Medical History, 2003, **47**: 413–450

"In These Perilous Times": Plague and Plague Policies in Early Modern Denmark

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Plague has long since disappeared from Denmark. Why it did so remains a puzzle and is one of the themes of this article. More recently, and almost as puzzling, plague has also disappeared from Danish historiography. In the works of eighteenth-century historians the Black Death was described in considerable, if often imaginative, detail and the recurring plague outbreaks were mentioned regularly.[1] By the late nineteenth century this was no longer the case. The terrible mortality still guaranteed the Black Death a few lines in the history books, but there was practically no discussion of the causes nor of the possible short or long-term consequences. The rest of the plague cycle was almost completely ignored with the exception of the well-documented, but also isolated, 1711 outbreak in Copenhagen.[2]

The reason for this revision must be sought in the rise of modern historical scholarship in Denmark in the late nineteenth century. As in other countries, history had until then been the preserve of so-called antiquarians who had uncritically paraphrased chronicles and annals, sources which modern critical examination has proved to be biased, inaccurate and unreliable. Now an emerging group of professional, academic historians, most of them medievalists incidentally, argued that henceforward the study of history should be based on solid, objective archival materials such as parish registers, laws, estate accounts, cadastral surveys, minutes, etc. Unfortunately, the sources relevant to the Black Death were sparse

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This research was supported by a grant from the Carlsberg Foundation. I would like to express my gratitude for this assistance. Also thanks to Jens Rahbek Rasmussen and Sebastian Olden-Jørgensen for helpful comments and advice and to Lars Olsen, my former student, for providing data for Figures 7, 8 and 9.

Abbreviations: CCD: V A Secher (ed.) *Corpus Constitutionum Daniae*, 6 vols, Copenhagen, 1887–1918; *KB: Kancelliets brevbøger*, Copenhagen, 1885–86; *KD:* O Nielsen (ed.), *Kjøbenhavns diplomatarium*, 8 vols, Copenhagen, I Kommission hos G E C Gad, 1872–1887; *MHD:* H F Rørdam (ed.), *Monumenta historiæ Danicæ*, 2 vols, Copenhagen, 1873; *Worm*: H D Schepelern (tr. and ed.), *Breve til og fra Ole Worm*, 3 vols, Copenhagen, Munksgaard, 1965–1968.

[1] For example, P F Suhm, *Historie af Danmark*, 14 vols, Copenhagen, 1782–1828, vol. 13.

[2] For example, C F Allen, *Haandbog i fædrelandets historie*, Copenhagen, Reitzel, 1881, pp. 201–2; *Danmarks riges historie*, vol. 2: Kristian Erslev *Den senere middelalder*, Copenhagen, Nordiske forlag, E Bojesen, 1896–1907, pp. 298–9; A Fabricius, *Illustreret Danmarkshistorie for folket*, Copenhagen, Gyldendal, 1914, vol. 1, p. 435; to Fabricius the most important consequence of the Black Death was that it killed off a number of King Valdemar Atterdag's enemies. It was sometimes claimed, very briefly, that Jutland in particular had been hit hard and that large areas therefore had permanently reverted to moor and wilderness, but no documentation was given. It seems that the statement was copied uncritically from the eighteenth-century antiquarian, playwright and polymath Ludvig Holberg: "In Jutland it worked such destruction that it is commonly held to be the cause of the wide moors and deserts still existing there". *Idem, Dannemarks riges historie* (first published 1732–35), Copenhagen, J Levin, 1856, vol. 1, p. 323.

and belonged to the unreliable category of chronicles. So, almost by definition, serious studies of the plague were not possible.[3] The historians in question would have objected strongly to any allegations of being hard-line positivists, but in practice they were precisely that.

Later generations of historians might have had second thoughts had it not been for the so-called "late medieval crisis" originally invented in the 1930s by historians who liked their history structured and without accidental occurrences, but who still had to explain the demographic decline of the fourteenth and fifteenth centuries. The structural crisis theory was quickly and generally accepted by leading Danish historians. The causes of this alleged crisis were disputed, but in Denmark historians generally agreed that the medieval expansion had led to excessive population growth and hence to soil exhaustion and resource scarcity. Of course, nobody denied that the plague had killed many people, but it was seen as simply "giving a final push to the tilting carriage" (as the Danish saying goes).[4] Thus, in the final analysis, plague morbidity was seen as a result of dearth and famine which had made the population increasingly susceptible to disease. This view is clearly reflected even in recent national histories; the Black Death still gets a page or two, chiefly for dramatic effect it seems, while the rest of the plague-cycle is largely ignored.[5]

Yet throughout three centuries plague regularly caused the death of large numbers of people in Denmark. It also disrupted economic life and diplomatic and military activities and was a constant source of concern for the authorities, which in the seventeenth century spent increasing efforts and resources on controlling the disease. But the structural crisis hypothesis has effectively blocked serious investigation of the plague-cycle in Denmark.[6] For all practical purposes the history of plague in Denmark remains unwritten; we have at present no clear idea of plague frequency, plague mortalities, nor of the reactions and countermeasures applied.[7] What follows is an attempt to outline the course of the plague and to consider the countermeasures applied in a comparative perspective. It hardly needs to be emphasized that the conclusions offered in this study must be of a preliminary nature.

[3] There existed in Denmark a tradition of medical history represented by, for example, F V Mansa, *Bidrag til folkesygdommenes og sundhedspleiens historie i Danmark*, Copenhagen, 1873, but until recently it has had practically no impact on mainstream historical studies.

[4] J Danstrup and H Koch (eds), *Danmarks historie*, 14 vols, Copenhagen, Politikens Forlag, 1962–66, vol. 4, pp. 272–4.

[5] Ibid.; A E Christensen, *et al.* (eds.), *Danmarks historie*, Copenhagen, Gyldendal, 1980; and O Olsen (ed.), *Gyldendal og politikens danmarkshistorie*, Copenhagen, Gyldendal, 1989.

[6] Among the few exceptions are Ulsig's analysis of the very sparse information on Black Death mortality (E Ulsig, 'Pest og befolkningsnedgang i Danmark i det 14. århundrede', *Historisk Tidsskrift*, 1991, **91**: 21–43), and Ladewig Petersen's discussion of the role of epidemic disease in seventeenth-century mortality (E Ladewig Petersen, *Fra standssamfund til rangssamfund 1500–1700. Dansk socialhistorie 3*, Copenhagen, Gyldendal, 1980, pp. 73–102).

[7] F V Mansa's list of epidemics (made in the second half of the nineteenth century, see note 3 above) must now be considered outdated and unreliable. It dates from the pre-microbiology era and his attempts to identify various "pestilential fevers" and "epidemic fevers" rely on even older authorities such as Schnurrer and Haeser and on false ideas of the aetiology of infectious diseases (Mansa still believed that scurvy was an infectious disease that had arrived in Europe together with syphilis and typhus). J N Biraben's recent attempt at overviewing plague in Europe is, as far as Scandinavia is concerned, faulty and decidedly misleading (*Les hommes et la peste en France et dans les pays européens et mediterranéans*, 2 vols, Paris, Mouton, 1975, Annexe IV, vol. 1, pp. 375–449). One consequence is that Denmark is used incorrectly for comparative purposes. Thus E A Eckert believes that the great outbreak of the 1660s included Denmark (*The structure of plagues and pestilences in early modern Central Europe, 1560–1640*, Basel, Karger, 1996, p. 159), but Denmark in fact escaped this outbreak. Recently, a brief survey has been made of

Which Disease?

The retrospective diagnosis of plague has caused even more confusion than the attempts to link plague mortality to structural crisis and dearth. For the last hundred years conventional wisdom has identified pre-modern plague with the modern flea-borne bubonic plague, known primarily from China and India. The obvious attraction of this retrospective diagnosis is that it provides an apparently solid scientific basis that allows us to make sense of the confused accounts and imprecise terminology found in the sources. The equally obvious drawback is that this diagnosis is contradicted by the contemporary evidence.

To the modern reader pre-modern disease terminology is certainly vague and ambiguous. Though I have not made a proper count, it would seem that the terms *pest* and *pestilence* were those most frequently used in Denmark, for example, in the oldest extant parish registers. However, *pestis*, *pestilence* and derivatives such as *pestilential*, *pestilence-like* were also used to characterize a number of diseases which nobody would mistake for plague. In these cases the terms were used to indicate that a disease had *plague-potential*, that is, in certain circumstances it might develop into full-blown plague. In July 1711, the physician Hans Mule reassured his brother in Funen that the increased morbidity in Copenhagen was caused not by "proper plague of the highest degree but rather by a bad, contagious *febris pestilentialis*". He was wrong as it turned out.[8]

To complicate matters further, Danish authorities frequently employed what appear to have been euphemisms. They would refer to "the prevailing disease" (*den grasserende sygdom*), "the contagious disease" (*den smitsomme sygdom*), "the dangerous disease" (*den farlige syge*) or simply "the disease" (*sygdommen*), or they would loosely talk about "these times of infirmity and prevailing disease" or "these perilous times".[9] It has been, therefore, argued that plague, *pest*, *pestis*, and *pestilence* did not indicate any specific disease at all, but should be understood as blanket terms for various deadly diseases which had exanthemata in common, which would, for example, include typhus. Considering the bewildering variety of "plague signs" listed in late medieval and early modern medical texts and the obvious

countermeasures in Denmark-Norway by a Norwegian historian (O G Moseng, 'Gud, Pesten, Legekunsten, Mottiltakene og Staten. Kampen mot Epidemiene som Moderniseringsprosjekt', *Historisk Tidsskrift* (Norge) 1996, **75**: 454–73). In contrast to Denmark, Norway has a long tradition of studying the plague and the Black Death in particular. One suspects that this interest partly springs from the efforts to find an explanation for the deplorable fact that Norway ended up under Danish rule at the end of the Middle Ages.

[8] C Mule (ed.), *Kjøbenhavn under pesten 1711. Samtidige breve*, Copenhagen, 1843, p. 303; P Christensen, 'Copenhagen 1711: Danish authorities facing the plague', in S Sheard and H Power (eds), *Body and city: histories of urban public health*, Aldershot, Ashgate, 2000, pp. 50–8.

[9] In France plague was often referred to as *la contagion* or *le mal contagieux* (F Lebrun, 'L'Intervention des autorités face aux crises de mortalité dans la France de l'ancien régime', in A E Imhof (ed.), *Leib und Leben in der Geschichte der Neuzeit*, Berlin, Duncker & Humblot, 1983, pp. 39–52, on p. 41), or *la maladie contagieuse* (P Deyon, *Amiens capitale provinciale. Étude sur la société urbaine au 17e siècle*, Paris, Mouton, 1967, pp. 17–28; A Lotin, *Chavatte, ouvrier Lillois. Un contemporain de Louis XIV*, Paris, Flammarion, 1979, pp. 145, 151). Authorities in Spain during the great epidemic of 1596–1602 simply talked about *la enfermedad* (B Bennassar, *Recherches sur le grandes épidémies dans le nord de l'Espagne à la fin du XVIe* siècle, Paris, SEVPEN, 1969), p. 69. Felix Platter in Basel referred to *pestelentzen oder Sterbendt* or just *die Sucht* (F Platter, *Beschreibung der Stadt Basel 1610 und Pestbericht 1610–11*, ed. V Lötscher, Basel, Schwabe, 1987, pp. 71, 149). The council of Antwerp usually referred to the *haestige sieckte* or the *besmettelycke sieckte* (A F C van Schevensteen, *Documents pour servir à l'étude des maladies pestilentielles dans le marquisat d'Anvers jusqu'à la chute de l'ancien régime*, 2 vols, Brussels, 1931, vol. 1, pp. 210, 214, 256, 262–75.

difficulties physicians had in diagnosing plague, this argument cannot be ruled out definitively, though I do not find it convincing. After the disappearance of the plague, typhus continued to break out and nobody mistook it for plague. Most contemporaries certainly never doubted that plague was a distinct disease, more contagious and more lethal than any other. In the sixteenth-century correspondence of the Danish nobleman Mogens Gyldenstierne *pestilence* and *pest* is clearly distinguished from other diseases such as the "bloody flux" (*blodgang*), the sweating sickness (*svedesot*), scurvy (*skørbug*)—at the time regarded as a contagious disease—and various fevers (*hedesyge*, *kuldesyge*).[10] Around 1600, the bishop of Ribe, Peder Hegelund, made the same distinctions.[11] The Aarhus councillor Rasmus Pedersen Thestrup, who had lost most of his family in the great outbreak in 1603, also clearly distinguished *pestilence* from measles, smallpox, typhus (*sprinchell*) and fevers.[12] In Copenhagen, the physician and antiquarian Ole Worm experienced six to seven major outbreaks in his lifetime, and he also distinguished plague from other epidemic diseases such as the malignant and contagious fever that ravaged Copenhagen in 1644–45.[13] He was certainly familiar with plague, having lost first his oldest daughter in the 1618–20 outbreak, then his wife, his father and his brother-in-law in the 1629 outbreak and, finally, his second wife in the 1636–38 epidemic. Nowhere in his correspondance is there any indication, incidentally, that familiarity lessened the dread of the disease.[14]

Though it cannot be proved, it seems most likely that the term "plague" (*pestilence*, *pest*, *pestis*) did indeed refer to a specific, highly contagious disease, that was transmitted directly through person-to-person contact and usually caused very high mortality. The causative agent remains unknown. The nature of the disease is not just of academic interest; a rough idea of the aetiology of the disease is crucial to any discussion of the efficiency of the various precautionary measures adopted in Denmark and in the rest of Europe. Whatever the precise nature of the disease that hides behind the name of *pestilence* and *pest* in pre-modern Europe, it cannot be identified with modern bubonic plague. The two "plagues" have some symptoms in common, but, apart from these, the differences are striking. Modern bubonic plague has never caused mortality rates comparable to those of earlier plagues for the simple reason that it is not contagious.[15] Modern science has conclusively shown that it can be transmitted only by certain fleas living on rats. However, unless we are prepared completely to disregard contemporary evidence—and there is no valid methodological reason to do so—there can be little doubt that early modern plague was spread directly through contact with the sick and their possessions. The aetiology of plague, *pest* and

[10] E Marquard (ed.), *Breve til og fra Mogens Gyldenstjerne og Anne Sparre*, 3 vols, Copenhagen, I Kommission hos G E C Gad, 1929–41, vol. 1, pp. 11, 15, vol. 2, p. 621, vol. 3, p. 236; plague is mentioned in vol. 1, pp. 132, 205, 220, vol. 2, pp. 446, 450–1, 461, 492, 550–1, 674, 741–2, vol. 3, pp. 209–10.

[11] B Kaae (ed.), *Peder Hegelunds Almanakoptegnelser 1565–1613*, Ølgod, published by Historisk Samfund for Ribe Amt, 1976, pp. 375, 383, 385, 392–3, 429.

[12] J R Hübertz (ed.), *Aktstykker vedkommende staden og stiftet Aarhus*, 3 vols, Copenhagen, 1845–46, vol. 2, pp. 309–10.

[13] *Worm*, vol. 3, pp. 68, 72.

[14] Ibid., vol. 1, pp. 41–2, 173–4, 185, 384; vol. 2, pp. 25, 29, 38–9, 56, 68.

[15] In the epidemic at the turn of the century annual plague mortality in Bombay averaged 0.9 per cent. It peaked in 1903 when 20,000 died, which corresponds to a mortality rate of 2.5 per cent, not in the least comparable with mortality rates in pre-modern Europe; see D Arnold, *Colonizing the body: state medicine and epidemic disease in nineteenth-century India*, Berkeley and London, University of California Press, 1993, pp. 200–3, 207. A recent comprehensive—though perhaps not conclusive—argument against the retrospective diagnosis can be found in Scott and Duncan, who, however, rely too much on Biraben's

pestilence in the past must be established on the basis of contemporary evidence, not by inference from twentieth-century India or China.[16]

Plague Frequency and Plague Mortality

In Denmark the epidemics of the fourteenth and fifteenth centuries are poorly documented and can at present barely be outlined. Available information typically consists of laconic entries in chronicles and annals. The *Roskilde annals* may provide a few examples. For the year 1460–1 it recorded that everywhere there was "a severe pestilence that killed the greater part of the people leaving only the lesser part alive". In 1472 it noted "severe pestilence and many other hardships in many places". Again in 1483 and 1484 there was high mortality and pestilence.[17] Other sources mention outbreaks in 1405–6, 1428 and 1446.[18] A cursory and comparative overview of this type of information indicates that in the fifteenth century and early sixteenth plague broke out at intervals of roughly ten years. Moreover, recorded outbreaks coincided chronologically with others in northern Germany and the Baltic region, an indication that in the fifteenth century plague frequency in Denmark was broadly the same as in the rest of Europe north of the Alps.[19]

This was certainly the case in the sixteenth and seventeenth centuries. From the sixteenth century, Denmark—in line with most other European states—underwent a gradual process of centralization which, among other things, entailed improved record-keeping. From this

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Annexe IV (see note 7 above; S Scott and C J Duncan, *Biology of plagues: evidence from historical populations*, Cambridge University Press, 2001). The most recent criticism of the conventional diagnosis is by S K Cohn, 'The black death: end of a paradigm', *Am. hist. Rev.*, 2002, **107**: 703–38. A vigorous argument in favour of the rat-flea theory can be found in O J Benedictow, *Plague in the late medieval Nordic countries*, Oslo, Middelalderforlaget, 1993; more recently, also B Persson, *Pestens gåta. Farsoter i det tidiga 1700-talets Skåne*, Lund, Historiska Institutionen vid Lunds Universitet, 2001.

[16] To complicate matters further there are indications that *Y. pestis* (or something resembling it closely) has been in Europe before the twentieth century, see M Drancourt *et al.*, 'Detection of 400-year-old *Yersinia pestis* DNA in human dental pulp: an approach to the diagnosis of ancient septicemia', *Proc. Nat. Academy Sci.*, 1998, **95**: 12637–40. In a mass grave in Provence containing 133 bodies and dating from 1590, teeth from two individuals showed traces of *Y. pestis*-specific DNA sequences. In another grave, containing 200 skeletons and dating from 1722, teeth with similar DNA sequences were taken from three individuals. Both cemeteries supposedly belonged to plague hospitals. Unfortunately, no evidence for this is cited, and five individuals are hardly representative. Bubonic plague may occasionally have been brought to European seaports. The point is, that the course of an early modern plague epidemic remains radically different from modern bubonic plague. Even if *Y. pestis* (or some close relative) was the causative agent, it behaved so differently in the past that inferring from twentieth-century India remains highly problematic. See also, Cohn, op. cit., note 15 above, pp. 735–6.

[17] *Roskilde annals*, in *MHD*, 1873, vol. 1, pp. 311, 314, 319. A sixteenth-century chronicle records severe epidemics in 1472 "all over the world", and again in 1481, P F Suhm, *Samlinger til den Danske Historie*, 2 vols, Copenhagen, 1779–84, vol. 1, pt 2, p. 167; another brief chronicle (seventeenth century) mentions a plague in 1405 "which left hardly a tenth alive", Suhm, ibid., p. 164.

[18] E Pontoppidan, *Den danske atlas*, 7 vols, Copenhagen, 1763–81, vol. 6, pp. 590, 735.

[19] J H Ibs, *Die Pest in Schleswig-Holstein von 1350 bis 1547/48*, Kieler Werkstücke, Reihe A: Beiträge zur schleswig-holsteinischen und skandinavischen Geschichte, Band 12, Frankfurt am Main, Peter Lang, 1994, pp. 107–28, 128, for outbreaks in Lübeck. According to R S Gottfried (1978) England between 1430 and 1480 suffered major outbreaks in 1433–35, 1439, 1452–53, 1458–59, 1463–65, 1467, 1471, 1479–80, the latter being the most severe (*Epidemic disease in fifteenth-century England*, New Brunswick, Rutgers University Press, 1978). To these should be added a number of limited epidemics, particularly in London. However, the criteria used by Gottfried to identify the individual outbreaks as plague (and not some other disease) can be called in question.

time on, records therefore become increasingly plentiful and allow for a more precise picture of the origins and frequency of epidemics. The outbreaks clearly coincided with larger European incidences of the disease and often the sources expressly state that the infection had come to Denmark from the Baltic region or northern Germany.[20] In fact, the seaports of Helsingør (Elsinore) and Copenhagen appear to have been where plague most often began, making the capital and the island of Zealand particularly exposed.

Post-Reformation Denmark experienced major outbreaks in 1546–48,[21] 1553–54,[22] 1563–68,[23] 1575–78,[24] 1583–85[25] and 1592–94.[26] The next outbreak began in 1601 and lasted until 1603 and seems to have been one of the worst in the entire period.[27] In May 1618, plague was brought from Riga to Bornholm. From there it spread, first to Helsingør and then to the rest of Zealand, Funen and the southern islands. The outbreak lasted to 1621.[28] Another outbreak, coming either from Sweden or directly from the Baltic, began in December 1624 and lasted until 1626.[29] Plague appeared again in 1629–30[30] and 1636–38. The latter outbreak, beginning in Helsingør, was introduced by ships from the Baltic.[31] Finally, in 1653 plague once more was imported from either Danzig or Königsberg. This outbreak lasted to 1657.[32]

[20] England was usually infected from the Low Countries (Paul Slack, *The impact of plague in Tudor and Stuart England*, London, Routledge & Kegan Paul, 1985, pp. 313, 323) and these were occasionally also referred to in Danish sources as a high-risk area.

[21] *KD*, vol. 4, p. 519.

[22] Ibid., vol. 1, p. 424; vol. 4, p. 548.

[23] Ibid., vol. 4, p. 583; *KB* (1561–65), pp. 504, 507, 516, 518–20; Hegelund, op. cit., note 11 above, p. 375; J Kinch, *Ribe bys historie og beskrivelse, 1536–1660*, Odder, K Bønnelycke, 1884, pp. 105–6.

[24] *KB* (1571–75), p. 670; ibid. (1576–79), pp. 28, 147, 477–8, 521, 732; *CCD*, vol. 2, pp. 117–18, 152. Also recorded in the provincial town of Bogense, Pontoppidan, op. cit., note 18 above, vol. 3, p. 466.

[25] *KD*, vol. 4, p. 665–6; *KB* (1580–83), pp. 682, 703, 708, 718–19, 724, 731; *KB* (1583–85), pp. 201, 232, 311; *KB* (1584–88), pp. 105, 143, 189, 199; Hübertz, op. cit., note 12 above, vol. 2, pp. 309–11.

[26] This latter outbreak may have been confined to Zealand and Funen. *KD*, vol. 4, p. 711; Pontoppidan, op. cit., note 18 above, vol. 3, p. 542. In his record of visitations Jacob Madsen refers to the "great dying of Pestilence" in Faaborg in 1593 (*Mester Jacob Madsens visitatsbog*, ed. A R Idum, Odense, Historisk Samfund for Odense og Assens Amter, 1929, p. 232); See also Aa F Blomberg on plague in Faaborg 1593–94, *Faaborg bys historie I, 1229–1750*, Faaborg, Faaborg Byhistoriske Arkiv, 1955, pp. 139–40.

[27] *KB* (1596–1602), p. 665; *Perlestikkerbogen: Nakskov-præsten Anders Pedersen Perlestikkers optegnelser og regnskaber*, ed. H Knudsen and A Fabritius, Copenhagen, Samfundet for dansk Genealogi og Personalhistorie, 1954, pp. 33, 335; Hübertz, op. cit., note 12 above, vol. 2, pp. 309–10; Kinch, op. cit., note 23 above, pp. 255; Pontoppidan, op. cit., note 18 above, vol. 3, p. 294 (Maribo). The eighteenth-century historian N Slange recorded another serious outbreak in 1608–9. According to him "Jutland was severely ravaged by a pestilence so terrible that commoners and peasants even to this day remember it under the name of the little Black Death" to distinguish it from the epidemic of the fourteenth century (N Slange and H Gram, *Den Stormægtige Konges Christian den Fjerdes historie*, 3 vols, Copenhagen, 1749, vol. 1, pp. 252, 259). Slange has been severely criticized by modern historians for his romanticizing and biased account of Christian IV. His factual information on epidemics, dearth, etc. is usually quite reliable and he had access to sources later lost in the fires of Copenhagen. In this case, however, it would seem that he somehow duplicated information on the 1601–3 outbreak. Administrative records reflect all outbreaks, except this one. Rasmus Pedersen carefully lists the outbreaks of his time but does not mention this one either. As far as I can tell, the outbreak is not mentioned in any contemporary sources.

[28] Anon., 'Fortegnelse paa adskilligt, som sig på Boringholm haver tildraget fra 1602 til 1686', *Danske Magazin*, 1745, **1**: 125–8; *KD*, vol. 5, p. 33; *CCD*, vol. 3, pp. 588, 608; *MHD*, vol. 2, p. 719.

[29] *KD*, vol. 5, pp. 70, 84, 87, 95; *CCD*, vol. 4, pp. 329–30; *MHD*, vol. 2, p. 728.

[30] The *Nørborg Register*, (ed.) E Høyer Møller in 'Kirkebogen for Nørborg paa Als, 1621–1776', *Danske Samlinger for Historie Topographi, Personal- og Litteraturhistorie*, 1869–70, **5**: 274–352; J Brahe, *Hr. Jørgen Brahes levnetsbeskrivelse*, ed. Vedel Simonsen, Odense, Vedel Simonsen, 1845, p. 59; *MHD*, vol. 2, p. 731; *Worm*, vol. 1, pp. 173–4, 185, 202.

[31] *Prins Christian (V.)s Breve*, ed. E Marquard, 2 vols, Copenhagen, I Kommission hos G E C Gad, 1952–56, vol. 1, pp. 373–4, 380; *KD*, vol. 3, p. 138; *KD*, vol. 6, p. 110; *MHD*, vol. 2, p. 738.

[32] *KD*, vol. 3, pp. 429–31, vol. 5, pp. 368–9, 374, 376–9, 383; *CCD*, vol. 6, pp. 143, 157, 164–5, 168–79,

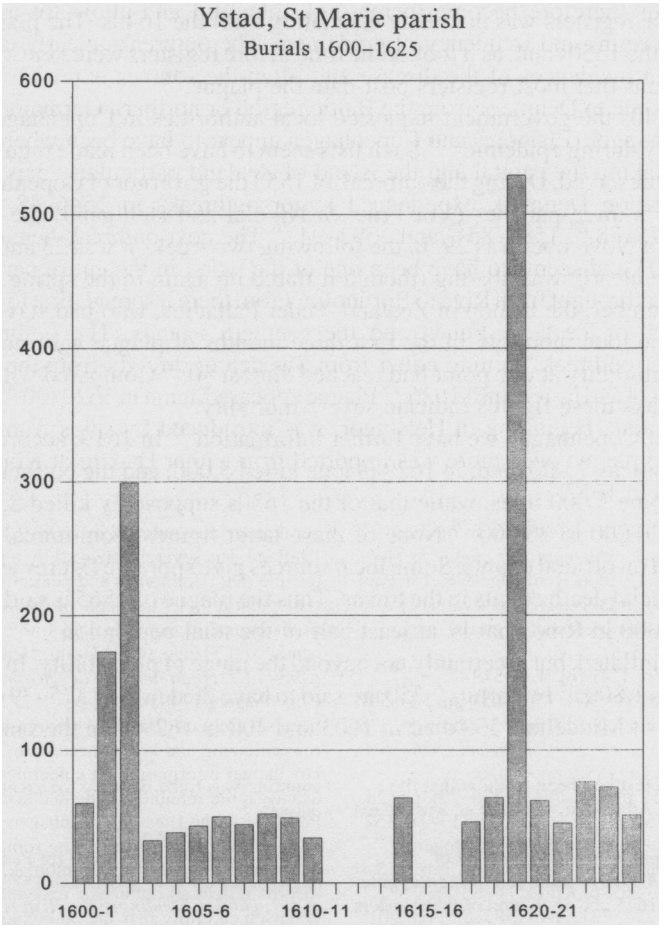

Figure 1: The entries for 1611–13 and 1615–16 are missing. Source: Bellringers' accounts of the financial years from N Wimarson, *Ystad mot slutet av danska tiden*, Skrifter utgivna av Ystads Fornminnesförening, vol. 2, Ystad Fornminnesförening, 1918, p. 13.

There is little quantitative information on mortalities. Some of the later outbreaks are reflected in a few extant parish registers that date back to the beginning of the seventeenth century, but on the whole parish registers are poor sources of information on plague morbidity and plague mortality in Denmark (excepting the limited 1711 outbreak). The

182, 254, 259–60; Kinch, op. cit., note 23 above, pp. 105, 255; Hübertz, op. cit., note 12 above, vol. 2, pp. 309–10. A severe epidemic in Southern Jutland and parts of Funen in 1659 has been identified as typhus though in my opinion the arguments presented are not entirely convincing (A Lassen, *Skæbneåret 1659. Hungersnød og pest over Sydvestdanmark*, Aarhus, 1958). Contemporaries sometimes referred to the disease, which was spread by Polish troops, as the "prevailing disease" (which usually meant plague), sometimes as the "hot" or "violent" sickness (*den hidsige syge*), which was not a synonym for plague, or as *sprinkelsyge*, which usually meant typhus (Kinch, ibid., p. 406). Some French sources called it *la peste*, however. Lassen's identification relies heavily on arguments made in the 1920s by a retired physician

https://doi.org/10.1017/S0025727300057331 Published online by Cambridge University Press

keeping of these registers was not made mandatory until the 1640s. The plague, however, disappeared in the 1650s and, as it took some time before registers were kept systematically, this in fact means that most registers post-date the plague.[33]

From the 1540s the government requested local authorities in Copenhagen to draw up lists of mortality during epidemics.[34] Such lists seem to have been made regularly, but very few have been preserved. During the outbreak of 1553 the governor of Copenhagen reported that in the city's three parishes (Vor Frue, St Nikolai and Helligånd) the weekly death rate at the end of November was 29. In the following two weeks it was 23 and 25.[35] By this time the plague clearly was abating (though it flared up again in the spring of 1554). But earlier, in September, the bishop of Zealand, Peder Palladius, who had stayed in the city, reported that the total mortality in the first three months of plague was more than 1,000 and that daily mortality at one point had reached almost 50.[36] Compared with information on later outbreaks these figures indicate severe mortality.

In the case of Copenhagen we have further information.[37] In 1619, according to a brief notice in a chronicle, 7,000 died; in 1629 plague killed 5,000, and the outbreak in 1636–38 also claimed some 5,000 lives, while that of the 1650s supposedly killed 8,500 of a total population of 30,000 to 35,000.[38] None of these latter figures seem unrealistic and may indeed be based on official counts. Some local sources give sporadic figures which may also be based on official death counts in the towns. Thus the plague of 1565 is said to have killed no less than 3,000 in Ribe, that is, at least half of the total population.

This may be inflated, but is certainly not beyond the range of plausibility. In Flensborg the death count was 1,800.[39] In Aarhus 2,250 are said to have died in the 1575–79 outbreak.[40] In the small town of Middelfart 500 died in 1603 and 300 in 1629.[41] In the same year on the

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whose primary interest had been to show that the famous "plague of Athens" in 430–429 BC was indeed typhus.

[33] About forty parishes—out of a total of approximately 1,600—have some sort of register antedating the laws of 1645 and 1646, and of the registers actually beginning in the 1640s only 175 are extant. Many of them are incomplete and provide only limited information (see G Bang, *Kirkebogsstudier*, Copenhagen, 1906). The outbreak in 1618–21 is reflected in *Perlestikkerbogen* (see note 27 above), an early register from the provincial town of Nakskov, while the register from Nørborg on Als in Southern Jutland illustrates the 1629 to 1630 outbreak, see Møller, op. cit., note 30 above. Some 70 registers provide reliable information on the 1654 to 1657 outbreak in Zealand and the southern islands (H H Fussing, 'Øernes befolkning under Karl Gustavkrigene. En kirkebogsundersøgelse', *Historisk Tidsskrift*, 1945, 11th series, **1**: 287–333, to be discussed below). Finally, the 1659 epidemic in Southern Jutland is reflected in a number of registers (Lassen, op. cit., note 32 above; C Villads Christensen, 'De jyske Kirkebøgers Bidrag til Belysning af Krigen i Jylland 1657–59', *Historisk Tidsskrift*, 1894–95, 6th series, **5**: 519–54).

[34] *Gyldenstjerne*, op. cit., note 10 above, vol. 1; *KD*, vol. 4, pp. 519 (1564), 548 (1553). The actual counting was to be done by the vicars of each parish.

[35] *KD*, vol. 1, p. 424.

[36] N Jacobsen, 'Tre breve fra Peder Godske, angaaende Pesten i Kjøbenhavn 1553, Slotsbygningen m.m.', *Danske Samlinger for Historie Topographi, Personal- og Litteraturhistorie*, 1867, **3**: 69–83; C Bruun, 'Dansk Bibliographi, 1. Peder Palladius', ibid., 1865–66, **1**: 165–6. Palladius' account also indicates that the burial of poor people was not registered properly.

[37] According to the unreliable Slange (op. cit., note 27 above, vol. 1, pp. 155, 172) plague in 1599 killed 8,000 and in 1601 the death count is said to have been twice that number; on the face of it the figure of 16,000 dead would seem inflated; there is, however, little doubt that the 1601–3 outbreak ranked amongst the most devastating, see *KB* (1603–8), pp. 97, 112, 169, 176, 210.

[38] Suhm, op. cit., note 17 above, vol. 1, pt 2, p. 165; Brahe, op. cit., note 30 above, p. 59; *MHD*, vol. 2, p. 738; *KD*, vol. 4, p. 110; figures discussed in Mansa, op. cit., note 3 above, p. 402.

[39] Kinch, op. cit., note 23 above, pp. 105–6.

[40] Pontoppidan, op. cit., note 18 above, vol. 4, p. 72.

[41] Brahe, op. cit., note 30 above, p. 59; Pontoppidan, op. cit., note 18 above, vol. 3, p. 490.

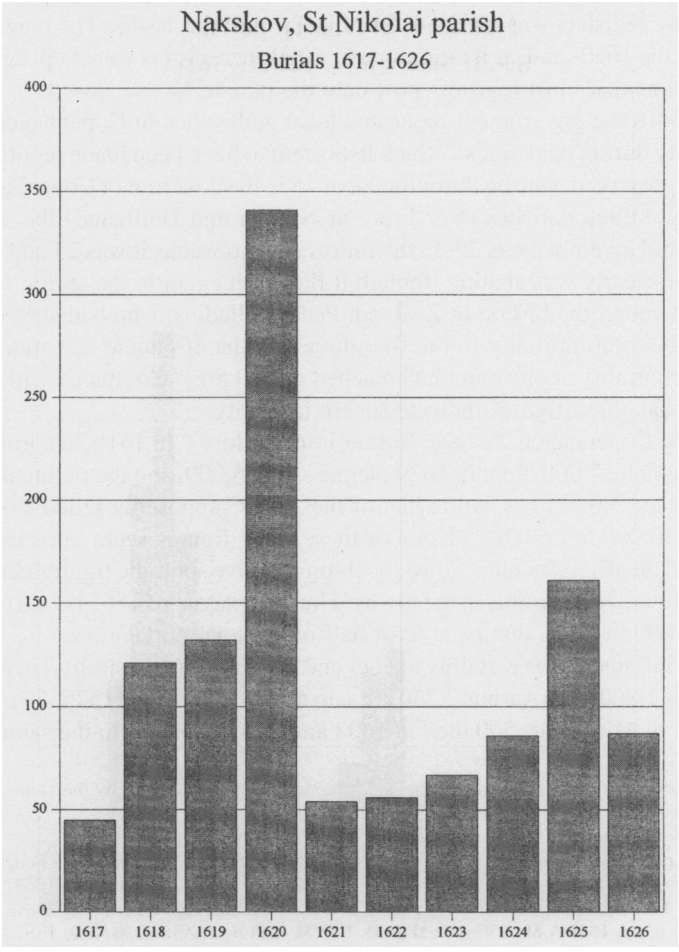

Figure 2: Source: *Perlestikkerbogen: Nakskov-præsten Anders Pedersen Perlestikkers Optegnelser og Regnskaber*, eds H Knudsen and A Fabritius, Copenhagen, Samfundet for dansk Genealogi og Personalhistorie, 1954.

island of Amrum (southern Jutland) plague killed no less than 147 out of a total population of 227.[42] In seventeenth-century Holbæk the annual death rate in normal times was around 60; in the plague year 1637 it rose steeply to 320.[43] Extant bellringers' accounts from the town of Ystad indicate very heavy mortality in the epidemics of 1601–3 and 1618–20 (Figure 1).

We have a few cases which allow for more detailed pictures of the course of a plague outbreak in Denmark. In Nakskov in Lolland the vicar, Anders Pedersen, kept an

[42] According to the vicar, Martin Flor; S V Wiberg, *Almindelig Dansk Præstehistorie*, Odense, den Hempelske Boghandel, 1870, vol. 1, p. 95.

[43] A Thomsen, *Holbæk Købstads Historie*, 2 vols, Holbæk, Holbæk Byraad, 1936–37, p. 294.

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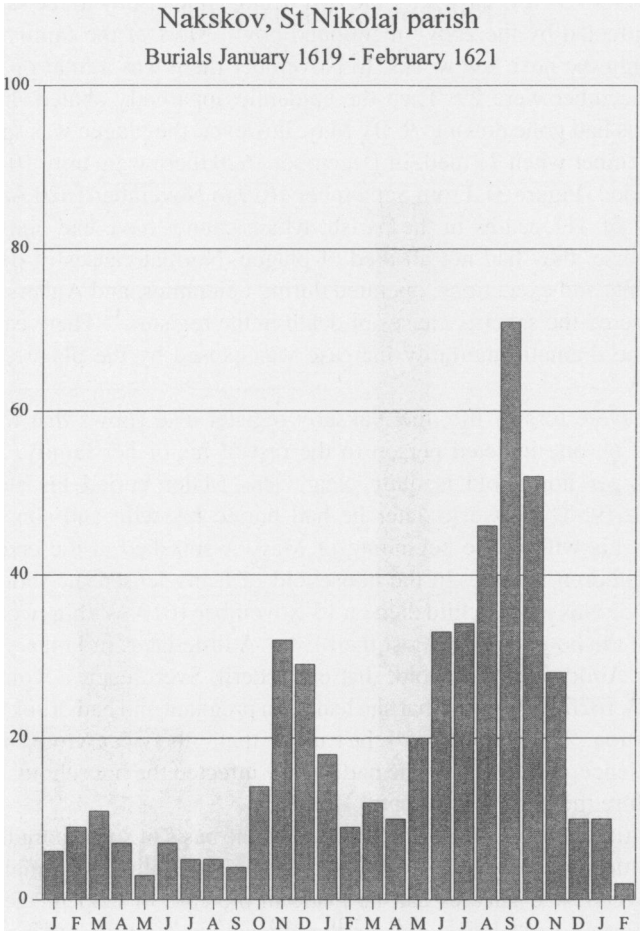

Figure 3: Source: *Perlestikkerbogen: Nakskov-præsten Anders Pedersen Perlestikkers Optegnelser og Regnskaber*, eds H Knudsen and A Fabritius, Copenhagen, Samfundet for dansk Genealogi og Personalhistorie, 1954.

unofficial register of burials, baptisms and marriages in his parish, which besides the town itself included a few villages. He seems to have been thorough and the figures, which cover a period of ten years (from 1617 to 1626), are as reliable as can be expected (Figure 2). Plague, originally brought from the Baltic, had spread in Zealand in the summer of 1619. At the beginning of August 1619 ferry services between Zealand and the southern islands had been stopped to prevent the disease from spreading further.[44] However, in late September a boy died in Nakskov and Anders Pedersen noted in the register that "he was the first to die of the pestilence".[45] We can safely assume that the vicar was familiar with the disease. In his brief autobiography he tells how he and his brother survived the

[44] *CCD*, vol. 3, p. 588.

[45] *Perlestikkerbogen*, op. cit., note 27 above, p. 227.

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outbreak in 1601–3.[46] A few days after the first death, another boy in the same street died, "having been infected by the above-mentioned boy". Most of the family of the second victim died within the next few weeks. In November there was a total of 32 deaths and, fatalities for December were 29. Then the epidemic apparently abated. In February the number of burials had gone down to 9. By May, however, the plague was spreading again, peaking in September when 71 died. In December 1620 there were only 10 deaths and the outbreak had ended (Figure 3). From September 1619 to November 1620 Anders Pedersen recorded a total of 412 deaths in the parish, which cannot have had above 2,000 inhabitants.[47] Of course, they had not all died of plague. Normal causes of death, including murders, accidents and executions, operated during epidemics, and Anders Pedersen only occasionally entered the specific causes of death in the register.[48] There can be no doubt, however, that the dramatic mortality increase was caused by the plague, as he himself noted.[49]

Besides the severe loss of life, the Nakskov register also shows that the disease was typically spread by one infected person to the rest of his or her family. The pattern of multiple deaths per household is quite clear. Jens Maler buried his stepdaughter on 29 November 1619. Three weeks later he had buried his wife and son as well. Mads Færgemand lost his wife at the beginning of May. A son died at the end of the month and two other children in June. In the household of Hans Jensen in Abildstorp, a small village just outside Nakskov, a child died on 15 November 1619. Within two weeks another five members of the household had lost their lives. A little later, in January, a servant girl died. In another Abildstorp household, that of Frederik Sverdfeger, a woman died at the beginning of July 1620. It was said that she had been pregnant and had drunk some potion to provoke an abortion. "Only God knows the truth of that," the vicar wrote, and added, "she died of the pestilence, however".[50] She had clearly infected the household, as another five were buried before the end of the month.

No representative statistics can be constructed on the basis of such sporadic information. We know too little about population sizes and average mortality in normal times though, as we shall see, educated guesses can be made in the case of Copenhagen. That extant figures often refer to towns does not mean that plague was turning into a primarily urban phenomenon. Though the evidence is fragmentary before the 1650s, there can be little doubt that the disease regularly spread in the countryside, causing severe mortality. The 1565 outbreak is said to have killed 13,000 (among them 28 priests) in Lolland and this figure obviously included the entire island.[51] In May 1603, the bishop of Ribe received a complaint from the rural parish of Rind that because the local vicarage had been vacant for nine months "more than 60 parishioners had died of the pestilence without sacrament or the comfort of God's word". But we are not told whether this was the total of plague victims in Rind nor do we know the number of inhabitants.[52] In 1619–20 the villages belonging to Nakskov parish suffered as badly as did the town itself.

[46] Ibid., p. 335; eventually he died of plague in 1629, Pontoppidan, op. cit., note 18 above, vol. 3, p. 290.

[47] Ladewig Petersen, op. cit., note 6 above, pp. 98–101. The register indicates that in times of normal health annual mortality averaged 60.

[48] He systematically registered stillborns.

[49] *Perlestikkerbogen*, op. cit., note 27 above, p. 232.

[50] Ibid., p. 238.

[51] Pontoppidan, op. cit., note 18 above, vol. 3, p. 294.

[52] V A Secher (ed.), *Samling af Kongens rettertings domme*, 2 vols, *1605–14*, Copenhagen, G E C Gad, 1885–86, pp. 260, 266–71.

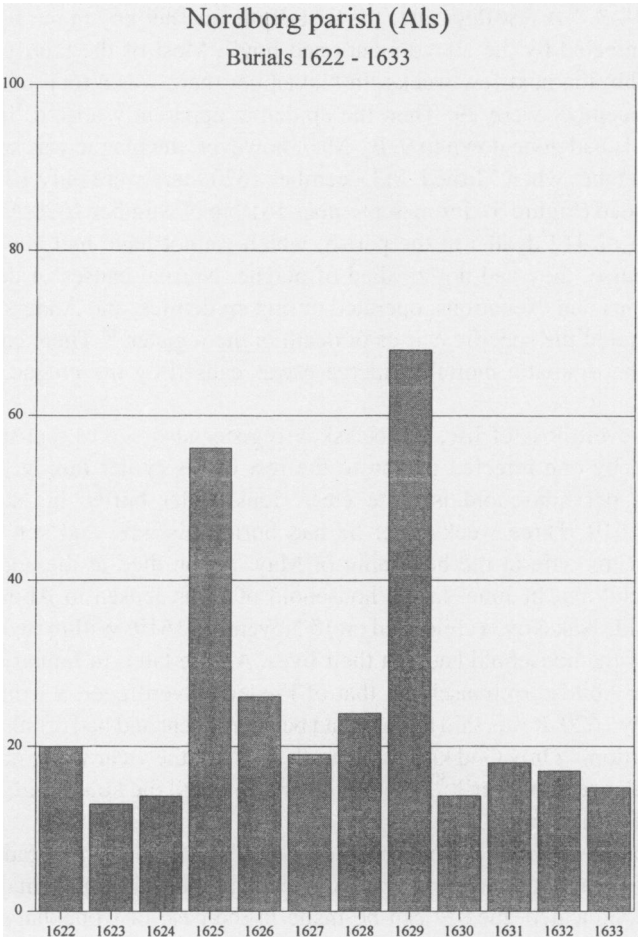

Figure 4: Source: the *Nørborg Register*, ed. E Høyer Møller in 'Kirkebogen for Nørborg paa Als, 1621–1776', *Danske Samlinger for Historie Topographi, Personal- og Litteraturhistorie*, 1869–70, **5**: 274–352.

Scattered information on mortality can be found in church inscriptions and tablets that commemorate what appears to have been especially severe outbreaks. Thus in Snebjerg church (Jutland) an inscription says: "A.D. 1602 died in Snebjerg parish 209 people of plague". Similar inscriptions, also referring to 1602 or 1603, are to be found in Stauning and Skjern in western Jutland. In Bornholm a tablet in Rønne church enumerated parish by parish the victims of the outbreaks in 1618 (5,185 dead) and in 1654 (4,569 dead). It can now be seen in the local museum. Similar tablets were put up in other churches on the island.[53]

[53] Six of these are extant. See J B Rasmussen, 'Pesten og tavlerne på Bornholm', *Bornholmske Samlinger*, 1998, 3rd series, **12**: 10–119; Anon., 'Fortegnelse paa adskilligt, som sig på Boringholm haver tildraget fra 1602 til 1686', *Danske Magazin*, 1745, **1**: 125–8; Pontoppidan, op. cit., note 18 above, vol. 3, p. 206,

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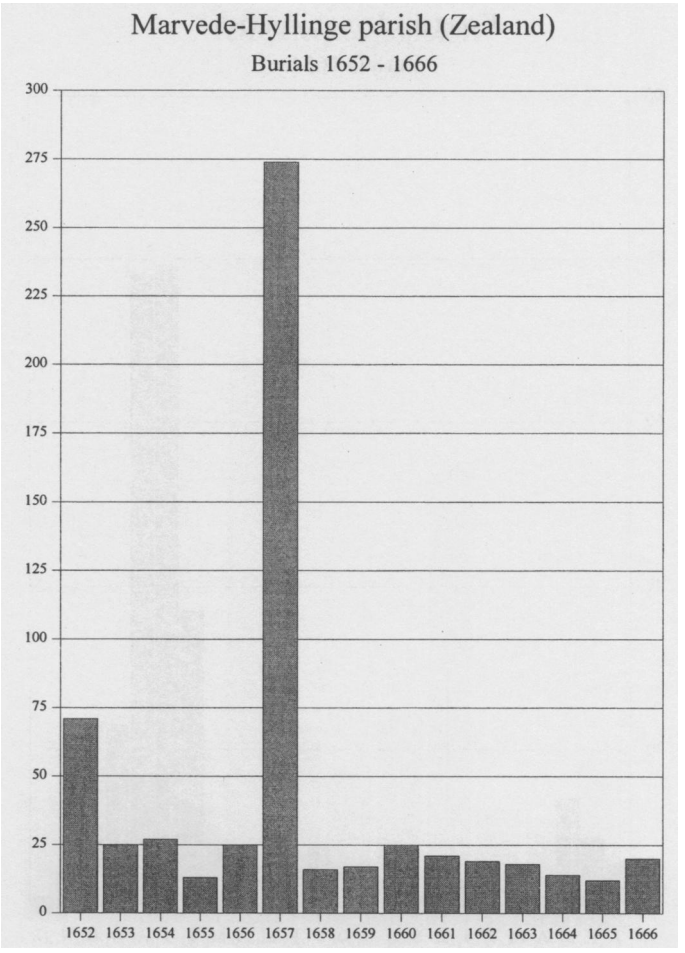

Figure 5: Source: H H Fussing, 'Øernes befolkning under Karl Gustavkrigene. En kirkebogsundersøgelse', *Historisk Tidsskrift*, 1945, 11th series, **1**: 287–333, p. 321.

An early register from the parish of Nørborg in the island of Als (southern Jutland) gives a more detailed picture of the impact of plague in a predominently rural area in the first half of the seventeenth century.[54] There was plague in 1625 and again in 1629. The latter outbreak, which had apparently begun in December 1628, was the worst (Figure 4).[55] A total of 68 died that year in the parish and the vicar, Andreas Brandt, recorded that of these 21 had died

[54] The parish was named after the town of Nørborg (Nordborg). This, however, was merely a large village, according to a seventeenth-century map, little more than a cluster of houses along the main road, Pontoppidan, op. cit., note 18 above, vol. 7, pt 1, pp. 438–9.

[55] It was not until August 1629, however, that the epidemic broke out in earnest, Møller, op. cit., note 30 above, pp. 287–90.

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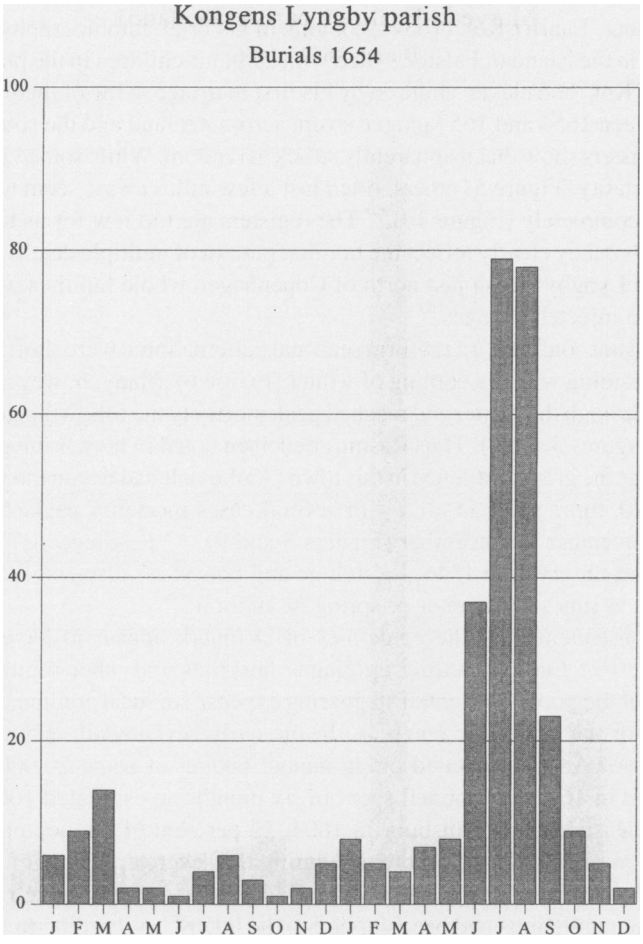

Figure 6: Source: *Lyngby Kirkebog, 1641–1699* (Lyngby parish register), transcribed by R G Hansen and I Hartby, Lyngby, Byhistorisk Samling for Lyngby-Taarbæk Kommune, 1986.

of "natural causes", the rest of the plague.[56] Again there is a clear pattern of multiple cases per household. In the small village of Pøl at least 23 died of the plague in 1629 and whole families were more or less wiped out. Thus a man by the name of Knud buried two sons on October 19. The following week his wife and another four children died. He himself was buried on November 17.[57]

The severity of plague mortality in the rural areas and the pattern of multiple cases per household is also reflected in a number of autobiographies. Thus Rasmus Pedersen, whom we have already met, lost his parents, three brothers and two sisters within a month in the spring of 1603. A total of 17 died on the family farm in Thestrup, a village near Aarhus in Jutland. Rasmus Pedersen survived because he was abroad, attending school in Lübeck at

[56] Ibid., p. 290.

[57] Ibid., pp. 288–9.

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the time.[58] A vicar, Lauritz Kok (1634–91), tells in his brief autobiography that his uncle Jens Kok, vicar in the island of Falster, "died with all of his children in the plague of 1654". His father, Oluf Kok, had eleven children by his first marriage. Nine of them died of plague in 1638.[59] Between 1654 and 1657 plague swept across Zealand and the southern island of Møn. Parish registers show that it apparently struck at random. While some villages suffered very severe mortality (Figure 5) others, often just a few miles away, seem to have escaped lightly or even completely (Figure 10).[60] The registers are too few for us to establish any overall picture, but they clearly reflect the familiar pattern of multiple deaths per household. For example, in Lyngby parish just north of Copenhagen whole families were practically wiped out in the infected villages.[61]

Outbreaks did not conform to a uniform seasonal pattern. Some were short, starting in late summer and subsiding with the coming of winter (Figure 6). Many, however, started in the autumn, lasted through the winter and reached peak mortality the following late summer and early autumn (Figures 3 and 7). Thus Rasmus Pedersen noted in his autobiography that "in the year 1619 was the great pestilence in this town (Aarhus). It had begun the year before and lasted until 1620, three years in all".[62] In several cases mortality peaked in the winter, usually from November to December (Figures 8 and 9).[63] "Pestilence is", the physician Christen Morsing observed in 1546, "a strange and poisonous disease ... for it comes at times in winter, at times in summer or spring or autumn".[64]

Economic consequences of the epidemics in Denmark appear to have been broadly similar to the rest of Europe. Setting up plague hospitals and other sanitary institutions and providing for the poor could entail staggering expense for local communities according to the severity of the particular outbreak. In the early seventeenth century, the French provincial town of Angers operated on an annual budget of some 20,000 *livres*. When plague broke out in 1626, the council spent in six months an estimated 100,000 *livres* on precautionary measures.[65] In Salisbury in 1604, 20 per cent of the population had to be supported from public funds.[66] In Florence, during the severe epidemic of 1630–1, of the population remaining in the city, an estimated 44 per cent should have received public support if plague regulations had been applied to the letter.[67] According to the accounts of

[58] Hübertz, op. cit., note 12 above, vol. 2, pp. 309–10.

[59] H F Rørdam, 'Nogle optegnelser af Danevirkevisens forfatter, Hr. Lauritz Olufsen Kok', *Kirkehistoriske Samlinger*, 1864, **3**: 455–8.

[60] Fussing, op. cit., note 33 above, p. 292. The data from the Zealand registers is summarized and discussed by Fussing, Tables I–XI.

[61] *Lyngby Kirkebog, 1641–1699* (Lyngby parish register), transcribed by R G Hansen and I Hartby, Lyngby, Byhistorisk Samling for Lyngby-Taarbæk Kommune, 1986; e.g. Jens Hjulmand in Stokkerup village buried his wife and two children on June 19, 1654. A week later he himself had died. By the end of July another three children from the family had died. Further examples of the pattern of multiple deaths per household can be found in O Højrup (ed.), *Levnedsløb i Sørbymagle og Kirkerup kirkebøger, 1646–1731*, Copenhagen, Udvalget for udgivelse af kilder til landbefolkningens historie, 1963, pp. 32–43.

[62] Hübertz, op. cit., note 12 above, vol. 2, p. 317.

[63] The parish registers used for Figures 8 and 9 expressly indicate plague and not some other disease.

[64] C Morsing, *Om pestelentzis Aarsage/Foruaring og Lægedom der emod* (1546), in T Bartholin, *Cista medica hafniensis*, eds. and trans. N W Bruun and H-O Loldrup 1662, Copenhagen, Dansk Farmaceutforenings Forlag, 1982, p. 103.

[65] F Lebrun, *Les hommes et la mort en Anjou aux 17e et 18e siècles*, Paris, 1971, p. 324, note 142.

[66] Paul Slack, 'The response to plague in early modern England: public policies and their consequences', in J Walter and R Schofield (eds), *Famine, disease and the social order in early modern society*, Cambridge University Press, 1989, pp. 167–87, p. 171.

[67] B Pullan, 'Plague and perceptions of the poor in early modern Italy', T Ranger and P Slack (eds),

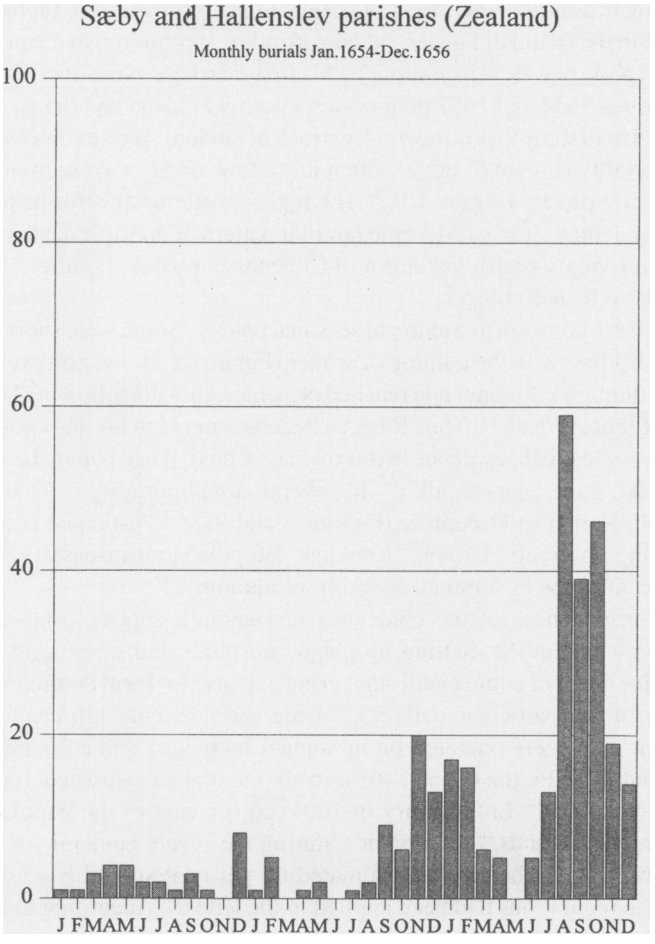

Figure 7: The register states that 254 died of plague in 1656. Source: Landsarkivet for Sjælland, parish number 322.

the town treasurer of Flensborg each plague death cost the town six *marks* (plus ten *skillings* to the gravedigger) during the outbreak of 1626.[68] In Helsingør at least one-third of the total population was entitled to public relief during the plague of 1710–11.[69] All such extra expenditure fell on the local community and that could mean higher taxation. During the 1654–57 outbreak, the town council of Holbæk had to levy additional taxes to pay

Epidemics and ideas, Cambridge University Press, 1992, pp. 101–23, p. 120.

[68] H Hjelholt, J Hvidtfeldt, K Kretzschmer (eds), *Flensborg bys historie*, Copenhagen, 1953, pp. 354–5. In the old Danish coinage there were 12 *skillings* to the *mark*. The monetary reform of 1625 set 1 *rigsdaler* (rixdollar) to 6 *marks* or 96 *skillings*. Just prior to this reform the daily wages of an unskilled labourer in Copenhagen would have been between 7 and 10 *skillings*, Ladewig Petersen, op. cit., note 6 above, p. 147.

[69] F V Mansa, 'Pesten i Kjøbenhavn', appeared in vols 1, 3, 4 of *Historisk Tidsskrift*, 1840–43, for Helsingør, see 1840, vol. 1, p. 411.

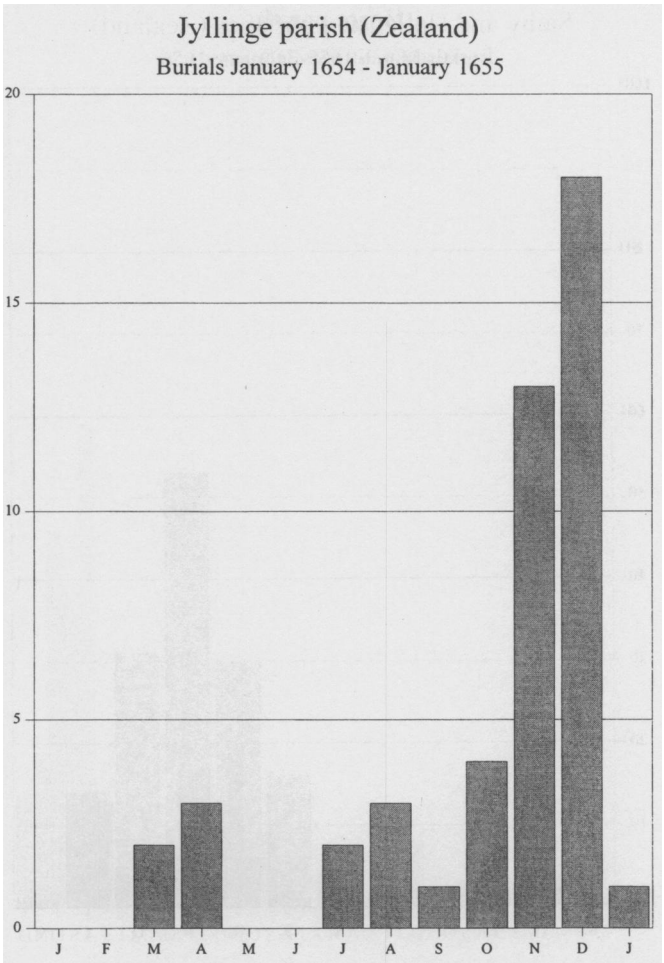

Figure 8: According to the parish register, plague was brought in from Copenhagen. Source: Landsarkivet for Sjælland, parish number 254.

the surgeons and to buy medicine.[70] Systematic research into local archival sources, such as the town treasurers' accounts, judicial records, minutes of town councils, etc., may yield additional information.[71]

In 1573 and again in 1579 the king had to cancel taxes owed by Aarhus on account of the severe pestilence that in previous years had caused the death of many of its citizens.[72]

[70] Thomsen, op. cit., note 43 above, p. 294.

[71] However, the early minutes of the town council of Helsingør, extant from 1549 to 1565, appear to make no mention of plague, though the town suffered two or three major outbreaks in this period. See E Kroman (ed.), *Helsingør Stadsbog*, 3 vols, Copenhagen, 1971–81.

[72] *KB* (1571–75), pp. 234–5. Hübertz, op. cit., note 12 above, vol. 1, pp. 196, 207.

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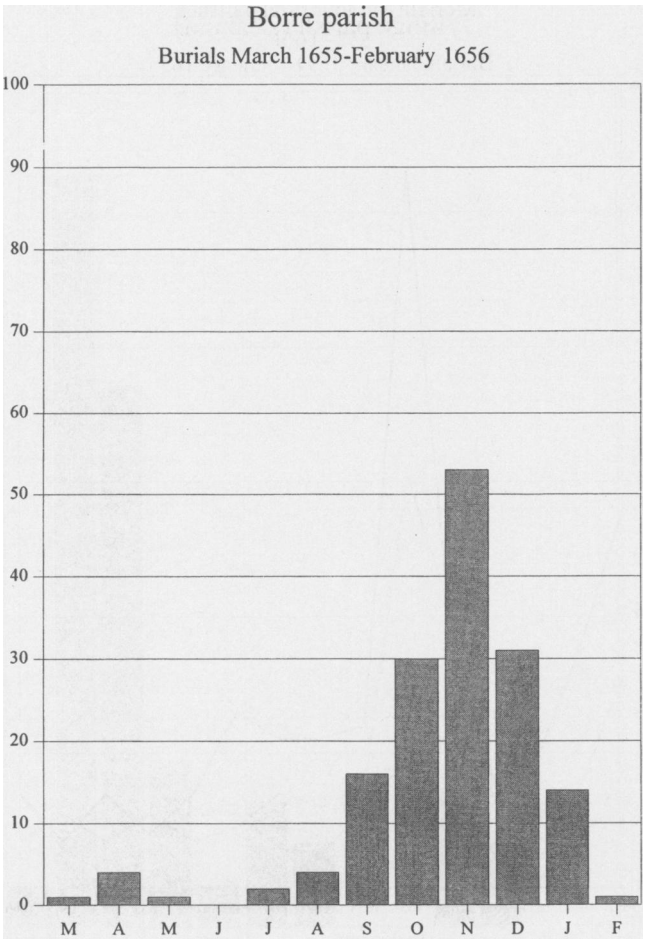

Figure 9: All deaths expressly stated to have resulted from plague. Source: Landsarkivet for Sjælland, parish number 534.

In 1585, the town of Vejle was likewise granted tax exemption because "most of the wealthy citizens had died of plague the year before".[73] The economic impact on the countryside is harder to ascertain, but governors regularly reported that farms had been abandoned because of the plague. Thus in 1604 the local governor of Silkeborg complained that it was difficult to attract tenants to Crown lands where many farms had been left deserted "on account of the severe pestilence which has prevailed all over the country in the previous years". Similar complaints were reported in 1620.[74] In 1655 soldiers from Copenhagen were detailed to assist in the harvest in Zealand because shortage of labour.[75]

[73] *KB* (1584–88), p. 311.
[74] *KB* (1603–8), pp. 97, 112, 169, 178, 210; (1609–15), p. 197; (1621–23), p. 2.
[75] *KD*, vol. 5, pp. 384, 386, 393, 396.

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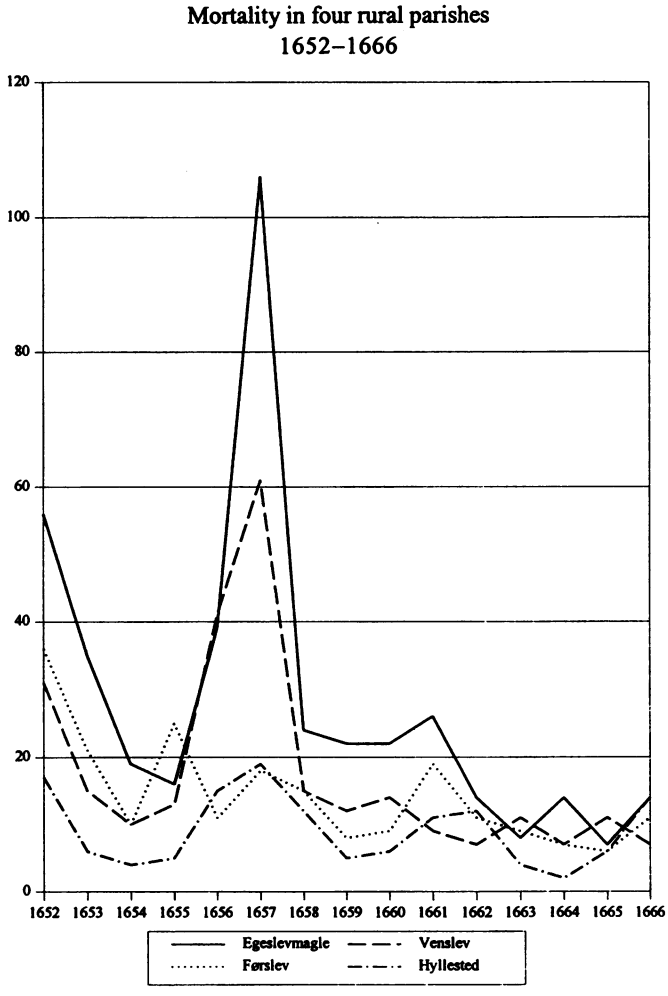

Figure 10: Mortality in the rural parishes of Egeslevmagle, Førslev, Venslev and Hyllested between 1652 and 1666. Source: H H Fussing, 'Øernes befolkning under Karl Gustavkrigene. En kirkebogsundersøgelse', *Historisk Tidsskrift*, 1945, 11th series, **1**: 320–1.

The Countermeasures

The Black Death struck a politically decentralized Europe. The timing and the extent of measures against plague therefore varied. However, when countermeasures were eventually applied, they invariably had a uniform core of orders that reflected different (and sometimes conflicting) views of the causes of the disease. When plague threatened, local authorities first of all routinely called on the community to pray, repent and give up blasphemy, gambling and loose living as raising moral standards might avert the wrath of God. Second, a general cleaning-up of the town was ordered. Streets were to be cleared

and a ban was put on the keeping of animals, pigs in particular, inside the town. Such efforts date back to long before the plague (and seem always to have been singularly futile), but by the fourteenth century they were increasingly justified by referring to the notion that filth and stench might poison the air and thus cause disease-producing *miasmata*.[76] Finally, travelling was restricted, fairs and markets and courts were closed, and a ban put on the entry of goods and individuals coming from infected areas. If these precautions failed, efforts were concentrated on preventing plague from spreading inside the town. The principal means were prompt isolation of plague victims and their belongings, either in their own houses or in plague hospitals; the dead were to be buried quickly and deeply, gatherings avoided, and schools closed. Obviously, magistrates and local bureaucrats worried particularly about the spreading of plague through contagion.

The city-states of northern Italy were the first systematically to apply such public countermeasures.[77] Against the background of recurring and severe outbreaks, they gradually developed permanent health offices, not only to manage crises but also to prevent them from occurring in the first place. Milan set up a health commission around 1450, Venice's famous *magistrato della sanità* was established in 1486 and became one of the city's most powerful administrative institutions, eventually regulating not just measures against disease but a wide range of public life. Permanent offices were established in Florence in 1527.

North of the Alps the response to plague was slower and less impressive. Responsibility for applying countermeasures lay with local authorities, that is, town councils and, in France, the provincial *parlements*. There is little indication that anything was or could be done to protect rural populations. By the late fifteenth and early sixteenth century, towns in Germany and France had developed standardized municipal laws and statutes similar to those outlined above, to be enforced when plague broke out. Often this included the setting up of temporary health commissions.[78] By the early seventeenth century, bills of health were widely used in France.[79] In Russia, towns like Novgorod and Pskov had adopted precautionary measures from the late fourteenth century and by the mid-sixteenth century, if not earlier, towns in Poland and Lithuania also enforced regulations. Of course, in Eastern Europe the vast majority of the population were peasants. There is evidence, however, that even rural communities here attempted to protect themselves by enforcing isolation of the sick and turning away travellers.[80]

[76] For example, English regulations of 1371 and 1388, R Horrox (trans. and ed.), *The black death*, Manchester University Press, 1994, pp. 203–6. M R McVaugh, *Medicine before the plague: practitioners and their patients in the Crown of Aragon, 1285–1345*, Cambridge University Press, 1993, p. 226; on the banning of pigs, see also van Schevensteen, op. cit., note 9 above, vol. 1, pp. 200, 206, 314 (Antwerp), Benassar, op. cit., note 9 above, p. 47 (Spain); F P Wilson, *The plague in Shakespeare's London*, Oxford, Clarendon Press, 1927, pp. 26–31.

[77] See the ordinances of Pistoia (1348) and the Milanese regulations of 1374, Horrox, op. cit., note 76 above, pp. 194–203. Even before the plague, Italian cities had employed professional doctors to diagnose leprosy and for forensic examinations, see McVaugh, op. cit., note 76 above, p. 222 and note 122.

[78] J Revel, 'Autour d'une épidémie ancienne: la peste de 1666–1760', *Revue d'Histoire Moderne et Contemporaine*, 1970, **17**: 954–83; on Nuremberg, see C Porzelt, *Die Peste in Nürnberg. Leben und Herrschen in Pestzeiten in der Reichsstadt Nürnberg (1562–1713)*, St Ottilien, EOS, 2000.

[79] Lebrun, op. cit., note 9 above, p. 40.

[80] J Alexander, *Bubonic plague in early modern Russia: public health and urban disaster*, Baltimore and London, Johns Hopkins University Press, 1980, pp. 14–28; R Hakluyt, *The principal navigations, voyages, traffiques & discoveries of the English nation*, 8 vols, London, J M Dent & Sons, 1907, vol. 2, pp. 63, 137, vol. 5, p. 326; *The travel diary of Robert Bargrave, Levant merchant (1647–1656)*, ed. M G Brennan, London, Hakluyt Society, 1999, pp. 134–6.

England seems to have been the exception.[81] Apart from modest attempts to clean up some towns, no public precautions were adopted until 1518 when the municipal authorities in London were ordered to mark plague-infected houses. Subsequently, the government constantly put pressure on the municipal authorities of London to adopt more extensive measures. Gradually this happened, although the city proved hesitant because of the economic losses involved. In the following decades the London regulations were copied by several provincial towns, some of which also established plague hospitals for isolating the sick.

Then, in 1578, the Privy Council issued a standard set of regulations applying to the whole country.[82] This was the first time—outside Italy—that a central government had intervened to contain plague. Considering that England was the most centralized state in Europe at the time this is perhaps not surprising, but it did constitute a new departure in the efforts to contain the disease, which was only slowly followed by other states. The key element was the very strict house isolation, not only of the infected but of their entire household, something which proved a constant source of criticism. These regulations were to be enforced at local levels by local authorities. The task of nationwide protection devolved on the central government, which adopted such measures as restricting travel and communication with infected ports abroad. This was usually done on an *ad hoc* basis.[83] During the first half of the seventeenth century, bills of health were also increasingly employed by municipal authorities.[84]

Compared to England, centrally directed efforts in France lagged behind, though the use of standardized bills of health indicates some co-ordination between local authorities. The central government did not intervene until 1667–68 when Colbert used the new instrument of royal power, the *intendants*, to contain the great outbreak which had begun in the Low Countries in 1663 and reached northern France by late 1667. This was effective as the plague was contained and never reached Paris.[85] In the Netherlands no nation-wide measures were introduced until 1665, apparently because the individual provinces feared that these could lead to further centralization. Thus the countermeasures, such as preventing ships from infected areas or ships with plague on board from calling at Dutch ports, long remained the responsibility of local urban authorities.[86]

Seen in this broader European context, the development of plague regulations in Denmark appears to have run parallel to the case of England. Not until fairly late were any public precautions enforced and when this finally happened, the initiative did not come from local authorities but from the central government. Since the Middle Ages most Danish towns had had municipal charters and thus enjoyed a rather limited autonomy, administered by mayors and town councils and regulated by municipal laws. Even in the late fifteenth

[81] According to Slack, op. cit., note 20 above, p. 201.

[82] Except London, which kept its separate rules. The 1583 version of the London regulations can be found in W P Barrett (ed.), *Present remedies against the plague, etc.*, [London], published for the Shakespeare Association by H Milford, Oxford University Press, 1933, pp. viii–xiii. They were not very different from the general orders.

[83] The general orders were revised on several occasions. The 1592 version is printed in Barrett, ibid.

[84] Slack, op. cit., note 20 above, p. 319.

[85] Revel, op. cit., note 78 above, pp. 966–73.

[86] D Bourgois, 'Les Provinces Unies, les measures contre la peste et le commerce dans la région baltique, 1709–1715', W G Heeres *et al.* (eds), *From Dunkirk to Danzig: shipping and trade in the North Sea and the Baltic, 1350–1850*, Hilversum, Verloren, 1988, pp. 191–202.

century these laws referred to the confinement of lepers, though there cannot have been many of them left if the general European trend is anything to go by. The lepers probably continue to figure because the laws were regularly renewed without being revised.[87] Plague, however, is not mentioned at all and there is no evidence of any steps taken by local authorities. Again, systematic investigation of local archival sources may yield additional information but whether this would alter the general impression is doubtful.

It should be noted that when public countermeasures were finally applied, university-trained physicians (the *medici*) played a somewhat marginal role. In Denmark, as in the rest of Europe, the nature of the plague and thus the proper countermeasures were in the last resort defined by the rulers and the administrators and they had decided that plague was spread chiefly (if not solely) by contagion and that proper sanitary precautions therefore had to be of a collective nature.[88] Danish physicians such as Christen Morsing (sixteenth century), Ole Worm and Thomas Bartholin (both seventeenth century) had studied abroad and were by the standards of the time well-educated and competent. But neither the concept of contagion nor the public health measures favoured by the authorities were readily compatible with the Galenic medical theory which European physicians had been taught. They sought the causes of disease in humoral imbalance and emphasized individual prophylaxis. Of course, individual physicians might be employed as advisers, health magistrates, diagnosticians, etc. to counsel and cure the sick, but it was not the profession that formulated sanitary policies. In fact, in Denmark physicians were not ordinarily expected to treat plague victims. This was the task of the surgeons and barbers, usually under the supervision of expert plague-doctors employed only during epidemics.

So, for all practical purposes, the primary duty of the physicians was to re-edit and publish the very traditional plague treatises which described symptoms, explained the various signs that plague was imminent and offered various useless cures for the sick.[89] Danish authorities were not dogmatic, however. When they eventually began taking precautionary action against the plague in the sixteenth century, they took *miasmata* as well as contagion into account (and, of course, they made allowance for the idea that plague ultimately sprang from the wrath of God). But, as in England, the emphasis was on measures that made sense only in the light of contagionist theory. This is evident in the oldest extant measures against plague which are found in Christian II's court regulations dating from around 1520. The regulations aimed to protect the king from infection and laid down that no clerk ill with "the

[87] E Kroman, *Danmarks gamle Købstadlovgivning*, 5 vols, Copenhagen, Rosenkilde og Bagger, 1951–61.

[88] V Nutton, 'The seeds of disease: an explanation of contagion and infection from the Greeks to the Renaissance', *Med. Hist.* 1983, **27**: 1–34; A G Carmichael, 'Contagion theory and contagion practice in fifteenth-century Milan', *Renaissance Q.*, 1991, **44**: 213–56; J Henderson, 'The black death in Florence: medical and communal responses', in S Bassett (ed.), *Death in towns: urban responses to the dying and the dead, 100–1600*, Leicester University Press, 1992, pp. 136–50.

[89] According to his own statements, Christen Morsing had spent twenty-three years studying abroad before returning home to become the first professor of medicine at the reorganized Lutheran University of Copenhagen. When plague broke out in the city in 1546, he composed a small treatise on the disease, which he dedicated to the chancellor Johan Friis. In this treatise—which like the majority of similar plague treatises lacked any great originality—Morsing described the "signs", that is, the symptoms, discussed the causes of the disease and recommended various remedies. All solidly based on miasmatic theory. Prophylaxis was a matter for the individual and Morsing did not suggest any collective measures. See Morsing, op. cit., note 64 above. Johan Friis was a key figure in the consolidation of post-reformation government.

common disease or any other such uncleanliness" should report for work before having recovered. No clerk ill with *pestilence*, however, should present himself at court until six weeks after recovery.[90]

The civil wars and church reforms of the 1520s and 1530s were followed by a period of consolidation of government and renewed centralization. In this process, attention was increasingly drawn to the dangers of recurring plague. The kings were still primarily concerned with their own personal safety and with safeguarding the heir to the throne. Denmark was an elective monarchy and the untimely death of the king or of a chosen heir who had been accepted by the powerful nobility would cause political turmoil. Thus in the summer of 1546 the governor of Copenhagen advised the king not to enter the city as the plague was still raging.[91] In November 1564 Frederik II had received news that "people were beginning to die quickly in the villages around Sorø" and thought it opportune to send messengers ahead to Zealand to find out if there were any safe places he could go to.[92] In December 1579, when plague was rife in Ribe, the mayors and councillors received strict orders to prevent anybody from leaving the town and going to Kolding where the king and the court were in residence. Anybody disobeying this order would be gaoled.[93] In 1583, the king, who was then residing in Haderslev, gave orders that no messengers from infected Copenhagen should come to the court. They should leave any letters with the governors of Assens and Hindsgavl who would then see to it that these were passed on.[94] In August 1584 he ordered that on account of the prevailing disease nobody (except noblemen) should enter Sorø as long as the crown prince resided in the town.[95] In 1637 Prince Christian, then serving as governor in Falster, told the local ferrymen not to transport any persons or goods from Copenhagen or other contaminated places in Zealand in order to keep his residence free of infection.[96]

The kings also showed considerable concern for the safeguarding of the army and the navy and various master craftsmen and specialists, including university professors.[97] Sometimes the plague created unforeseen difficulties. In September 1564 "severe disease and pestilence" in Copenhagen had decimated the workforce at the mint so that the king was short of money to pay the army.[98] Even worse, the plague also killed the workers in the royal brewery, and thus by January 1565 Frederik II, who was a heavy drinker even by the standards of his time, was facing the risk of running out of beer.[99] In 1583 he found himself in a similar predicament. Because of severe plague in Zealand he had decided to spend the winter in Jutland, and, fearing that he might run dry, he ordered the governor of Copenhagen to forward considerable supplies of wine to Aarhus.[100]

[90] *Nye Danske Magazin*, 1794, **1**: 318. I am unable to say what "the common disease", "*den meenige plage*", might be. A guess would be syphilis.

[91] *KD*, vol. IV, p. 519.

[92] *KB* (1561–65), pp. 516, 518, 520.

[93] *KB* (1576–79), p. 732.

[94] *KD*, vol. 4, pp. 665–6, see also pp. 519–20; *KB* (1584–88), pp. 143, 199.

[95] *KB* (1584–88), p. 143.

[96] *Prins Christian (V.)s breve*, op. cit., note 31 above, vol. 1, p. 380.

[97] For example, in late November 1553 Christian III ordered his master watchmaker to leave Copenhagen because of plague (*KD*, vol. 4, p. 551). In September 1564 the university was closed (*KB* (1561–65), p. 504). Orders for safeguarding the navy were issued the same year, see *KB* (1561–65), pp. 507–8, 519; (1580–83), pp. 718–19. The university was closed again in September 1578 "as several students had already died from the prevailing disease" (*KB* (1576–79), pp. 477–8).

[98] *Gyldenstjerne*, op. cit., note 10 above, vol. 2, p. 450.

[99] Ibid., pp. 550–1.

[100] *KB* (1580–83), p. 703.

However, in the reign of Frederik II and even more in that of his son and successor Christian IV, the government gradually widened its efforts against the plague. In theory at least, the objective was to safeguard not just the royal family and the court, nor just the urban population (which accounted for no more than 15 per cent of the total), but the entire country. In the towns the orders were usually addressed to the mayors and the councils; in rural districts the orders were made known at the various district courts (*herredsting*) and enforced by the royal governors (*lensmænd*).[101]

The preventive measures taken were the same as elsewhere in Europe. The preface to orders and missives contained routine calls for prayer and penitence and, on occasion, orders were given for holding whole days of compulsory, collective prayer to avert "God's anger and punishment".[102] In line with this, the custom of paying poor people in beer to carry out burials of plague victims should stop as it caused bouts of excessive drinking, which was not pleasing to God.[103]

On a more mundane level, the government once again wrestled with the problem of urban filth and stench. Mayors and councils were repeatedly told to clean up their towns and to impress upon the citizens that continuous dumping of all kinds of refuse in the streets would no longer be tolerated.[104] Pigs in particular were banned. In 1576 Frederik II had issued a general prohibition against pig-keeping inside towns, but in 1587 he was informed that the ban was being flouted openly. He wrote a sharp reprimand to the mayors and councillors of Copenhagen reminding them once again that the keeping of pigs could not be tolerated because:

> The keeping of pigs, particularly in a densely built-up and densely populated city, causes foul, poisoned air from which pestilence and other such diseases arise and for this reason, undoubtedly, such diseases have over the past years prevailed more in Copenhagen than in other places.

He then explicitly warned the mayors and the councillors that if they kept turning a blind eye to pig-keeping and even dared to keep pigs themselves they would not just be fined but prosecuted for breaking the king's law.[105] The prohibitions were reiterated by Christian IV, who threatened the citizens of Copenhagen with "severe punishment", but to no avail.[106] In 1709 the prohibitions and the threats would be repeated all over again by Frederik IV.

Most of the precautionary steps dealt with the dangers of contagion, however. When plague was reported, the government imposed a ban on fairs and markets. District courts and the meetings of the council of the realm were cancelled or relocated "because the king fears

[101] *KB* (1616–20), pp. 538–9, 676–7.

[102] For example, in 1583 and 1584, *KB* (1580–83), pp. 724–5, *KB* (1584–88), p. 201. Contemporaries took the idea of God being the ultimate source of plague seriously. In Protestant Europe especially, printing and the Reformation had made vernacular translations of the Bible easily available so people could see for themselves that in the past pestilences had been among God's preferred visitations. In an age of eschatological speculation recurring plagues could be and indeed were interpreted as a sign that the Last Days were near, though I suspect that in Denmark apocalyptic expectations and preaching were considerably less widespread than in England or Germany. On apocalyptic expectations in general, see A Cunningham and O P Grell, *The four horsemen of the Apocalypse: religion, war, famine and death in Reformation Europe*, Cambridge University Press, 2000.

[103] *KB* (1584–88), p. 232.

[104] For example, *KD*, vol. 4 , p. 575 (1562); vol. 5, p. 33 (1600); *CCD*, vol. 1, pp. 181–3 (1562), 611–12 (1574), vol. 3, p. 129 (1619).

[105] *KB* (1584–88), p. 760.

[106] *KD*, vol. 5, p. 194.

that the disease will spread if many people are gathered in one place".[107] In 1578 the mayors and councillors of Kolding were told to prevent people from Aarhus "and other places under suspicion where the disease is prevailing" from attending the forthcoming local fair. Guards should be posted at the points of entry to keep an eye on the traffic.[108] Also, ferry services between the many islands would routinely be discontinued in times of plague. In 1583 local authorities in Assens were told not to let anybody travelling from Copenhagen cross over to Haderslev in southern Jutland if they did not have a special permit issued by the king.[109] In 1619 ferry services between Falster and Zealand were stopped to contain the plague raging in Copenhagen and parts of Zealand.[110] This happened again in 1637.[111] Orders were also given regularly to prevent the entry of individuals from infected areas abroad.

As in the rest of Europe, clothing and linen was considered a particularly dangerous source of contagion.[112] In 1592 the government therefore issued a prohibition against the selling of used clothing, as it was suspected (probably with good reason) that much of this had belonged to plague victims and that the buyers therefore would be infected immediately and quickly die from the same disease.[113] In 1619 Copenhagen got its first plague hospital, which in normal times also served as a mental hospital.[114] The following year Christian IV reissued orders that no one was to enter a plague-stricken house until it had been thoroughly cleaned and fumigated, nor should the heirs of plague victims be given the belongings of the dead, clothes in particular, until these had been similarly treated.[115] By then it had become standard procedure for the government to demand that town councils enforce isolation of the sick either in their own homes or in plague hospitals (in so far as such were available).[116]

The Plague Orders, 1625

As already mentioned, Denmark had suffered a severe outbreak in 1618–21. In December 1622 plague was again reported in Sweden, and local governors and officials in Skåne (Scania) were ordered to prevent any entries from Sweden (Skåne together with Halland and Blekinge was part of Denmark until 1658).[117] In July, plague was reported in Bremen in Germany as well, and at once all trade with the town was banned.[118] Yet the disease kept approaching Danish territory. By September 1623 it had spread south of Jönköping in Sweden and the king again ordered the governors of Norway and Skåne to prevent travellers from entering. The borders were to be patrolled regularly to make certain that nobody,

[107] *KB* (1576–79), pp. 28. (1576), 147 (1577); (1584–88), p. 105 (1584); *KD*, vol. 5, pp. 33 (1619), 369 (1654).

[108] *KB* (1576–79), p. 478.

[109] *KB* (1580–83), p. 682.

[110] *CCD*, vol. 3, p. 588.

[111] *Prins Christian (V.)s breve*, op. cit., note 31 above, vol. 1, p. 374.

[112] See the English orders, para. 13 in Barrett, op. cit., note 82 above.

[113] *KB* (1588–92), pp. 711–12.

[114] Being situated outside the city it was destroyed in the siege of 1658–9 but subsequently re-established at Kalvebod Strand in 1665: O Nielsen, *Kjøbenhavns historie og beskrivelse*, 4 vols, Copenhagen, Gad, 1887–92, vol. 3, pp. 340–3.

[115] *CCD*, vol. 4, p. 118.

[116] *KD*, vol. 5, p. 70. There are indications that isolation of the sick in their own houses was practised as early as the 1580s, see *KB* (1580–83), p. 731.

[117] *KB* (1621–23), pp. 490–1; plague had in fact broken out in Sweden in the summer of 1622, P-G Ottosson, 'Fighting the plague in 17th- and 18th-century Sweden', in A Brändström and L-G Tedebrand (eds.), *Society, health and population during the demographic transition*, Stockholm, Almqvist and Wiksell, 1988, pp. 309–22, p. 314.

[118] *KB* (1621–23), pp. 641, 646–7.

without respect of persons, could enter except with the king's special permission.[119] When the Swedish resident in Helsingborg asked permission to receive supplies from Sweden, this was permitted only on condition that the peasants bringing the grain could produce valid bills of health.[120]

Once again the precautionary measures proved ineffective. By early December 1624 Copenhagen was infected and the government now took the usual steps to prevent the plague from spreading further. In the summer of 1625, the disease was prevailing in Copenhagen and the citizens were forbidden to visit the market in Køge south of the city or indeed that in any other town "in order that the disease may not spread to other places in the country".[121] By 1626 the plague was finally subsiding, but all governors were ordered to prevent travel to and from Hamburg, Itzehoe, and Stralsund and other places in Holstein as the government had been informed "that the injurious and contagious pestilential disease" was prevailing in these parts.[122]

So far, the results of government intervention appear to have been unimpressive. One reason was that the orders and missives had invariably been of an *ad hoc* nature, that is, they were not issued until after the outbreak of plague, and by then it was often too late. For the various anti-contagion measures to be effective, they had to be enforced quickly and decisively before the disease had gained a foothold, but administrative procedures generally were too cumbersome for this to be achieved.

However, early in the outbreak, in January 1625, Christian IV had issued a set of standing orders in line with the English orders to tighten up future precautionary measures. The 'Orders on how to act in times of plague, bloody flux and other such contagious diseases' gathered together and standardized many of the previous *ad hoc* orders and missives and turned them into a regular plague code.[123] In 1643 the Orders were incorporated almost verbatim in the code of Christian IV (the so called *Grand Recess*).[124] The Orders were addressed to town authorities as seaports were notoriously where plague epidemics began. It remained the task of the provincial governors to protect the rural population at village level by imposing restrictions on travel in times of plague and by enforcing isolation of the sick.[125]

After the usual introductory call for prayer and repentance, the Orders specified who were responsible for enforcing the various measures and, just as important, who were to bear the costs. When plague was reported, a board of health consisting of prominent citizens together with the vicar and the local physician (if the town had one) was to be set up to supervise enforcement of the rules. This temporary institution, however, could not compare with the powerful Italian health commissions, as the final authority remained with the mayor and the council. A competent surgeon was to be hired at the town's expense. He was charged with attending the sick in the plague hospital or in their own houses. Poor plague

[119] Ibid., p. 680; *CCD*, vol. 4, p. 118.

[120] *KB* (1621–23), p. 715.

[121] *CCD*, vol. 4, pp. 329–30; *KD*, vol. 5, p. 87.

[122] *CCD*, vol. 4, pp. 352–3.

[123] *Forordning om, hvorledes der skal forholdes under pest, blodsot og sådanne smitsomme sygers tid*, in *CCD*, vol. 4, pp. 186–93. I am unable to say whether Christian IV may have taken the English orders as a model. Usually, England is not considered to have influenced Denmark to any marked degree in the seventeenth century. On the other hand, Christian IV's sister Anna had married James I of England in 1589 and the king visited England in 1606 and in 1614. Another indication of the close links with England in this period is that among several prominent musicians and composers called to the Danish court were the Englishmen John Dowland and William Brade.

[124] *Recess* in Danish meant a collection of passed laws. The relevant chapters of the 1643 recess dealing with plague are in *CCD*, vol. 5, pp. 245–52.

[125] See, for example, *KB* (1624–26), p. 477.

victims were to be treated free of charge. The surgeon also had to supervise the disinfection of plague-stricken houses and to report suspicious cases.

The first task of the authorities was to prevent the disease from entering the town. Nobody from infected areas should be allowed to enter unless they had undergone a quarantine of four to five weeks at the plague hospital. If the town did not have a proper hospital, one should be set up in a suitable building, preferably a bit out of the way. Letters from infected areas were to be fumigated. Finally, apothecaries should stock medicines, drugs, etc.

If, in spite of these precautions, plague did enter the town, the all-important task was to isolate the sick, chiefly in their own houses. The Danish Orders insisted, like their English counterparts, on very strict household quarantine, though they sensibly allowed healthy inmates of infected houses to leave on condition that they underwent quarantine somewhere else. The town was responsible for providing poor people in isolation with the vital necessities, including coffins; poor people were after all entitled to a decent burial. Additional regulations forbade large gatherings, cut short funeral services, and set the proper depth of graves at three Zealand *alen* (six feet).

The Orders in theory made it possible for local town authorities to take prompt action as soon as they received information of a plague threat. Probably more importantly, they made it clear that the central government was seriously concerned with containing the disease. Because of the difficulties in diagnosing plague, local authorities, particularly in the towns, acted cautiously. Once the measures were taken, they would entail considerable costs and disruption of normal life, including economic activities. As we shall see, during subsequent outbreaks the government had constantly to remind town councils of their duties and the proper procedures, that is, to isolate plague victims and to restrict travel. The concern on the part of the government is illustrated by an incident that occurred in early December 1636. A woman was found dead in Nørregade in Copenhagen, and Christian IV personally ordered an inquiry into the causes of her death, primarily to ascertain whether plague was responsible or not. Apparently no definite answer to this was given. Then, at the end of the month, another corpse was found, this time just outside one of the city gates, and the king took the opportunity to emphasize the importance of reporting all suspicious deaths and of isolating all suspicious cases, either in their houses or in the plague hospital.[126] The king's concern was justified, unfortunately, as the plague returned to Copenhagen and Zealand the following year.

The 1654–57 Outbreak

After the promulgation of the Orders, Denmark suffered three further major outbreaks of plague, in 1629–30, 1636–38 and 1654–57. Whereas the first was nationwide, the last two were confined to east Denmark, that is, Copenhagen, Zealand and Skåne, which may be an indication that preventive measures were having some effect. There had been a severe outbreak of dysentery in Copenhagen and parts of Zealand in the summer of 1652 when Frederik III gave the town council detailed instructions for proper burial procedures "in this time of infirmity and prevailing disease".[127] The outbreak abated in the autumn. Then, in

[126] *KB* (1635–36), p. 761; *KD*, vol. 5, pp. 195–7.

[127] *KD*, vol. 3, pp. 402–3; *CCD*, vol. 6, pp. 101–2. It was clearly identified as *blodsot* (bloody flux) and violent fevers, *KB* (1652), pp. 218, 221, 322–3. An extant death count (Vor Frue parish with eight cemeteries), covering the years from 1649 to 1653,

September 1653, the government received information that "the highly contagious disease *pest* was prevailing severely" in Danzig and Königsberg, traditional sources of infection for Denmark. A ban was immediately imposed on all traffic between these ports and Denmark and Norway.[128] It was lifted in March 1654 but this proved premature as plague broke out in Copenhagen in late April.[129]

In the summer of 1654, the king, having wisely retired to Jutland, sent a continuous stream of orders and missives in order to contain the plague and to provide solace for stricken areas. Vicars should immediately be appointed to vacant seats and bishops were instructed to take care that vicars after the sermon should encourage their flocks to pray collectively for deliverance from the disease.[130] Also, district courts were cancelled, as were several local markets and fairs.[131] In June, persons coming from Copenhagen were forbidden to cross over to Funen unless they could present a special royal permit or had undergone a quarantine of three or four days in either Slagelse or Korsør.[132] The town council of Copenhagen was ordered to burn used tar barrels in the most infected streets to clean the air.[133]

The chancellor of the University, Ole Worm, had felt it his duty to remain in the capital while the other professors and the well-to-do students had retired to country houses or provincial towns where plague had not broken out. In letters to friends and relatives, Worm cited some mortality figures which he probably had from some official counts. By June 7 weekly mortality exceeded 180, by June 29 it had reached 279, by July 1 "more than 300", by July 8 the mortality had increased further to 428 (and the total number so far had been 1,400 dead). On July 15 the *daily* count was 108. By the end of the month weekly mortality was more than 600, with "practically no street in the city having escaped the infection". In the second and third week of August mortality rates were 526 and 561 respectively.[134] At the end of August, Worm himself died (though not from plague) and no figures are available until the end of December when Swedish intelligence reported that the weekly death count was down to 30 or 40 and that the plague was almost over in the city, though it still prevailed in rural areas.[135] An extant death count from Holmens parish (a rather exceptional parish, however, considering its close association with the harbour and the navy) gives a total of 2,641 dead in 1654, of which 1,982 are said to have died from plague.[136] Though the figures are fragmentary they do show the characteristics of the plague: the explosive spreading and the severe mortality. It seems fair to assume that in times of normal health the weekly death

shows a marked mortality increase in 1652 and 1653 compared to previous years, see J A Fridericia, 'Studier over Kjøbenhavns befolkningsforhold i det 17. Aarhundrede', *Historisk Tidsskrift*, 6th series, 1889–90, **2**: 219–63, p. 230. The figures indicate a weekly mortality rate of around 25 in normal times. Extant Zealand parish registers indicate that the outbreak became fairly widespread, Fussing, op. cit., note 33 above, p. 291; Højrup, op. cit., note 61 above, pp. 27–9.

[128] *CCD*, vol. 6, p. 143.

[129] *Worm*, vol. 3, p. 508; *CCD*, vol. 6, pp. 156–7; *KD*, vol. 3, pp. 429–30.

[130] *KD*, vol. 5, pp. 374–5; *CCD*, vol. 6, p. 164.

[131] *KD*, vol. 5, p. 369; *CCD*, vol. 6, pp. 164–5, 171–3.

[132] *KD*, vol. 5, p. 376.

[133] Ibid., p. 376. During the great plagues in London in 1563, 1603, 1625 and 1665 bonfires were lit in the streets for the same reason (Wilson, op. cit., note 76 above, p. 31); fires were also lit in the streets of Moscow in 1770–1 (Alexander, op. cit., note 80 above, p. 123).

[134] *Worm*, vol. 3, pp. 512, 515, 517, 519–22.

[135] P W Becker (ed.), *Samlinger til Danmarks historie under Kong Frederik den Tredies Regiering af udenlandske Archiver*, 2 vols, Copenhagen, J Deichmanns, 1947–57, vol. 1, pp. 56–7.

[136] Fridericia, op. cit., note 127 above, p. 230.

rate in mid-seventeenth century Copenhagen averaged 25 deaths, which would add up to an annual mortality of some 1,300.[137] Supposedly, in 1654 in Copenhagen 8,500 had died out of an estimated population of 30,000 to 35,000, that is, roughly 25 per cent. The annual mortality in times of normal health would have been, again roughly estimated, 3.5 per cent.[138]

The outbreak was not confined to Copenhagen. It spread across Zealand and the southern islands between 1654 and 1657. When Helsingør was reported to be infected, the king again impressed on local authorities that streets should be cleaned up, no clothing was to be offered for sale, infected persons should be isolated in their houses and, of course, the keeping of pigs inside the town must stop at once.[139] In August 1654 ferry services between Funen and Jutland were stopped and only those who carried a passport from the king were allowed to cross.[140]

In December the ban on markets in Jutland was lifted "as the hitherto prevailing pestilence thanks to the grace of God has abated in our realm". In February 1655 the ban was lifted in the rest of the country.[141] But again this proved to be premature. In early June plague reappeared in some towns and villages in Zealand and once again fairs and district courts were cancelled and local authorities told to enforce the isolation of infected persons.[142] When plague was reported in Skåne, district courts and the market in Lund were cancelled and orders were given that nobody from the infected areas should travel to Copenhagen.[143] As before, Jutland remained safe, but here the infection now threatened from another direction, the Low Countries. A prohibition was issued against the selling of old clothes and rags from Amsterdam where plague had broken out.[144]

On the face of it, the Danish government had not handled the outbreak with any great competence. To begin with it had acted quickly and decisively, but then it vacillated, twice lifting bans and restrictions prematurely. Yet, owing to either luck or effective restrictions on sailing, Jutland and Funen were largely kept free of infection (though plague did appear in Kolding in 1654 and around Vejle). In any case, the 1654–57 outbreak proved to be the last in the cycle of epidemics that had begun in the fourteenth century.

Henceforward the government was certainly more careful. In the autumn of 1663 another great outbreak began in the Low Countries, allegedly brought by ship from Izmir in the Ottoman empire. The plague spread to England, the Rhineland, and into northern France where it caused the first direct government intervention in containment. It lasted until 1670.

[137] As we have seen, Swedish intelligence had reported 30 to 40 dead a week in late December though the plague "was still present on a small scale". In February 1655 the plague was officially declared to have ended and we may assume therefore that mortality had by then returned to normal levels, that is, less than 30 a week.

[138] See F Hammerich, 'Præsident Hans Nansen den Ældre', *Historisk Tidsskrift*, 1858–49, 3rd series, **1**: 131–260, p. 191 in particular. The source for the total death count was the famous physician Thomas Bartholin, who had fled Copenhagen in 1654. Whether the figure is supposed to include all deaths occurring in 1654 or just the plague victims is not clear. Hammerich's calculation methods have been criticized by M Rubin, 'Bidrag til Kjøbenhavns Befolkningsstatistik i Hundredåret 1630–1730', *Historisk Tidsskrift*, 1881–82, 5th series, **3**: 487–549. In any case, the figures are plausible and fit with the estimates of seventeenth-century mortality made by R Mols (R Mols, *Introduction à la démographie historique des villes d'Europe du XIVe au XVIIIe siècle*, 3 vols, Gembloux, J Duculot, 1954–56).

[139] *CCD*, vol. 6, pp. 169–71.

[140] Ibid., p. 172; Brahe, op. cit., note 30 above, pp. 120–1.

[141] Kinch, op. cit., note 23 above, p. 396; *CCD*, vol. 6, pp. 175–6; *KD*, vol. 5, p. 383.

[142] *CCD*, vol. 6, pp. 177, 246.

[143] Ibid., pp. 177–8, 182.

[144] Ibid., p. 254.

As early as November 1663, the Danish government received information that the plague was raging in Amsterdam and Hamburg and it ordered customs authorities in Copenhagen to prevent ships and goods from these parts from entering. At the same time two suspicious deaths in a house in Copenhagen were reported and orders were immediately issued that any surviving inmates should be isolated inside the house at the expense of the city authorities so that "contagious disease should not prevail in this city".[145]

In October the following year, the government discovered that Dutch ships were flouting the prohibitions, landing goods directly on the beaches. The military commander of Copenhagen was told to patrol the shoreline with cavalry to make certain that neither persons nor goods from Amsterdam or other infected places were put ashore. Offenders were to be arrested, their goods confiscated and their boats destroyed.[146]

In 1665, when the plague was at its height in London and various other places in England, the government again issued prohibitions against entry from infected places. But this time the prohibitions were not unconditional. Travellers were permitted to enter Denmark provided that they were ready to undergo a quarantine, "which in other states and countries is customary in times like these". Also, ships and individuals carrying valid bills of health could be admitted.[147] So by the 1660s, the Danish government, instead of issuing simple prohibitions against entry, had adopted the advanced and flexible countermeasures (quarantine, bills of health) then employed widely by other European states to prevent infection from abroad.

In 1680, when plague was once more reported in Germany, the government reissued the usual orders: nobody should be admitted without a valid bill of health, the citizens of Copenhagen were forbidden to visit infected places or import goods from there. Finally, the lord admiral was ordered to intercept all ships coming from infected areas.[148] The measures appeared to be effective, as Denmark again escaped infection. In 1683 the recently established absolutist monarchy, eager to standardize and centralize, promulgated the *Danske Lov*, a statute book applying to the whole country and replacing all previous legislation, including the plague Orders of Christian IV. The new law contained only a few sporadic provisions regarding plague. Early drafts of the statute book still contained the plague orders, but in the subsequent process of preparing the law it was decided to leave them out. Together with other legal provisions dealing with the maintenance of public order they were instead to be incorporated in a separate police statute (which was common practice in Germany). For reasons we need not discuss here, this statute was never completed, however, and so the plague orders inadvertently slipped from the legislation. Considering the success of previous decades in preventing plague from entering, the government may have begun to see the need for elaborate plague orders as less urgent.[149]

[145] *KD*, vol. 6, p. 392.

[146] Ibid., p. 403.

[147] Ibid., p. 409. Sweden began adopting quarantine measures in the 1650s, Ottosson, op. cit., note 117 above, p. 315.

[148] *KD*, vol. 6, pp. 744–5.

[149] V A Secher and C Støchel (eds), *Forarbejderne til Kong Kristian V.s Danske Lov*, 2 vols, Copenhagen, I Kommission hos G E C Gad, 1891–94, vol. 2, pp. 29, 351, 523). See also I Dübeck, '"alt hvis Politien egentlig vedkommer..."': Forholdet mellem Danske Lov og den såkaldte politiforordning', in D Tamm (ed.), *Danske og Norske Lov i 300 år*, Copenhagen, Jurist- og økonomforbundets Forlag, 1983, pp. 145–78. An early eighteenth-century draft of the police statute has in fact been discovered, but does not refer to plague; H Koch, 'Politimyndighedens oprindelse (1681–1684)', *Historisk Tidsskrift*, 1982–83, **82**: 27–56.

Copenhagen 1711, Marseilles 1720

Then, in 1711, almost sixty years after the last epidemic, Denmark suffered a final outbreak of plague. As I have dealt with this in some detail elsewhere I shall just briefly sketch out the course of the outbreak.[150] Owing to the unsettled conditions during the Great Northern War, an epidemic originating in the Ottoman empire had spread into the Balkans and further into Central and Eastern Europe. In late 1708 the Danish government received information that it had reached Poland and again the routine countermeasures were applied. An elaborate system of defences was set up: no ships from the Baltic were to be admitted without valid bills of health, suspicious ships were to quarantined for forty days and all letters from the infected area should be fumigated. To enforce the orders, quarantine stations were established, health commissions were set up in all ports and warships stationed in the entrance of the harbours.[151] As the plague moved closer, reaching Lübeck in November 1710 and Sweden shortly after, the government stepped up its efforts. All foreigners were to be registered, bills of health were made mandatory for everybody travelling within Denmark, and the citizens of Copenhagen were ordered to clean up the streets—and were once again forbidden to keep pigs. The local authorities in several provincial towns also made another attempt to get at the pigs.[152] All traffic with the Baltic ports was banned, but, owing to grain shortage in Denmark, the ban was partially lifted again.

This time the measures proved insufficient, probably because of the disorder following the fighting in Sweden.[153] In late 1710 suspicious deaths were reported in a small suburb of Helsingør and they multiplied during the winter. A physician sent from Copenhagen in January declared the disease to be just a "malignant, epidemic fever", however. Rumours later had it that he had been swayed by the local community leaders who feared the consequences of a plague diagnosis. Be that as it may, by early March it was clear that the plague had not only entered Helsingør but had spread to villages in the surrounding countryside.[154] On May 25 the army received orders to set up a proper cordon effectively to isolate the infected area and if anyone tried to cross the cordon, the soldiers should shoot to kill. Seawards isolation was enforced by warships stationed offshore.[155]

In spite of this, the infection reached Copenhagen in June. At first, the authorities showed the usual reluctance to recognize suspicious deaths. By mid-June mortality rates had more than doubled, however, and there could no longer be any doubt that the plague had entered the city.[156] Thus, somewhat belatedly, the authorities began applying countermeasures, which were hampered by the fact that nobody had any practical experience with plague. Temporary plague hospitals were established and a health commission led by

[150] Christensen, op. cit., note 8 above.

[151] Mansa, op. cit., note 69 above, 1840, vol. 1, pp. 402–3.

[152] Christensen, op. cit., note 8 above, p. 52. For example, in Faaborg, Blomberg, op. cit., note 26 above, vol. 1, pp. 361–2.

[153] Some contemporaries maintained that the Baltic had been the source of infection. According to one account a weaver lately arrived from Stockholm had died in a house in Helsingør and—according to the familiar pattern—two weeks later the other inmates of the house fell sick. Mansa, op. cit., note 69 above, 1840, vol. 1, p. 400.

[154] Ibid., pp. 406–7.

[155] The scale of the cordon was not impressive. It ran from Villingebæk on the north coast to another fishing village, Espergærde, a few miles south of Helsingør. F V Mansa, 'Pestin i Kjøbenhavn', *Historisk Tidsskrift*, 1840, vol. 1, pp. 408–10.

[156] E Marquard, 'En statistik fra pestens Aar 1711', *Historiske Meddelelser om København*, 1924, 2nd series, **1**: 397–402, p. 398.

the Copenhagen chief of police was set up.[157] Increasingly detailed orders were issued to isolate Copenhagen, to ban the selling of used clothing—the belongings of plague victims were expressly ordered to be burnt—to seal infected houses and to provide for the poor, and of course the keeping of pigs was banned once more. On 1 August a revised, comprehensive set of plague orders was issued, basically a repetition of the second part of the plague ordinance of Christian IV from 1625.[158]

When the plague finally abated in October, Copenhagen had suffered 22,000 to 23,000 deaths out of a population of 60,000. It would seem that the countermeasures had been ineffective. Yet the real success had been the containment of the plague—only northeastern Zealand had been affected. The success is evident by comparison with Sweden. Stockholm had been infected from Livonia in 1710 and, in spite of countermeasures very similar to those applied in Denmark, the plague spread from the city to practically the entire country. Sweden was no less centralized than Denmark, but, following the disastrous defeat at Poltava (1709) and Charles XII's temporary exile in Ottoman territory, the country was in turmoil and this no doubt made administrative efforts less effective.[159]

A few years later, Marseilles and parts of southern France suffered a disaster very similar to that in Copenhagen in 1711. By the late seventeenth century Marseilles had become the centre of the growing French trade with the Levant. Each year several hundred ships returning from Ottoman ports and the Barbary Coast called at the city which, obviously, became very exposed to the import of infection.[160] To counter this threat, extraordinary measures had been applied. As early as the sixteenth century a lazaretto for isolating suspected plague victims had been established and a new one was added in 1631 and extended in 1663.[161] In 1622 the *parlement* of Provence issued general orders that henceforth all ships returning from the Levant and the Barbary Coast should—under pain of death and huge fines—call first at either Marseilles or Toulon and there present valid bills of health. Only then were they allowed to disembark or to proceed to other ports. If plague was suspected on board, ships were to undergo quarantine at Marseilles or Toulon and nowhere else.[162] These orders were revised and specified on several occasions, usually when plague was reported in neighbouring countries and later they were replaced by (similar) royal orders.[163]

By the standards of early eighteenth-century Europe, Marseilles had been provided with a modern and apparently effective line of defence. Though it was in constant contact with the plague-infested eastern Mediterranean, the previous major outbreak in the city had erupted as far back as 1648 when 8,000 had died.[164] Then in 1720 another and, as it turned out,

[157] *KD*, vol. 8, pp. 157, 159–79.

[158] Ibid., pp. 166–79.

[159] O T Hult, *Pesten i Sverige 1710*, Särtryck ur Hygienisk Tidskrift Band 8, Stockholm, Kungliga Boktryckeriet, P A Nordstedt & Söner, 1916; Ottosson, op. cit., note 117 above, p. 315.

[160] C Carrière, M Courdurié, F Rebuffat, *Marseille, ville morte. La peste de 1720*, Marseilles, M Garçon, 1968, p. 15.

[161] D Panzac, *Quarantaines et lazarets: L'Europe et la peste d'Orient, XVIIe–XXe siècles*, Aix-en-Provence, Edisud, 1986, pp. 180–1.

[162] D Panzac, 'Crime ou délit? La Législation sanitaire en Provence au XVIII siècle', *Revue Historique*, 1986, **275**: 39–71. The orders indicate that in one form or another the famous Bureau de Santé was in existence before 1640, the date usually given for the establishment of this institution.

[163] Ibid., p. 32.

[164] Carrière, *et al.*, op. cit., note 160 above, p. 15.

extremely severe outbreak occurred. How the plague was able to circumvent the defences is well-known and we need not go into details. In May a ship was returning from Syria with a cargo of cotton. *En route* there had been several suspicious deaths, including that of the ship's doctor, and consequently it was turned away by the sanitary authorities in Livorno. However, on arrival at Marseilles the ship was not properly quarantined because certain members of the city council had a financial interest in getting the cargo ashore and sold as quickly as possible. Against all regulations, the quarantine was shortened and the sailors allowed to sell their privately imported goods in the city.

At the beginning of July the first suspicious deaths occurred in the city. Initially they were put down to a "malignant fever", but a few days later the medical officers declared that it was in fact plague. The council did not react, however, until the death rate reached 50 a day. An infected street was isolated, but by then such countermeasures were insufficient. In August and September the plague spread through the city, mortality eventually running as high as 1,000 a day, especially among *les petites gens*. Most of the wealthier inhabitants had already fled the city to seek refuge in country houses, apparently without any hindrance. When the plague finally disappeared in the first months of 1721, an estimated 50 per cent of Marseilles' 100,000 inhabitants had died.[165]

The *parlement* of Aix had ordered the isolation of Marseilles in August 1720, but by then the first cases outside the city had already been reported. In the spring of 1721 the infection spread rapidly through Provence and Languedoc, ravaging the countryside as well as the towns. The central government stepped in and established *cordons sanitaires* around infected areas and, though the cordons constantly had to be reorganized because the rules were not strictly observed, the plague was eventually contained as it had been in the last regular outbreak in France in 1667–70, and as it had been in Copenhagen in 1711.

The 1711 and 1720 outbreaks were reminders that plague was never far away and remained a very real threat. It could still reach the Mediterranean seaports by ship, as demonstrated by the devastating outbreak at Messina (1743),[166] and throughout the eighteenth century it was constantly seeping from the Ottoman empire across long and porous borders into the Ukraine, Podolia,Volhynia, Galicia, Transylvania and Hungary. After the great epidemic of 1708–12, the Habsburgs strengthened their defences by gradually setting up a 2,000 kilometre long permanent *cordon sanitaire* along the Ottoman border.[167] In Russia the central government issued standard plague regulations in 1728, and in the following year it took the first steps towards establishing permanent sanitary control posts along the Ukranian rivers. The system was extended and reorganized during the eighteenth century as Russia expanded to the west and the south. Also, naval quarantine stations were set up in St Petersburg and Reval.[168]

On the whole, both the Habsburg and the Russian empires were able to contain plague in their southern border regions, the major exception being the limited Hungarian outbreak in

[165] Ibid., p. 302.

[166] Panzac, op. cit., note 161 above, p. 88.

[167] E Lesky, 'Die österreichische Pestfront an der k.k. Militärgrenze', *Saeculum*, 1957, **8**: 82–106.

[168] Alexander, op. cit., note 80 above, pp. 21–60; N K Borodij, 'I.A. Poletika: an outstanding Ukrainian physician and scholar of the eighteenth century', *Soviet Studies in History*, 1987, **25**: 8–15; *idem*, 'The activity of D.S. Samoilovich in the Ukraine', ibid., pp. 16–23; *idem*, 'The quarantine service and anti-epidemic measures in the Ukraine in the eighteenth century', ibid., pp. 24–32.

1738–42 and the great plague in Moscow and Central Russia in 1770–72.[169] The chink in the European armour was Poland. Local authorities in Poland had adopted the usual precautionary measures since the sixteenth century, but no standardized and centrally administered countermeasures were ever enforced. Poland therefore remained an open door to plague, and, while the rest of Europe saw a rapid decrease of plague outbreaks in the second half of the seventeenth century, Poland continued to be ravaged at regular intervals throughout the eighteenth century. Severe epidemics occurred roughly every decade until 1800.

Denmark, just across the Baltic, followed developments in Poland with understandable apprehension, reflected in a constant stream of government decrees and orders concerning the importance of standardized bills of health and proper quarantine measures. In November 1720, plague was again reported in the Baltic. The health commission was set up once more, trade with infected ports was banned, the need for valid bills of health emphasized. A new quarantine station was set up outside Østerport.[170] As late as September 1770 the health commission was once again established in Copenhagen because of the "contagious disease" in Poland.[171]

In the second half of the eighteenth century another area besides the Baltic emerged as a potential threat. In the Mediterranean, Danish shipping and trade had increased owing to agreements with the Barbary Coast states, and consequently reports of plague in Istanbul, the Greek Archipelago, on the Barbary Coast, and in southern Spain appear in Danish archival sources along with repeated orders to enforce quarantine and the use of bills of health.[172] Not until the 1840s, when plague disappeared from the Ottoman empire and the Barbary states, did the threat to Europe finally come to an end.

How Effective were the Countermeasures?

The plague orders and the various institutions set up to administer these orders—plague hospitals, quarantine stations, sanitary boards, commissions, etc.—and the large sums spent on all this, reflected the centralized state's growing confidence in its ability to contain, if not to eradicate, the disease. When, in the course of the eighteenth century, it eventually became clear that plague been banished definitively, most educated Europeans were convinced that quarantine and isolation measures were to be credited above all. This conviction was

[169] This outbreak in many ways paralleled those in Copenhagen in 1711 and Marseilles in 1720. Though plague had been a constant problem in the southern border regions, Moscow had been free of the disease since 1654. Then, in 1768–69 Ottoman troops operating on the Danube and the Dniester carried the plague to the Principalities, where Russian troops caught it. It spread along the Russian supply system and, because of the wartime dislocations, hastily instituted cordons proved unable to stop it. Also, the central government acted slowly, probably not wishing to disrupt the military campaign or, later, to interfere with economic activities in Moscow (Alexander, op. cit., note 80 above). On the Hungarian outbreak, see B Ila, 'Contribution à l'histoire de la peste en Hongrie au XVIIIe siècle', in H Charbonneau and A Larose (eds), *Les grandes mortalités: étude methodologique des crises démographiques du passé*, Liège, Ordina, 1979, pp. 133–8.

[170] *KD*, vol. 8, pp. 503–4.

[171] Cf. the following dates in L Fogtman (ed.), *Kongelige Rescripter, Resolutioner og Collegialbreve*, Copenhagen, 1805–21: Sept. 24, 1770; Oct. 27, 1770; May 3 and 25, 1771; Jan. 8, 1785; Sept 19, 1797; Oct. 6, 7, and 11, 1797; Feb. 6 and 10, 1798; May 19, 1798; Sept. 15, 1798; Oct. 13, 1798.

[172] A limited outbreak in Cadiz in 1799–1800 caused considerable anxiety in Copenhagen. Cf. Fogtman, op. cit., note 171 above, May 5, 1752; May 3, 1771; Sept. 7 and 11, 1784; Aug. 12, 1797; Sept. 19, 1797; July 6, 1799; March 29, 1800; June 21, 1800; July 8, 1800; Oct. 4, 11, 14 and 18, 1800; Nov. 1 and 15, 1800.

confirmed by observing the Ottoman empire where outbreaks of plague continued throughout the eighteenth and in the first half of the nineteenth century. European diplomats and travellers were shocked to see that neither in the empire nor in other Muslim states were any public measures applied to contain the plague. They put it down to the despotic nature of the government, the general backwardness of the empire and to the religious obscurantism that expressly denied any idea of contagion.[173] When, in the 1830s, the Ottoman authorities finally decided to set up sanitary institutions on the European model, plague actually disappeared within a few years.[174]

Later historians have been less convinced that human intervention was a significant factor in eradicating the plague, in part because they have been misled by the retrospective diagnosis. Instead they have come up with various more or less ingenious theories, none of them really convincing.[175] One such explanation has it that European rat and rodent populations developed immunity or resistence owing to the gradual spreading of *Yersinia pseudotuberculosis*, a bacterium related to *Y. pestis* and conferring immunity against bubonic plague.[176] Even Biraben pointed out that the hypothesis did not fit the chronology of the plague's disappearance, and, logically, the hypothesis would also have us believe that of all the European rodents and rats only those in Poland remained susceptible. Moreover, we would have to accept the unlikely idea that Polish rats acquired resistance as soon as they became Russian or Prussian subjects.

If we discard the conventional retrospective diagnosis, as I believe we must, and accept that the plague, whatever its precise nature, spread directly through person-to-person contact, then the quarantine and isolation efforts obviously make a lot of sense. Even so, objections remain to the hypothesis that human intervention was decisive. Firstly, it is one thing to issue orders, quite another to enforce them. Historians have called in question the administrative capability of the early modern state to enforce the precautionary measures. Is it conceivable that they could prevent smuggling or unauthorized travelling across long borders? In northern France smuggling went on during the great outbreak in 1667–69 in spite of the *cordon sanitaire*.[177] In Denmark smuggling was a constant problem to the authorities and is amply documented from the second half of the sixteenth century onward. In rural districts many peasants owned boats and had a tradition of sailing and trading in the coastal waters and across the Baltic.[178] With a coastline of many thousand kilometres, Denmark stood little chance of effectively preventing illegal shipping in times of plague.

Secondly, in times of plague normal administrative routines could break down. All over Europe magistrates and officials responsible for enforcing countermeasures were often among the first to flee, leaving the defences in disarray.[179] To be sure, for every example of

[173] For example, C F C Volney, *Voyage en Égypte et en Syrie*, ed. J Gaulmier, Paris, Mouton, 1959, p. 143.

[174] D Panzac, *La peste dans l'empire Ottoman, 1700–1850*, Leuven, Editions Peeters, 1985.

[175] For an overview of the various explanations, see A B Appleby, 'The disappearance of the plague: a continuing puzzle', *Econ. Hist. Rev.*, 1980, 2nd ser., **33**: 161–73. He admitted that the quarantine hypothesis was the most attractive, but declared himself unconvinced and preferred the hypothesis of European rat populations developing immunity.

[176] Cf. Panzac, op. cit., note 174 above, pp. 509, 512–13; Biraben, op. cit., note 7 above, vol. 1, pp. 18–21.

[177] Revel, op. cit., note 78 above, p. 971.

[178] M Venge, *Dansk Toldhistorie*, Copenhagen, Toldhistorisk selskab, 1987, vol. 1, pp. 232–4.

[179] S Guibert, 'A Chalons-sur-Marne au XVe siècle: un conseil municipal face aux epidémies', *Annales*, 1968: 1283–300, p. 1296; Lebrun, op. cit., note 65 above, pp. 304–5. Examples are too numerous to cite.

dereliction of duty counter-examples of magistrates conscientiously remaining at their exposed posts can be found. So far I have not come across glaring instances of Danish magistrates and officials neglecting their duties, except, of course, in the case of pig keeping. By the seventeenth century Denmark was highly centralized compared to most other European states, and the government could generally expect orders to be carried out. Unlike their Italian counterparts, authorities in Lutheran Denmark did not have to contend with hostility and opposition from the church. In times of plague, Danish clergy dutifully shortened sermons, closed schools, carried out the prescribed funeral ceremonies, and in general behaved like good civil servants.[180]

Yet even efficient authorities sometimes hesitated where they ought to have acted swiftly and decisively. Having to choose between evils, the government in 1654 and again in 1710 had prematurely lifted bans on trade with infected ports in the Baltic because of grain shortage in Denmark. On other occasions the authorities appeared unwilling to face the fact that plague had broken out. Such indecision must often have sprung from fear of the economic consequences; enforcing strict countermeasures meant a complete disruption of normal economic life and corresponding losses. Of course, this was not particular to Denmark. Thus in 1668 economic considerations made the councillors of Rouen prematurely declare the plague at an end, with the result that neighbouring Dieppe was duly infected.[181]

Another problem was to make the common people observe the regulations. In Denmark, as elsewhere in Europe, those who could afford it fled or isolated themselves when plague threatened.[182] Anders Pedersen, vicar in Nakskov from 1618 to 1629, recalled how his parents had made him stay at home during the severe epidemic of 1602–3 in keeping with the adage that "he who does not go to war will not be slain".[183] In Aarhus during the plague of 1618–20, the councillor Rasmus Pedersen took the precaution of sending his children to stay with different relatives in the countryside.[184] But the poor, and the urban poor in particular, did not have such options. They were practically helpless in the face of a plague outbreak and tended to react with a mixture of fatalism and defiance. In Copenhagen, Peder Palladius, bishop of Zealand, preached against such attitudes in 1553, reporting that he had heard people say:

> Well then, if I die this year I won't die some other day; nobody dies without being so destined. God does well in removing children and poor people from this world; there are far too many of them. The pestilence only brings death to children and I shall not die a child's death. Some must die, the world being full of people.[185]

[180] Complaints of priests shirking their duties to the sick and dying can be found, however, e.g. Hübertz, op. cit., note 12 above, vol. 2, pp. 77–8. On conflicts with the church in Italy, see, for example, C M Cipolla, *Public health and the medical profession in the Renaissance*, Cambridge University Press, 1976.

[181] Revel, op. cit., note 78 above, p. 971.

[182] Flight is recorded in many local sources, e.g. in Aabenraa in 1582 and 1629 (J Hvidtfeldt and P K Iversen (eds), *Åbenrå bys historie*, Skrifter udgivet af Historisk Samfund for Sønderjylland no. 25, Aabenraa, n.p. 1961, pp. 164–5; in Flensborg in 1565–66 the town council fled as well (Hjelholt *et al.* (eds), op. cit., note 68 above, pp. 354–5); C T Engelstoft, *Odense byes historie*, Odense, Hempelske Boghandel, 1880, pp. 568–9.

[183] *Perlestikkerbogen*, op. cit., note 27 above, p. 335.

[184] He did lose a son, however, to the plague in Copenhagen in 1637, Hübertz, op. cit., note 12 above, vol. 2, pp. 317–18.

[185] H F Rørdam, *Kjøbenhavns Universitets historie fra 1537 til 1621*, 4 vols, Copenhagen, Danske Historiske Forening, 1868–77, vol. 1, quote pp. 222–3; Bruun, op. cit. note 36 above, vol. 1, pp. 73–90, 158–68, 387–96.

Even stating such sentiments was expressly forbidden by the English Orders.[186] In 1654 the doctor Thomas Bartholin remarked that poor people in Copenhagen in particular died because they did not observe the regulations and did not hesitate to visit the sick.[187] The poor were especially hard hit in their daily life by the economic consequences of the plague orders. They could not go to work if they were isolated in their houses. Consequently, they would often attempt to conceal plague cases. And to the disgust of officials, not only in Denmark but all over Europe, they did not comply with orders to destroy clothing and other belongings of the victims of the plague: as the health commission in Copenhagen sensibly remarked in 1711—the poor could not afford it.[188] During the 1711 outbreak, the countermeasures were met with popular hostility. Occasionally fighting broke out when the police came to seal houses and isolate the sick, and one of the commissioners complained that the populace was an unruly and intractable lot that paid heed neither to laws nor to regulations. On the the small island of Amager just south of Copenhagen, the peasants also refused to isolate the sick even though the mortality was very severe.[189] Some people did not hesitate to enter sealed houses and remove clothing and goods. In several cases this caused the infection to spread to nearby provincial towns (Hillerød and Roskilde).[190] From remote rural areas come indications of more sinister practices. Thus the governor of Lundenæs (western Jutland) reported that it was said that during the 1601–3 outbreak a child had been buried alive, apparently in an attempt to ward off the plague by magical means.[191]

Another source of conflict and disobedience had to do with dignity and moral standards. During the 1583–4 epidemic in Angers, the inhabitants of the suburbs were strongly opposed to having their dead buried in new cemeteries outside the town. They even took up arms and entered the town to ensure that burials would take place in the customary parish cemetery.[192] As we have seen, the Danish authorities were aware that even the poor should have decent burials, even if it had to be in mass graves outside the city. But in rural parishes peasants often protested strongly against unceremonious burials and had to be threatened with severe punishment.[193]

If plague regulations were systematically violated, presumably they would not be effective. Often the Marseilles outbreak is taken as proof that quarantine and other such countermeasures had little effect. The 1711 outbreak in Copenhagen, which seems to be little known to non-Danish historians, could also be cited in support of this view. It is unwarranted, however. If anything, the outbreaks in Marseilles in 1720 and in Copenhagen in 1711 are strong indications that under *normal* conditions quarantine and other precautionary measures actually did work. In the debate on why the plague eventually disappeared, the

[186] Barrett, op. cit., note 83 above, para. 16.

[187] Mansa, op. cit., note 3 above, p. 395.

[188] Christensen, op. cit., note 8 above, p. 55.

[189] *KD*, vol. 8, pp. 157, 226; Mule (ed.), op. cit., note 8 above, pp. 318, 320; Mansa, op. cit., note 69 above, 1843, vol. 4, p. 120.

[190] Contrary to Mansa's assertion, mortality in Roskilde was severe. Annual burials averaged 50 in normal times, but reached 204 in 1711 according to the parish register, K E Frandsen and C Bjørn, *Roskilde bys historie, 1536–1850*, Roskilde, Historisk Samfund for Roskilde amt, 1998, pp. 137–9. According to the Copenhagen Health Commission, a baker by the name of Peter Jensen had broken into his deceased sister's house—contrary to all regulations—and brought her clothes and bedlinen with him to Hillerød, Mansa, op. cit., note 69 above, 1843, vol. 4, p. 124.

[191] *KB* (1603–8), pp. 127–8; a woman was eventually executed for the crime.

[192] Lebrun, op. cit., note 65 above, p. 305.

[193] Mansa, op. cit., note 69 above, 1843, vol. 4, pp. 124–5.

chronology of the process has been ignored. It remains a fact that once the centrally directed defences were set up in the seventeenth and early eighteenth century, replacing local measures, plague rapidly vanished from Europe—except from Poland as we have noted. Thus it would seem that the efforts were sufficient to contain the disease. The two last outbreaks in Denmark (1636–8, 1654–7) were contained and did not affect the whole country. Similarly the French were able to contain the great outbreak of 1667–70. Accidents such as Copenhagen and Marseilles could not be prevented completely. However, in both cases the outbreak occurred after the longest plague-free period on record and in both cases the precautionary measures failed, either because they were circumvented or because of unsettled wartime conditions. In both cases the outbreak was eventually contained and neither Copenhagen nor Marseilles was ever again visited by the disease though both cities remained in constant contact with plague-infested areas, the Baltic and the Levant respectively.

In history there is no such thing as definitive proof. What we have is plausibility. Even if contagion theory is not quite the same as modern theories of infection, it did insist upon the segregation and isolation of plague victims, the crucial precondition for containing a disease which spread through person-to-person contact. Considering that the later outbreaks were contained and that the plague was then prevented from entering from the Ottoman empire or, in the case of Denmark, from the Baltic, it is unlikely that the timing was due to coincidence. The setting up of centrally directed quarantine and isolation countermeasures remains the most plausible explanation for the disappearance of plague in Denmark, in Europe, and eventually in the Levant as well.[194]

[194] This is the conclusion drawn also by Biraben (op. cit., note 7 above, vol. 2, pp. 182–3) in spite of his commitment to the rat-flea theory. Paul Slack, also committed to the rat-flea theory, argues more guardedly that human intervention must have played at least an important part in the disappearance of the plague ('The disappearance of plague: an alternative view', *Econ. Hist. Rev.*, 1980, **33**: 469–76).