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17th Century: Plague Transcript

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Disease and the City: 17th Century - Plague

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DISEASE AND THE CITY

17th Century: Plague

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Plague certainly was the disease of the 17th century, and not only of that century, because it had been the most feared disease since its reappearance in western Europe in the 1340s, which we know as the Black Death. Its pre-eminence among diseases was such that plague or 'the pestilence' came to be used as a general term describing not only contagious epidemic diseases but any affliction or calamity, or a curse upon others: 'A plague on both your houses'. In King James's bible, plague was both a manifestation of God's anger: 'behold, with a great plague will the Lord smite thy people, and thy children, and thy wives, and all thy goods' and a catastrophe that could strike a city: 'The sword is without, and the pestilence and the famine within: he that is in the field shall die with the sword; and he that is in the city, famine and pestilence shall devour him'. It is hardly surprising that it developed this symbolic significance, given the numbers of its victims during the epidemics which erupted periodically throughout the late Middle Ages, initially in both its pneumonic and bubonic forms, but by the 17th century pneumonic plague seems to have disappeared and it was the bubonic form of the disease which was prevalent.

The plague bacillus was not isolated until the 1890s. It evolved from a relatively benign bug that lived in the intestine into one living in the blood and with the ability to transfer from mammals to man. It is spread by the bite of a rat's flea, which is a parasite of the black rat, *rattus rattus*. The flea feeds on the blood of its infected host and the ingested bacilli multiply to such an extent that they block the proventriculus, the organ at the entrance to the flea's stomach. If the flea transfers from its dead host to a human and attempts to feed, the passage of blood into the flea's stomach is obstructed by the blocked proventriculus and so is regurgitated, carrying the plague bacillus into its human host. The rat's flea requires relatively high temperatures and humidity; essentially, the greater the humidity the lower the temperature in which it can survive, but the ideal conditions seem to be 90 to 95 per cent humidity and temperatures of around 15 to 25 degrees centigrade. The microclimates provided by a rat's nest, or woollen-cloth, or stocks of grain, probably would have provided the necessary conditions. The black rat obviously has a greater tolerance than its parasite, but lives close to human habitations, is a climber, and so could get to upper floors and into roofs, and feeds on grain. Control or exterminate the rat and you can limit the spread of bubonic plague.

But of course this was unknown to the 17th century and although the brown rat has since superseded *rattus rattus* this was not a result of human intervention and despite the efforts of modern pest control rats have proved to be very resilient. In my part of west

at least they seem to be positively thriving at the moment. What contemporaries could recognise were the symptoms of the disease, which were particularly foul, and included a high fever, the painful swelling of the lymph nodes, especially in the groin and armpits (these are the black buboes which gives the disease its name), and excruciatingly painful blotches or carbuncles up to an inch across, caused by haemorrhaging beneath the skin. These blotches were often described by contemporaries as tokens, and plague as 'spotted death'. The haemorrhaging affects the nervous system, producing neurological and psychological effects, with the victims often suffering delirium; screaming and running wildly around the streets. These symptoms in themselves and their all-too-visible effects were enough to produce fear bordering on terror, and added to that were the plague's contagiousness, the speed of death, which followed the first appearance of symptoms within 4 to 7 days, and the high fatality rate - Scarrus in Antony and Cleopatra refers to 'the token'd pestilence where death is sure'. In fact this was a, perhaps understandable, exaggeration, because some who contracted the disease did survive, usually after their buboes had burst, which itself was an agonising process. In the cold light of statistics we know that between 20 and 30 per cent of those who fell ill survived, but that would not have been a reassuring figure to contemporaries even if they had known it. The foulness of the disease over-rode everything, producing the chilling comment during the Great Plague of 1665 that 'it is a great mercy now counted to die of another disease'. It was even said that people tried to contract syphilis, which was thought to give immunity, but itself often was fatal and scarcely less unpleasant than plague. It was because of these characteristics that Thomas Dekker gave plague 'a Preheminence above all others. . . none being able to match it for Violence, Strength, Incertainty, Suttlety, Catching, Universality, and Desolation. It is called the Sicknesse, as if it were the onely Sicknesse, or the Sicknesse of Sicknesse, as it is indeede'.

Although seen as a constant danger it erupted with particular ferocity in just a few years. In 17th-century London these were

1603, 1625, 1636 and 1665, with at least 30,000 dead of the plague in 1603, 35,000 in 1625, 10,000 in 1636 and 68,000 in 1665 - this in a city with a population of perhaps 140,000 in 1600 and almost half a million by the 1660s. The numbers of deaths were five times the average during those years and total mortality in an epidemic year reached almost 20 per cent, which seems almost unimaginable by modern standards. It is as if well over a million Londoners died during one year; in fact during little more than half a year, for plague was a disease of the summer, with July, August and September the peak months for deaths from the disease, while the winter months were almost plague free. There were other bad years and runs of bad years, with the first decade of the century and the years of the Civil War in the 1640s being particularly dangerous, and yet the 1610s and early 1620s, and the 1650s and early 1660s saw very few deaths from plague. In 1624 there were just 11 plague deaths, but in the next year there was a major epidemic with such high mortality that it was known as the Great Plague, or the last Great Plague, until it was surpassed in ferocity by the outbreak of 1665, and that had been preceded by just 5 plague burials in 1664. This unpredictability brought a sense of insecurity. No year was a guide to the next one or the one after that, nor was the spring a guide to the summer, so far as the virulence of the disease was concerned. Living in the 17th century was 'living with plague'.

Incidentally, it didn't escape contemporaries that two of the worst epidemics came soon after a change of reign, with that of 1603 following within a few months of James I's accession and that of 1625 his death and the accession of Charles I. These were not laid at James's door, however, but explained as the need for the nation to purge the sins of the previous reign and make a new beginning. This was part of an explanation for the mortality, which saw plague, with famine and war, as one of God's three mortal arrows, which he could unleash to punish sinners or send as warnings to repent. Plague provided a good opportunity to have a swipe at such objectionable establishments as brothels, alehouses and theatres, but there was an element here of kicking those who were already down, because they were just the places closed or given a wide berth during epidemics.

In any case, providentialist interpretations by the clergy and moralists did not lead to passive acceptance by a populace faced with periodic outbreaks of death on such a scale and a whole host of preventive medicines were recommended, and a cure earnestly wished for. When Marlow's Dr Faustus considered how best to use his talents he imagined his prescriptions 'hung up as monuments, whereby whole cities have escaped the plague'. Marlow's point was that this would indeed have been a major contribution to the wellbeing of mankind and given Faustus a kind of immortality, but, as we know, his character took a different option. Sir Epicure Mammon in Jonson's *The Alchemist* claims to have developed a great medicine which can not only reverse the ageing process, but also 'fright the plague out o'the kingdome in three months'. In reality, many suggestions were offered. Much was based on the impression, prevalent from an early stage of the plague, that decaying rubbish infected people and animals and could turn clean and wholesome air into foul and tainted air, providing the ideal environment for the venomous sticky atoms that were thought to carry the disease. And so the challenge was to keep the air sweet, and strong smells could provide immunity, warding off the noxious air. Herbs were popular, with rosemary, rue, lavender, sage, mint and wormwood especially favoured as embrocations and as the fillings for nosegays and pomanders, and the humble nutmeg came to be highly prized for the contents of pomanders, some of which were so fine that they seem to have been fashion accessories. Household holders would place bunches of herbs at their doors and windows to ensure that only fine air wafted into their houses. The smells did not have to be sweet; any strong smell might serve the purpose. Smoking or chewing tobacco was thought to bring immunity. In the 18th century it was said that the cess-pits in London had been opened during the Great Plague in an attempt to ward off the disease. In 1665 Dr Francis Glisson recommended as his 'constant antidote' a piece of dried manure of someone who had died of the disease, kept in a house in a porous box for 'the best antidotal perfume'. Many of the nostrums and antidotes were unconvincing, and this one in particular sounds like the advice of a crank or at least an eccentric, but Glisson was a Cambridge man, who was Regius Professor of Physic for more than 40 years, a Fellow of the College of Physicians and an original fellow of the Royal Society.

If foul air could not be repelled by sweet or sour air, perhaps it could be absorbed. Onions were the unlikely heroes for those recommending this solution. *Present Remedies against the Plague*, published in 1594, claimed that three or four peeled onions left on the ground for 10 days would absorb all the infection in the neighbourhood, and during one of the epidemics in London in the early 17th century, someone apparently had the idea of filling a ship with peeled onions and, when the wind was favourable, floating it down the Thames to the North Sea - the polluted air would be attracted to the onions and carried away, leaving the city clean. If the air could not be cleansed, it could at least be circulated to prevent it stagnating, hence householders lit fires and even discharged firearms in their rooms. During the Great Plague James Angier was paid by the government to burn a mixture of brimstone, saltpetre and amber in some infected houses off High Holborn. It seemed to work. A more common practice was to burn fires in the streets, to circulate the air, and although this was commonly done in London, by 1665 there seems to have been little faith in it as a solution.

By the 17th century governments had evolved a coherent policy to attempt to prevent outbreaks and to deal with the effects of the disease when it erupted. This was codified in the Plague Orders, issued whenever an epidemic began. It was drawn from continental experience and precedents, with the Italian cities prominent in introducing preventive measures based upon cleanliness, by ordering the removal of dung and rubbish from the streets, the killing of stray dogs and cats because they were thought to transmit the disease, and a ban on people meeting in groups.

Quarantine was a major element in the policy, with health certificates required by individuals coming from an area suffering from an outbreak of plague, and ships thought to be a risk detained at isolated quarantine stations and compelled to wait there, usually for forty days, with their cargoes opened to the air. The length of the quarantine period seems to have had a Biblical basis and the same period was also imposed on households in which a plague victim or suspect was confined. This was central to English plague policy once prevention had failed and an epidemic had begun. The alternative was to move suspected victims to pest-houses, effectively isolation hospitals, preferably some way outside the built-up area, but London never had anything like a satisfactory number of beds available in its pest-houses, which were really small compared with those in some continental cities, especially those in Amsterdam, Milan and Genoa. At a time of crisis the authorities in London had little choice but to impose household quarantine, confining the victims in their houses, with everyone else who was there at the time, even if just visiting, and the houses marked with a cross and the inscription 'Lord have mercy upon us'. This not only required strict enforcement to keep those confined within the houses, including armed watchmen to guard them, but much organisation and expenditure in the way of practical support. If a house was to be closed on suspicion of an occupant being infected, it had to be done quickly to be effective, so that those inside would not run away and spread the infection, defeating the purpose of the exercise. If it was done quickly, then there probably would be only a small stock of food in the house, and 40 days was a long time, so the parish officers had to arrange for a steady supply, or of course those inside would break out rather than starve. Normal parish revenues were not adequate and this extraordinary expenditure had to be paid from rates levied especially for the purpose. Needless to say, an epidemic was not a good time to try to collect a rate or any other tax, and charitable donations had to be relied on to a great extent. It is hardly surprising that such quarantine was difficult to enforce and when it came under severe strain it broke down.

It was, in any case, most contentious, confining those who were healthy with those who were sick, and difficult to implement, for who would voluntarily stay in a house with someone who had the symptoms of a disease that was regarded as a sentence of death? And why compel them to stay, for surely closing the house was to risk increasing the death toll, by keeping people together in an environment that could only deteriorate and become more insanitary, especially as it was not only the doors that had to be kept closed, but also the windows facing the street. And the house would have to be opened if there was a death, so that the searchers and bearers could be admitted to check the cause of death and remove the body. When that happened the 'unquenchable stench and fest' that had accumulated would be dispersed. What was the sense of implementing policies that were aimed at cleanliness, so that dangerous miasmatic air would not form, and then creating the very conditions which it was believed would produce such foul air? The sheer inhumanity of the policy was also criticised, with the depression and despair of those confined making them more likely to become victims of the disease.

Not everyone agreed. James Bamford, vicar of St Olave's, Southwark, went so far as to describe this as a 'bloody error', and that those held in isolation should regard it as an opportunity for the exercise of their faith, by patience. Even if the objections to the policy were accepted, the counter-argument was that while those in a quarantined house were put at risk and the death toll increased, this was sacrificing a few to save the many who otherwise would be infected if the occupants were allowed out, and, in the absence of any alternative, household quarantine remained the basis of the government's plague policy during each epidemic.

Its implementation put the parish officers responsible for poor relief under increasing pressure. Was there any sense in struggling with someone suspected of suffering from plague who was escaping from a house? In 1625 two watchmen were put in the stocks for allowing isolated people out of their houses and for wiping a red cross off the door of a quarantined house. Dekker's descriptions of 'merry sextons, hungry coffin-sellers, scrubbing bearers, and nasty grave-makers' and 'the poor man hurried to his grave by nasty and slovenly bearers' seem a bit harsh on the officers, who of course were themselves put at risk in administering a plague-stricken district. In 1665 both of the churchwardens at St Bride's and three churchwardens at St Giles, Cripplegate, died of the disease and the crisis did throw up cases of selfless devotion to duty. John Green, constable of High Holborn, was 'very vigilant and diligent in the performance of his office', making returns to the justices at least twice a week listing the visited houses, the numbers within them, how they were provided for and the cost of maintaining them, and he dipped into his own pocket to the extent that when he died the parish owed him £55.

It is hardly surprising that in such conditions careful, attentive, nursing of the victims was not common. William Bridge, a puritan preacher, wrote: 'If a man be sick of a fever it is some comfort that he can take a bed-staff and knock, and his servant comes up and helps him with a cordial. But if a man be sick of the plague then he sits and lies alone'. One young apprentice found himself in just such a situation. His master left abruptly, the two maids were taken to the pest-house, and he was shut in a large and empty house on his own, with a rap on the door to let him know that food had been left there for him. He passed several days and nights in this 'hideous lonely manner', with suppurating buboes, but he survived.

Such nursing as was provided was carried out by those who had had the disease and were therefore thought to be immune. These courageous people surely deserved great thanks for carrying out such a dangerous and loathsome task. Not a bit of it, in fact they came in for some very fierce criticism, for pilfering and worse. They were 'she wolves', 'the off-scouring of the city', who were 'possessed with rooking avarice' and whose main purpose was to steal from their helpless victims. The nurses even were accused of wilfully spreading the disease, to increase the number of their patients and hence their opportunities to steal, and of administering false medicines to speed their victims on their way. With such a reputation, because of the fear that any disease might turn out to be plague, and because there were not enough nurses when so many were ill, those who had other diseases did not get proper care and, perhaps partly for that reason, mortality generally increased during plague years.

The regulations did not end with death. Interments were to be during the hours of darkness and carried out as quickly as possible, but in the major epidemics the graveyards were quickly filled and new burial grounds had to be bought and consecrated. Pits were used for mass burials, but the summer nights were too short for the collection of bodies and the burials to be completed before dawn, so the process continued during the daytime. Gatherings at funerals were prohibited. This was difficult to enforce and the reluctance of the citizens to stop going to funerals, despite the risks, is a clear example of the tension between an attempt to impose a quite sensible restriction to try to limit the spread of a deadly disease, and the wish to maintain the social norms as far as possible at a time of great collective stress. For the same reason, the church bells continued to be tolled for a burial. And a depressing sound they made: 'the bells call out night and day for more burials, and have them, and are not satisfied. Every street in London is too much frightened with these terrors'. The bells could not be ignored, nor the trundling of the carts as they did their rounds collecting the dead, nor the talk of who was ill and who had died, as the epidemic inevitably came to dominate conversation. But there was a way to avoid all this; leave the city, and those who could leave did so.

How did they know when to go? When did an outbreak of plague reach such proportions that they were prepared to leave house and home, perhaps in the care of a servant, and possibly a prey to burglars, and find a refuge with friends or relatives elsewhere, meeting suspicion and hostility in the process as possible carriers of the dreaded disease? From death certificates statistics could be compiled distinguishing plague deaths from others to provide warning of an outbreak and allow measures to be put in place. This was done in the Italian states during the mid-fifteenth century, the first London Bill of Mortality was compiled in 1519 and in 1555 the parish clerks were instructed to make a return of 'the numbers of all the persons who die and whereof they die'. From the early years of the 17th century until the middle of the 19th the bills were printed, issued each Thursday, eagerly awaited and widely consulted, especially when the number of plague deaths was increasing. William Petty's rule of thumb was that an epidemic had begun when the weekly death toll from plague reached 100, and at that point, if not before, the exodus began.

The court and the apparatus of state had to leave, and keep on the move if plague broke out wherever it had settled. Government had to continue whatever the misery that the capital city was enduring: the chaos that would ensue if the political leadership succumbed would help neither city nor nation. But what of those who could make a difference, practical or palliative: the physicians, apothecaries and parish clergy? Should they stay, aware that there was little or nothing that they could do to stop the epidemic, or save themselves and return to help the re-establishment of normal life when the storm had passed? This created a fundamental moral dilemma, recognised by Alan Mermann in the title of his book on such predicaments: *Some chose to stay, faith and ethics in a time of plague*. Enough physicians and clergy chose not to stay during the major epidemics to provoke ferocious resentment as runaways. The physicians' response was that they had to look after their clients and that as they had left, there was no point in the physicians staying. Both the physicians and the clergy left a void likely to be exploited by others, with the apothecaries continuing to sell their mixtures and becoming consulted by the sick virtually as general practitioners, a process that was already under way but which was accelerated during an outbreak of plague, and, in 1665, the clergy's places taken by those dissenting clergy expelled from their London livings after the Restoration. The Bishop of London, Humphrey Henchman, was very aware of this and tried to stem the tide by warning those clergy who had left that they would be replaced unless they returned. Of course not all left and during the Great Plague a group of physicians stayed and did all they could to help the victims and to establish what they could about the nature of the disease, even performing an autopsy on a plague victim, but the general reaction at times of plague was resentment of those who had left rather than appreciation of

those who stayed.

Needless to say, apart from the courtiers, physicians and clerics, it was the wealthier Londoners not tied to their business or trade who could leave, taking their custom with them. Trade dwindled, both external trade – and London handled up to 80 per cent of imports and exports – and internal trade, especially the supply of cloth to be finished in London, which remained the city's largest industry throughout the century. As early as mid-June 1665, when the number of plague deaths was beginning to rise, John Moore, a merchant who imported and exported on a large scale, wrote that 'if the sicknesse increases we shall have nothing to doe for it will put a stopp to all businesse'. There is no reason to doubt that this was an accurate assessment. Incoming ships were held at the quarantine station, and of course outgoing cargoes would also be held up at their destination for the same process, if they were received at all. The presence of plague and progress of epidemics was one of the constant subjects of correspondence between merchants and their agents in European ports, and governments were sensitive to outbreaks of plague elsewhere, especially as quarantine measures came to be widely adopted during the century. The Bills of Mortality and their equivalents in other cities thus served an international purpose. And so even if London escaped the plague, as it did during the 1650s, when much of Europe was afflicted, but the plague was present in a city which was a major trading partner, such as Amsterdam or Hamburg, then trade was disrupted and goods delayed or commerce more or less ceased until the disease had subsided. There were 23 years of plague in Amsterdam during the century, 6 of them during the 1650s, when an examination of London's own statistics may suggest that it had escaped the effects of the plague.

The absence of imported luxury goods scarcely mattered, for buyers just melted away during an epidemic. Those who remained were reluctant to purchase anything but essentials, unless they knew the supplier and were sure that the goods had been in stock well before the plague struck. It was safer for the goods to be brought to you and left by the shopkeeper than to go in person and risk meeting others, or a shop could be approached cautiously and, if someone else was there, it was better to wait outside, or perhaps go to the back door. Markets were much diminished and were dangerous places. The hazards of shopping may help to account for the relatively high numbers of domestic servants who died during plague epidemics. The deaths of shopkeepers and the alleged reluctance of country people to send produce to the London markets made obtaining everyday items difficult. Two-thirds of the shops in Samuel Pepys's part of London around Seething Lane were closed within two months of the outbreak of the Great Plague. And there were fewer customers, and they were not the most prosperous. In 1625 John Taylor described:

Streets thinly man'd with wretches every day,

Which have no power to flee, or meanes to stay,

In some whole street (perhaps) a shop or twaine

Stands open, for small takings and less gaine

In such circumstances it was difficult to carry on almost any business: 'None thrive but apothecaries, butchers, cooks and coffin-makers'.

The situation was not helped by an aspect of plague policy that merged into social policy. Successive Stuart governments were concerned with the growth of London, both the development of suburbs beyond the administrative control of the corporation, and the numbers coming to the capital outstripping the houses available, with lodgers crowded into buildings that were increasingly subdivided to accommodate them. This was reflected in the plague orders. A proclamation in 1603 specifically attributed the epidemic in that year to the 'pestering of excessive numbers of idle, indigent, dissolute and dangerous persons in small and strait rooms and habitations'. The expulsion of vagrants and those who were classified as inmates – that is, lodgers who were not part of the household – thus became incorporated in the policy against plague, even though there was an awareness of the economic harm that would be caused if casual labour was expelled.

So the impression that could be formed from looking at plague in 17th-century London is of a city absolutely reeling under these periodic shocks, with at least one epidemic in each generation, killing about a fifth of the population, trade coming to a virtual standstill and limping along in other years when there were outbreaks of plague elsewhere, industry blighted by breaks in the supply of raw materials and disruption to markets, plus the loss of both skilled and unskilled labour. And underlying all this was seething social resentment and discontent. Add to that the disruption caused by the Civil War in the 1640s, the three Dutch Wars between 1652 and 1674, and the Great Fire in 1666, the most destructive accidental fire in the history of western Europe, with more than 13,000 houses destroyed. Surely this death, disruption and destruction produced a city in decline, with a falling population: the birth rate insufficient to replace the losses, and migrants reluctant to come to such a dangerous place, the Bills

of Mortality providing the evidence to confirm their fears. The shortage of labour that would be produced would create wage inflation, damaging the city's competitiveness and leading to a spiral of decline.

None of these things happened. Great disasters do not necessarily produce great consequences. London experienced particularly rapid expansion between about 1560 and 1640, that is, during the period when plague was taking a heavy toll, and continued to grow throughout the rest of the 17th century, so that by the end of the century one in ten English people lived in the capital. Using the Bills of Mortality and looking especially at the epidemic of 1625 the pioneer statistician John Graunt concluded that the population recovered its previous level by the second year after a major epidemic, and that also held good for the Great Plague. Despite the numbers killed and the Great Fire in the following year, the population probably was back to its pre-plague level by 1667 and was larger in the late 1660s than it had been in the early years of the decade. The court and the merchants returned and business resumed. And was it so dangerous, was it as contagious as the literary sources suggest? This is difficult to assess. Certainly entire households seem to have died from the disease in some cases, but it seems to have been far more common for there to have been only one or two victims. In a sample of six parishes, in 1665 in almost two-thirds of affected households there was only one death, and in only 5 per cent were there more than three deaths. Mortality was higher in the alleys and courts than in the main streets. But even so, in an alley off Fleet Street in the twelve infected houses there was an average of only three deaths, and not all of the houses were closed. If someone was infected outside the house and had not carried infected fleas on them, they would not have been contagious.

This challenges the notion that the human flea, *Pulex irritans*, could have played a part in the spread of plague, for that surely would have led to a much higher proportion of deaths in a household, as the infected fleas spread from one person to another, all living close together. The suggestion that human agency played a part in the diffusion of the plague stems from the fact that the black rat moved slowly through the urban environment, that as mortality levels among the rat population rose during an epidemic, so the number of living rats available to the rat's fleas fell, limiting the speed and the geographical spread of the disease. This does argue for some human role in its diffusion, but perhaps this was not through *Pulex irritans*, but by the movement of people and goods around the city, unwittingly carrying either rats with infected fleas, or the fleas themselves, lodged in clothing, grain or cloth. After all, although economic activity fell sharply during an epidemic, it had to continue to a significant extent to supply the needs of those who remained in the city. And our evidence is imperfect. The Bills of Mortality record the place of death, not that where the victim contracted the disease. Someone infected with plague in one parish who died elsewhere, probably in their own parish, would be registered where they died, and so the pattern produced by the Bills is that of death, not infection. And we have no information on the rat population, the crucial element in the equation.

But the patterns of deaths within households suggest that perhaps the apparently reasonable fears of those who opposed household quarantine were unfounded. And, after all, roughly 80 per cent of the population was alive at the end of each outbreak, the majority of whom had remained in London. Not all parts of the capital suffered equally. Although the City was affected in the early 17th-century plagues, it gradually became relatively safe, with a far lower incidence of plague deaths in 1665 than the outer areas. In any case, the plague already had the reputation of being a disease of the poor, children and the elderly. From experience or collective memory those who were moving to London would have been able to assess the risks. They knew that a year of high mortality from plague was commonly followed by one of low mortality from the disease – most of the rat population having been killed during the epidemic – and their fears could also be qualified by the area they were moving to and the kind of employment they expected. We might even question whether their fears were as great as we might assume. Consider Pepys's reactions. At the end of September 1665 he noted: 'I do end this month with the greatest content, and may say these last three months, for joy, health and profit, have been much the greatest that I ever received in all my life' and when he came to look back over the whole year he wrote that 'The great evil of this year, and the only one indeed, is the fall of my Lord Sandwich' (who was Pepys's patron). He hadn't forgotten the plague, because he also thought 'I have never lived so merrily . . . as I have done this plague-time'. Pepys's fear was evidently tempered by his own concerns and personality. And, however fearful people really were, the death-toll from plague created opportunities. The sheer economic pull of London drew in those looking for employment, probably especially the young and probably especially from south and east England. In normal, non-plague, years it needed immigrants to sustain its size, and it got them. After a plague epidemic it needed far more, and it got them. It had no rival that could provide opportunity and employment. By the end of the century the combined populations of Norwich and Bristol were only 7 per cent of that of London. So the demographic consequences of plague are to be found not in London but in much of south-east England, which lost many of its young people to the growing metropolis.

And, although plague was the disease of the century, it was a killer for only a part of the century, with the final recorded deaths at Rotherhithe in 1679. Why did it end, especially so abruptly? Not because of the Great Fire, which destroyed only a part of the capital, and not the part which had been most badly affected by plague in the previous year. Brick-and-tile buildings are not

resistant to rats who want to lodge in them, and softwoods came into increasing use in building in place of hardwoods. The brown rat did not supplant *rattus rattus* in the British Isles until well into the 18th century. If the depredations of the 17th century had carried off that section of the population which had no resistance to the plague, and left those who had such a resistance, the pattern would have been one of slowly diminishing peaks, rather than an abrupt end after the worst outbreak of all. Improved cleanliness of people, houses and public places would have had a similar, gradual, effect. If the virus had mutated, then the numbers of deaths would have increased, because the population would have had no resistance to the new strain.

Perhaps the answer lies in the nature of the plague bacillus and the conditions in which it thrives, which, in terms of climate, are not those prevailing in north-west Europe. Plague is a disease of commerce, periodically erupting from its heartland in central Asia along trade routes – in western Europe it was the Levant and Asia Minor which were seen as the points from which the disease spread. So it is possible that the policy that was increasingly adopted of quarantining shipping at the ports was successful, and, although harder to enforce, controls along land frontiers as well. The pattern of the ending of plague does suggest that, with a gradual withdrawal south-eastwards within Europe.

This was a more gradual process than London's experience would suggest and major outbreaks, such as those in southern Spain and central Europe in the late 1670s and early 1680s, across much of the Baltic and Scandinavian countries in 1710, in Marseilles in 1720 and repeatedly in Russia and Turkey throughout the 18th century, meant that plague continued to have its effects in London, because of its impact on trade and the fear which it continued to arouse. There was a panic in London as late as November 1799. So even when it was no longer present it was still having a big effect on Londoners psychologically. Almost a century later, the third pandemic erupted in China and spread to India, killing more than 12 million people there between 1898 and 1948. There were even a few deaths from the disease at Cardiff and Liverpool early in the 20th century. Even now, about 3,000 cases of infection a year are reported world-wide.

Because of its impact, the numbers of its victims, the foulness of the disease, and the literature which it generated, plague has cast a very long shadow. Although it has not been a killer in England for more than three hundred years, its reputation is such that it still makes headlines and still has the capacity to frighten us.