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978-0-521-40613-0 - Famine, Disease and the Social Order in Early Modern Society

Edited by John Walter and Roger Schofield

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*Famine, disease and crisis  
mortality in early modern society*

JOHN WALTER and ROGER SCHOFIELD

In 1965, when Peter Laslett first asked the question, 'Did the peasants really starve?', historical demography in England was scarcely in a position to provide him with an answer. Paradoxically, despite the interest of earlier demographers, with Malthus one of the foremost, the study of what has come to be known as 'crisis mortality' was still in its infancy. Apart from a seminal article by Drake based on the parish registers of south-west Yorkshire, there were few studies to match the work of French historical demographers on which Laslett drew. As he made clear, our knowledge of the critical issue of the reality of the threat of famine was rudimentary.<sup>1</sup> Such discussion as there was relied on the vivid impression of literary sources which, with their well-worn examples, carried a serious risk of exaggeration.<sup>2</sup> In the face of this uncertain knowledge, Laslett's conclusion was that, 'the relation between the amount and cost of food and the variations in the level of mortality, of men and women as well as children, must remain an open question for the time, along with that of whether crises of subsistence were a present possibility in the English town and countryside'.<sup>3</sup>

Eighteen years later, when he repeated his earlier question in *The World We Have Lost Further Explored*, he noted, 'Not one of these plaintive queries is as appropriate now in 1983.'<sup>4</sup> As his revised text made clear, we owe much of this gain in knowledge to the work of Andrew Appleby, an American scholar for whom Laslett's original

<sup>1</sup> Laslett, *World We Have Lost*, pp. 107–27; Drake, 'Elementary exercise in parish register demography'; Howson, 'Plague, poverty, population'; Goubert 'Problèmes démographiques', 'Mortalité en France', *Beauvais*, 'French population'; Meuvret, 'Demographic crisis in France'.

<sup>2</sup> As in Thirsk and Cooper, *Economic Documents*, p. 24. For an example of a generalisation from this source, see Watts, *Social History Western of Europe*, p. 102.

<sup>3</sup> Laslett, *World We Have Lost*, p. 127

<sup>4</sup> *Ibid.*, p. 151.

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question had been the spur to begin research in this area. Through Appleby's untimely death in 1980 the scholarly world lost not only an innovative and penetrating mind, but also a warm and generous personality that left a deep and lasting impression on all who knew him. This volume is dedicated to his memory; its contents are intended as a further exploration of a significant domain in the 'world we have lost', in whose mapping Appleby played such a crucial and pioneering role. All who work in early modern social and economic history stand in his debt, and it is fitting that the first contribution to this volume should be a personal appreciation by Peter Laslett.

Not only was the theme of Appleby's research inspired by Laslett's original question, but his choice of area was influenced by the latter's citation of heightened mortality in 1623 in the parish register of Greystoke in Cumberland to suggest that it was perhaps here in the pastoral upland of the north-west that evidence might be found of a region vulnerable to famine.<sup>5</sup> First in a doctoral dissertation and later in articles and a book, Appleby focussed on the problems of demographic crises and economic change in the north-west.<sup>6</sup> Dearth and disease as the causes of crisis mortality lay at the centre of his work. In his first published article, an analysis of the demographic history of early modern Cumberland and Westmorland, he showed that the answer to Laslett's original was a sombre 'yes'.<sup>7</sup> Famine was a reality in this region in the late sixteenth and early seventeenth century. In *Famine in Tudor and Stuart England* he extended this analysis to offer a preliminary mapping of famine-prone and famine-free areas. A later article returned to the problem, this time in a comparative perspective, examining the reasons for England's eventual and, in European terms, early resistance to famine, highlighting the role of a mix of winter and spring cereals in destroying the fatal association between harvest failure, a symmetrical price structure, and famine. In the seventeenth century, he argued, England benefitted from a growing emphasis on spring-sown cereals which meant that all grains did not fail at the same time nor all rise in price to famine levels. In France the continuing stranglehold of winter cereals perpetuated the threat of death.<sup>8</sup>

In his work on famine in the north-west in the sixteenth and seventeenth centuries, Appleby had been anxious to restore to dearth

<sup>5</sup> Cambridge Group files: Andrew Appleby, letter to Roger Schofield, dated 27 July 1976: 'I only really chose the north-west because this region was hard hit by these famines.'

<sup>6</sup> The dissertation was entitled 'Population crisis and economic change: Cumberland and Westmorland, 1570-1670', and was submitted for the Ph.D. degree in the University of California, Los Angeles, in 1973.

<sup>7</sup> 'Disease or famine'.

<sup>8</sup> 'Grain prices'.

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some responsibility for mortality, which historians had been inclined to attribute solely to disease, notably epidemics of plague. On the other hand, his strong interest in medical history led him to caution against any easy assumption of a universal and direct relationship between hunger and disease.<sup>9</sup> Taking advantage of the evidence of the London Bills of Mortality, which specified cause of death, and a series of bread prices, he was able to show a lack of correspondence between dearth and mortality from most forms of disease in early modern London, thereby providing evidence for fluctuations in disease independent of economic conditions.<sup>10</sup> Pursuing further the question of how far changes in mortality were autonomous, or mediated by economic or social institutions, in his last published article he tackled the problem of the disappearance of plague in the later seventeenth century, one of the great puzzles in English and European historical demography. Although he recognised that in the last resort the key to the disappearance of plague lay in the implementation of effective quarantine measures that would prevent its re-importation into England or Europe, he was sceptical of the effectiveness of such measures in the seventeenth century. Accordingly, he suggested that a biological process must also have been at work, in which the severe plague epidemics of the period resulted in the selection of rats with a higher resistance to the disease, thereby enabling infected rat fleas to remain on the rats, their preferred hosts.<sup>11</sup> Since the fleas no longer had to migrate to humans in search of new hosts, the latter obtained a breathing space during which administrative measures could be improved to a sufficient extent to prevent the re-importation of plague.

Appleby, therefore, combined detailed local and regional research with a wider interest in general and comparative historical issues. Within a short space of time, he went a considerable way, not simply to answering Laslett's call for research in this vital area, but in providing answers to some of the most important questions. A bibliography of his major writings is included in this book. In his work on famine, he established that in early modern England there was some vulnerability to famine, that it was confined to a particular type of region, and that in contrast to parts of the continent, England both escaped relatively lightly from harvest failure and saw the early disappearance of famine even on a regional level. His mapping of the geography and chronology of subsistence crises in England raised important questions about why some areas were vulnerable and others were not. In this

<sup>9</sup> See the draft prospectus for his intended volume, 'The Englishman's health: disease and nutrition 1500–1700', Longman Themes in Social History series.

<sup>10</sup> 'Nutrition and disease'.

<sup>11</sup> 'Disappearance of plague'.

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work, as well as in related articles on diet, climate, and agrarian class relationships, he demonstrated the importance of understanding the inter-relationship of social, economic, and even political, factors in determining patterns of dearth and disease in the past. Appleby's work raised some important critical issues in the history of early modern societies, which are far from resolved. The contributors to this volume, all his friends and colleagues, take up the challenge, confirming some of his insights and findings, refining and extending others. As their contributions amply demonstrate, there is still plenty of life in the historical study of death.

*Some basic concepts*

Before we consider Appleby's contribution further, and take stock of the present state of our understanding of the issues that he raised, it may be helpful to discuss the biological and social processes that underlie the arguments he advanced, and to examine how far their operation in the past can be traced in the sources we have at our disposal.

Appleby was concerned with everyday matters of life and death, but his argument was about the frequency and severity of famine-related mortality, and involved concepts such as shortage of food, malnutrition, and starvation. Unfortunately, the latter are abstractions rather than events, so the information we can find about them in historical sources is necessarily indirect, at best the result of inferences drawn by contemporaries from their own experience. Valuable though such observations may be, they are sporadic, unsystematic, and subjective, and fall far short of a satisfactory basis on which to address the range of issues that Appleby raised. If we want to investigate questions such as how often people went so short of food that they were malnourished and starved to death, we need to find evidence recorded on a regular basis so that we can assess the typicality of our observations over time and space.

Unfortunately, the nutritional status of individuals was not regularly recorded in early modern England, nor was cause of death, so we are forced to draw inferences from such information as was given on a regular basis. For our purposes there are two elements in the story we are investigating which were recorded regularly in the past: grain prices in markets, and burials in parish registers. We shall need to consider the adequacy of the evidence for each of these elements. We shall also need to consider how far information on prices may be a reasonable indicator of the amount of food available to people in the

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past, and how far information about the frequency of deaths, when related to prices, gives us reasonable grounds for inferring the existence of malnutrition or starvation. The latter point will require us to examine the theoretical relationships linking insufficient food intake with death from hunger.

*Questions and sources*

It must be admitted at the outset that the evidence is far from satisfactory. While the burial registers kept by the Church of England recorded the overwhelming majority of deaths at least until the end of the eighteenth century, the absence of any regular statement of the cause means that the link between hunger and mortality has to be investigated at the crude level of deaths from all causes.<sup>12</sup> In examining this link Appleby and other historians have adopted two rather different approaches. In the first, fluctuations in the numbers of deaths are related to fluctuations in food prices of all magnitudes, so that the connection between low food prices and low mortality is taken into account as well as the level of mortality when food prices are high. With so general a procedure there is obviously a danger of drawing spurious inferences, so care needs to be taken in carrying out the statistical analysis. For example, in a pioneering study of the relationship between fluctuations in bread prices and deaths in seventeenth-century London, Appleby was unable to find any significant association between movements in London prices and deaths from various causes.<sup>13</sup> However, the method he used was unsatisfactory, and a recent and statistically more sophisticated study found that there was a positive association between fluctuations in wheat prices and deaths from epidemic disease (typhus, smallpox, and fevers) in the same calendar year.<sup>14</sup>

The second approach differs from the first in that attention is confined to outbreaks of exceptionally high mortality in specific localities, which historians have called mortality 'crises'. The temporal and geographical distributions of these crises are then examined in the light of fluctuations in food prices. Unfortunately, the identification of mortality crises also has its technical problems. First, there is the question of the definition of a 'crisis'; how high has mortality to rise

<sup>12</sup> For the adequacy of burial registration, see Wrigley and Schofield, *Population History*, table 5.27, p. 141.

<sup>13</sup> 'Nutrition and disease'.

<sup>14</sup> Galloway, 'Annual variations'. The results of this study are discussed more fully later in this chapter.

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before it reaches a 'crisis' level? Historians, including Appleby, have traditionally identified local mortality crises by looking for periods in which the number of burials recorded exceeded the average frequency by some arbitrary factor, say a doubling.<sup>15</sup> Clearly, if this approach is adopted, care needs to be taken in identifying a suitably calm reference period for the calculation of the average burial frequency.<sup>16</sup> However, there is a further problem. Since 'crises' are typically short, sharp affairs, there are statistical difficulties in distinguishing them from random fluctuations in mortality especially in the case of small communities in which only a few burials normally occurred each year. The danger here is that random fluctuations will be mistakenly classified as mortality crises. It was to avoid this difficulty that an alternative method was devised in *The Population History of England* which took account of the amplitude of random fluctuations when identifying crises. In this approach a crisis was defined not as a fixed proportional increase in mortality above the average level, but in terms of the probability that an upward fluctuation in mortality was so great that it was unlikely to have arisen by chance.<sup>17</sup> While this approach avoids the problem of generating spurious crises in small parishes, it suffers from the opposite disadvantage of detecting more crises in large parishes, since they are more easily distinguished from random fluctuations than is the case in small parishes, even though the proportional increase in mortality is the same.

The identification of local crises, therefore, is beset by technical difficulties. But an even greater problem is that any definition of a crisis, whether based on a fixed or variable increase in the number of burials, is necessarily arbitrary, reducing the rich variety of fluctua-

<sup>15</sup> Unfortunately, historians have been unable to agree on the level of the 'crisis factor', thereby making it impossible to compare the incidence of crisis mortality in different historical contexts. For a systematic discussion of the strengths and weaknesses of different methods of defining a mortality 'crisis', see Charbonneau and Larose, *Great Mortalities*, pp. 21–9, 64–112, 153–6, 171–8, 283–94.

<sup>16</sup> Obviously crisis months or years should not form part of the reference period, nor should periods in which the number of burials recorded were unusually low. For example, Del Panta and Livi-Bacci recommend dropping the two highest and two lowest values from an eleven-year moving average, Charbonneau and Larose, *Great Mortalities*, p. 72. Unfortunately, some scholars have been rather careless about ensuring that the reference period does not contain extreme frequencies, thereby biasing downward, or upwards, the number of crises they detect.

<sup>17</sup> For a single month a probability of less than 1 in 10,000 that the burial total was a random fluctuation above the average monthly frequency of the reference period was taken to indicate a crisis. Periods of two or more successive months, in which each month had a probability of less than 1 in 100 of being a random fluctuation, were also classified as constituting a crisis. Wrigley and Schofield, *Population History*, pp. 646–9.



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tions in mortality to a simple dichotomy between the presence or absence of a 'crisis'. Nonetheless, as Appleby found, the geographical distribution of local mortality crises in years of high food prices seems to make sense in the light of what we know about the social and economic history of early modern England, and promises to advance still further our understanding of important aspects of social and economic change.<sup>18</sup> But before we go on to consider the evidence, we first need to consider whether the historical data that we have on prices are an adequate guide to changes in the availability of food?

Ideally we should like to know the calorie and protein value of the food that families could command in England in the past, and how this varied over time and place. In practice, the evidence that we have on past diets is sparse and largely confined to aristocratic households and to institutions. We simply do not know in any detail the quantity and quality of the food of the people, how it varied over time, or what scope there was for substituting other foods in time of harvest deficiency.<sup>19</sup> However, such fragmentary evidence as is currently available indicates that while meat, fish, and dairy products constituted a significant element in many people's diet, for all except the rich, grain was the dominant form of food.<sup>20</sup> Moreover, the lower the income available to a household, the greater was the dependence on grain.

This relationship helps to explain changes in the proportions of expenditure on grain over time. For example, at the end of the seventeenth century Gregory King drew up a series of model food expenditure budgets for different levels of wealth.<sup>21</sup> According to King, 50 per cent of the food expenditure of the poorest 41 per cent of the population was on grain, 7 per cent on malt drinks (which contained a significant amount of grain), 19 per cent on dairy products, 11 per cent on meat, fish, and eggs, 9 per cent on fruit and vegetables, and 4 per cent on other items. By contrast, those who spent three times

<sup>18</sup> Appleby, *Famine*, chapters 9, 12; Wrigley and Schofield, *Population History*, pp. 670–85.

<sup>19</sup> Valuable earlier work on diet was for the most part anecdotal and impressionistic; Drummond and Wilbraham, *Englishman's Food*; Ashley, *Bread of our Forefathers*. For more recent work, see Appleby, 'Diet'; Dyer, 'Diet in the later Middle Ages'; Shammass, 'Food expenditure', 'Eighteenth-century English diet'; Anderson, 'Ethnography of yeoman foodways'; Walter, chapter 2, below.

<sup>20</sup> For food expenditures in a fifteenth-century priest's household and in sixty poor households in southern England in the 1790s, see Phelps Brown and Hopkins, 'Seven centuries of prices', pp. 180–1. Gregory King's model food expenditure budgets for the late seventeenth century are printed in facsimile in Laslett, *The Earliest Classics*, p. 210. Information for parishes in central Kent for the period 1793–1838 are tabulated in Richardson, 'Agricultural labourer's standard of living', p. 105. The Davies-Eden food budgets are analysed in Shammass, 'Eighteenth-century English diet'.

<sup>21</sup> See previous note.

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as much on food, and whose expenditures were exceeded by only 10 per cent of the population, spent proportionately less on grain and dairy products (only 25 per cent and 13 per cent, respectively), and about the same on fruit and vegetables (8 per cent). Instead, they spent more on meat, fish, and eggs (23 per cent), malted drinks (17 per cent), and 15 per cent on other items such as spices, wines, and spirits. Even if we are generous and count the expenditure on malt drinks as attributable to grain, this group of rich consumers devoted 42 per cent of its expenditure to grain (25 per cent + 17 per cent) compared to the 57 per cent of expenditure devoted to grain (50 per cent + 7 per cent) by the poorest 41 per cent of the population. Thus, as people got richer they used their extra income on non-grain foodstuffs.<sup>22</sup>

At times of population pressure and high food prices, as in the century before the Black Death and at the end of the eighteenth century, about 50–70 per cent of food expenditure went on grain in the form of bread, flour and ale, and less than 20 per cent on meat and fish. However, in the century after the Black Death when population and food prices were low, expenditure on grain fell to 40–50 per cent (with one half of this in the form of ale), while expenditure on meat and fish rose to 35–40 per cent. According to Gregory King this late-medieval pattern of consumption was matched by only the richest 5 per cent of the population at the end of the seventeenth century.<sup>23</sup> For most of the period, however, grain-based food and drink comprised at least half of all food expenditures for all except the very rich. Consequently, we might reasonably expect that a significant fraction of the population, with the least financial resources, would have experienced substantial changes in the amount of food available from year to year as variations in the weather influenced the amount of grain that could be harvested. We might also reasonably expect that there were long-run changes in the amount of grain available per head as agricultural productivity either lagged behind, or outpaced, the demand for food generated by changing rates of population growth. Unfortunately, while these general surmises may be reasonable, we lack any information on total

<sup>22</sup> Total income and expenditure elasticities for the different types of food included in King's model tables have been calculated and shown to comprise a coherent and plausible set of relationships. Stone, 'Some seventeenth-century econometrics'. Expenditure elasticities for the Davies-Eden budgets for the period 1787–95 are calculated in Shammass, 'Eighteenth-century English diet', p. 259. A similar gradient in the proportion of expenditure on different kinds of food can be seen in the diets assigned to inmates and officials of different social statuses in the Sherborne almshouse in the period 1425–40. Dyer, 'Changes in nutrition', p. 40.

<sup>23</sup> Dyer, 'Changes in nutrition', p. 37; Phelps Brown and Hopkins, 'Seven centuries of prices', table 1; Richardson, 'Agricultural labourer's standard of living', p. 105. Laslett, *Earliest Classics*, p. 210.



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food yields, and so cannot directly observe the amount by which the size of harvest, or the total quantity of food available per head, may have varied in either the short, or the long, run.<sup>24</sup> What we do have are series of food prices, especially grain prices. Can we use the fluctuations in these series as a measure of the scarcity or plenty of food in the past?

*Prices, markets, and scarcity*

The short answer is 'only to a limited extent'. The price series are drawn disproportionately from the south of England. The lack of regular local price series for other regions before the end of the eighteenth century would not matter if there had been an integrated national market in grains, because fluctuations in prices would have been common to all areas, even though the level of prices might have differed. Fortunately, local prices are available for several areas for a brief period of twelve years at the end of the seventeenth century, and in the case of wheat the regional price series show a remarkable degree of uniformity in their short-run fluctuations.<sup>25</sup> However, as Weir points out later in this volume, a correlation between the fluctuations in prices in different regions does not necessarily imply market integration, since it could be produced by a common pattern of weather affecting regions which in fact had independent markets.<sup>26</sup>

But in late seventeenth-century England, fluctuations in the regional prices of grains other than wheat were uncorrelated. This not only points to a lack of market integration for these grains, but also indicates that the weather conditions in the different regions were independent of each other. Thus in the case of wheat, which was the preferred food grain and the most common cash crop throughout most of England, it would seem reasonable to conclude that the common movement of regional prices indicates that a national market had indeed been achieved by the late seventeenth century, through which local shortages could be made good from surpluses accruing in other areas. Moreover, the lack of correlation between the movements in the prices of wheat and other grains suggests that by this date there was no longer any need for the demand to fall heavily on one of the alternative

<sup>24</sup> A national series of annual grain production in England begins only in 1884, but is available for France from 1815, and for Sweden from 1802. Mitchell, *European Historical Statistics*, table D2.

<sup>25</sup> Chartres, 'Marketing of agricultural produce', pp. 459–65, 828–31; Bowden, 'Agricultural prices', pp. 593–648, 815–21; Granger and Elliott, 'Fresh look at wheat prices'.

<sup>26</sup> See chapter 6, below.

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cheaper grains as a result of local shortages of the preferred bread corn. Indeed the existence of a wider market network, integrating several climatic zones, is a necessary precondition for the geographical specialization in agricultural production that Appleby argued had emerged by the end of the seventeenth century. Although such a specialisation, in which each region grew the mix of grains most suited to local soil-types and climate would have the beneficial effect of increasing the total output of grain, such was the uncertainty of the weather that local specialisation would only be a viable strategy if local shortages and surpluses could be ironed out through a market network extending beyond the region and integrating several climatic zones. In developing a national market network, England was fortunate in that both weather and soil characteristics vary over quite small distances, and in being an island well endowed with navigable rivers, so that grain could be transported in bulk over long distances relatively easily.<sup>27</sup>

Although it may be reasonable to conclude that England enjoyed a national grain market by the end of the seventeenth century, we do not, however, know how long such a market had been in existence. For earlier periods, therefore, it must remain an open question whether or not it is reasonable to treat fluctuations in prices drawn from southern England as if they were representative of the country as a whole. The problem is particularly acute when examining local mortality crises in the north-west, Appleby's original area of interest. For example, in 1622/3 many upland parishes recorded mortality crises even though there was only a modest increase in the 'national' series of grain prices. However, prices in Scotland rose steeply in these years, and are likely to be a much better guide to harvest conditions in the north than the 'English' series, which are based on conditions in the south.<sup>28</sup>

In addition to doubts about their geographical representativeness, the English grain price series also suffer from the further drawback that they are drawn largely from the records of institutions, such as colleges.<sup>29</sup> The argument has been made that prices paid by bulk purchasers of this kind are likely to underestimate the degree of fluctuation that would have been experienced by individuals making small purchases for current consumption. On the other hand, it must

<sup>27</sup> As Weir notes in chapter 6, below, some of the French regional markets covered areas as large as England.

<sup>28</sup> That oats played an important part in Northern diets compounds the problem of using a southern-based 'national' index.

<sup>29</sup> Phelps Brown and Hopkins, *Perspective of Wages and Prices*; Beveridge et al., *Prices and Wages*; Rogers, *Agriculture and Prices*; Hoskins, 'Harvest fluctuations, 1480–1619', 'Harvest fluctuations, 1620–1759'; Bowden, 'Agricultural prices'.