worcester (Eds.), *Hope and Healing. Painting in Italy in a Time of Plague, 1500-1800*, pp. 65-96. Chicago, USA: Chicago University Press.
- Lynteris, C. (2016). *Ethnographic Plague: Configuring Disease on the Chinese-Russian Frontier*. London, England: Palgrave Macmillan.
- Manzoni, A. (2002 ed.). *I promessi sposi*, S. Nigro (Ed.). Milan, Italy: Mondadori.
- Munkhoff, R. (1999). Searchers of the dead: authority, marginality, and the interpretation of plague in England, 1574-1665. *Gender History*, 11.1, pp. 1-29.
- Newman, K.L. (2012). “Shutt up”: bubonic plague and quarantine in early modern England. *Journal of Social History*, 45.3, pp. 809-34.
- Pastore, A. (1991). *Crimine e giustizia in tempo di peste nell’Europa moderna*. Rome-Bari, Italy: Laterza.
- Pastore, A. (9 April 2020). Storie virali. Pestis, ieri e oggi. Treccani, *Atlante*, Milan, Italy: Treccani.
- Pullan, B. (1992). Plague and Perceptions of the Poor in Early Modern Italy. In T. Ranger and P. Slack (Eds.), *Epidemics and Ideas: Essays on the historical perception of pestilence*, pp. 101–23. Cambridge, England: Cambridge University Press
- Rawcliffe, C. (2013). *Urban Bodies: Communal Health in Late Medieval English Towns and Cities*. Woodbridge, England: Boydell.
- Righi, A. (1633). *Historia contagiosi morbi qui Florentiniam popolatus fuit anno 1630*. Florence, Italy: Francesco Onofrio.
- Rondinelli, F. (1634). *Relazione del contagio stato in Firenze l’anno 1630 e 1633*. Florence, Italy: GiovanBattista Landini.
- Rosen, G. (1958, 2015 ed.). *A History of Public Health*. Baltimore, USA: Johns Hopkins University Press.

Schofield, R.S. (1977). An Anatomy of an Epidemic: Colyton, November 1645 to November 1646. In P. Slack (Ed.), *The Plague Reconsidered: A New Look at its Origins and Effects in 16th- and 17th-century England*, pp. 95–126. Matlock, England: Local Population Studies.

Slack, P. (1985). *The Impact of Plague in Tudor and Stuart England*. London, England: Routledge.

Slack, P. (1977). The Local Incidence of Epidemic Disease: The Case of Bristol, 1540–1650. In P. Slack (Ed.), *The Plague Reconsidered, A new look at its origins and effects in 16th and 17th Century England*, pp. 49–62. Matlock, England: Local Population Studies.

Sonnino, E. (2006). Cronache della peste a Roma. Notizie dal Ghetto e lettere di Girolamo Gastaldi (1656–1657). In I. Fosi (Ed.), *La Peste a Roma (1656–1657). Roma Moderna e contemporanea*, 14, pp. 35–74.

Sonnino, E., & R. Traina (1982). La peste del 1656-57 a Roma: organizzazione sanitaria e mortalità. In SIDES (Ed.), *La demografia storica delle città italiane*, pp. 433–52, Bologna, Italy: Clueb.

Stevens-Crawshaw (2012) *J. Plague Hospitals: Public Health for the City in Early Modern Venice*. Farnham, England: Ashgate.

Twigg, G. (1993). Plague in London: spatial and temporal aspects of mortality. In J. Champion (Ed.), *Epidemic Disease in London*. Centre for Metropolitan History Working Papers Series, 1, pp. 1-17. London, England: Centre for Metropolitan History.

Vicentini, C.B. et alia (2020). Empirical “integrated disease management” in Ferrara during the Italian plague (1629-1631). *Parasitology International*, 75, pp. 1-10

Wear, A. (2000). *Knowledge and Practice in English Medicine, 1550–1680*. Cambridge, England: Cambridge University Press.

¹ Lynteris (2016, ch. 1). See Alessandro Pastore’s recent salutary warning of the dangers of making anachronistic comparisons between contemporary and historic epidemics: Pastore (2020).

² See, for example, Marsilio Ficino’s treatise on plague of c. 1480, well known at the time and frequently cited and reprinted: Ficino, ed. Musaccio (1983 ed.).

³ Rosen (1958, 2015 ed.), pp. 37-8; cf. also Cipolla (1976, pp. 18-19).

⁴ Cipolla (1976, p. 17); Cavallo (1995, pp. 45-6).

⁵ Appleby (1980); Slack (1981); Cavallo (1995, pp. 45-7); Carmichael (2014); Echenberg (2007, pp. 305-06).

⁶ Alfani (2013, 408-430, esp. p. 413).

⁷ Slack (1985, p. 166); Alfani, (2013, p. 413).

⁸ Cipolla (1981, p. 100: table A.1); Alfani (2013).

⁹ Cipolla (1981, p. 100: table A.1).

¹⁰ Sonnino and Traina (1982, p. 442); Fusco (2009, p. 124); cf. also Fusco (2007). In the north only Genoa and the Ligurian coast in 1656-7: see Assereto (2007).

¹¹ Slack (1985, chs. 8 and 9). Cf. a letter about plague measures written during the severe epidemic of 1563 by the Queen’s Italian physician, Dr Cesare Adelmare, to William Cecil, Lord Burleigh. (Basing, Rhodes (1997, p. 61; p. 66 n. 9 citing BL, Lansdowne MS 157, f 344); on Adelmare see *DNB*, under Julius Caesar Adelmare.

¹² Nat Archives SP12/75/52, f. 105v: ‘A provision or advise against ye Plague in London’. Basing, Rhodes (1997), pp. 61-2 have shown that Cavalcanti was the author rather than Cesare Adelmare as often believed.

¹³ Pullan (1992, pp. 101-123); Wear (2000, pp. 281-6).

¹⁴ Eckert (1996, pp. 24-8).

¹⁵ Cf. Cipolla (1975, ch. 1).

¹⁶ Nat Archives SP12/75/52, f. 103r. It has been argued that copies of health board regulations from during the plague in Milan in 1576-had a more powerful influence on the development of London’s plague policies: Basing, Rhodes (1997, pp. 61-3).

¹⁷ Cavallo (1995, p. 46).

¹⁸ See Henderson (2019, pp. 24-30).

¹⁹ Cavallo (1995, p. 46); Alfani (2010, pp. 1-15).

²⁰ Cipolla (1981, p. 100).

²¹ Del Panta (1980, pp. 161, 169, maps these two epidemics). See also A.D. Cliff, et alia (2009, pp. 197-236).

²² Cipolla (1981, pp. 99-103); Alfani (2013).

²³ Fosi (2006, p. 6).

²⁴ Sonnino, Traina (1982, pp. 437-8); Sonnino (2006, pp. 38-9).

²⁵ Brighetti (1968, pp. 238-9); and on the plague in Bologna: Pastore (1991, chs. 4-6).

-
- ²⁶ Rondinelli (1634, pp. 59-61).
- ²⁷ Ibid. Cf. Henderson (2019, p. 133).
- ²⁸ Henderson (2019).
- ²⁹ Henderson (2019, p. 41 fig 2.1).
- ³⁰ Rondinelli (1634, pp. 59-61). Cf. Henderson (2019, ch. 1).
- ³¹ Pullan (1992); Cohn (2010, ch. 7); Henderson (2019, ch. 4); and more generally: Cohn (2018).
- ³² Henderson (2019, ch. 8).
- ³³ Calvi (1989), Pastore (1991); Stevens-Crawshaw (2012), Cohn (2018, ch. 6); Henderson (2017, ch. 8). For England: Slack (1985, ch. 11); Newman (2012).
- ³⁴ For Milan see: Jones (2005, pp. 65-96); Venice: Preto (1978, ch. 3); Florence: Henderson (2019, ch. 6); Naples: Clifton (2005, pp. 98-9).
- ³⁵ On the role of doctors in the identification of disease during plague see the 1541 Plague Orders in Venice: Chambers and Pullan (1992, pp. 115-116); for Florence: Henderson (2019, ch. 4); on searchers of the dead in London: Munkhoff (1999, pp. 1-29), and Heitman (2020, this issue).
- ³⁶ On their role in Florence during the plague in 1630-1 see Henderson (2019, pp. 99-104).
- ³⁷ On the Milanese plague and Lazaretto see: Cohn (2010, ch. 4); and Cohn (2018, ch. 6).
- ³⁸ Manzoni (2002, ed.).
- ³⁹ Chambers and Pullan (1992, p. 118); Stevens-Crawshaw (2012, p. 91).
- ⁴⁰ Cohn (2010, p. 35).
- ⁴¹ Pastore (1991, pp. 187-204); Sonnino (2006, pp. 35-74).
- ⁴² Henderson (2019, p. 208).
- ⁴³ For discussion of the role of staff at Lazaretti during plague epidemics see, for example, on Venice: Preto (1978), pp. 155-9, and Stevens-Crawshaw (2012), ch. 3; Florence: Henderson (2019), ch. 7; Prato: Cipolla (1973), ch. III; Genoa: Asseretto (2011), ch. 2.
- ⁴⁴ Chambers and Pullan (1992, p. 118).
- ⁴⁵ Stevens-Crawshaw (2012), Sonnino-Traina (1982).
- ⁴⁶ Cipolla, Sonnino, Traina, (1982, p. 443).
- ⁴⁷ Brighetti (1968, p. 83); Stevens-Crawshaw (2012); Abrate (1972, pp. 82-3, 87).
- ⁴⁸ Righi (1633, pp. 147-8).
- ⁴⁹ Henderson (2019), pp. 208-09.
- ⁵⁰ Stevens-Crawshaw (2012), pp. 190-1; Sonnino-Traina (1982), pp. 440-1.
- ⁵¹ Cited by Cipolla (1973, p. 120).
- ⁵² Asseretto (2007) on Genoa.
- ⁵³ Vicentini, et alia (2020).
- ⁵⁴ Slack (1997) and Schofield (1997).
- ⁵⁵ Champion (1995), Twigg (1993), Cummings et alia (2016), Newman (2012).
- ⁵⁶ Carmichael (1986), Sonnino, 2007, Alfani and, Cohn, 2007; Alfani, 2011, 2013; Alfani and Bonetti (2013); Henderson and Rose (2016).