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## REVIEW OF RECENT PERIODICAL LITERATURE

## CORRESPONDENCE
EDITORIAL

Our first article in this issue is by Andrew Hinde. Starting from the premise, revealed in the work of Lawton, that variations in the rate of population growth (or decline) from place to place, and in the same place over time, were principally due to changes in migration patterns, this paper presents an analysis of migration between 1851 and 1861 in four small areas of rural England which were characterised by different social and economic conditions. The analysis makes use of data from the census enumerators’ books but is aggregative in form, avoiding the extremely time-consuming use of record linkage of individual-level data. Net migration is relatively easy to calculate, although its application to individual parishes depends upon the assumption that parishes conformed to the birth and death rates found in the registration district within which they were situated. But net migration is no more than the end sum of an unknown number of moves into and out of a parish, so a more sophisticated technique is suggested which involves the calculation of age and sex-specific survival probabilities using the age-specific mortality data in the Registrar General’s Decennial supplements. These survival probabilities are then used to estimate the expected population of natives and non-natives in 1861 in the absence of migration between 1851 and 1861 which, when compared with actual numbers of natives and non-natives in 1851 and 1861, reveals the number of net migrants in each category. The results are then discussed in the light of the key economic characteristics of each district, and indicate that female migration by age in the mid-nineteenth century was fairly similar across rural England except in those areas where there were substantial female employment opportunities. Patterns of migration among men varied more noticeably, and responded not only to the existence of occupational sectors other than agriculture, but also to the structure of the agrarian labour force, and to the local availability of employment over time.

Our second article, by Chris Galley, employs the annual reports of the Medical Officers for Health—an important but neglected source for the study of population at the local level—in a comparative analysis of infant mortality in late nineteenth-century Birmingham and Sheffield. The evidence these reports contain needs to be treated with caution, since they were compiled by individuals who were convinced that sanitary reform was the key to improving health, and their interpretation is far from straightforward. For Birmingham, Galley concludes that it is difficult, if not impossible, to assess how the various measures introduced affected its IMR. Before 1900 direct intervention was minimal; after 1900 slow progress was made as the IMR declined at the same time that greater efforts were made by the MOH and the health visitors to influence the rate. But IMRs were also declining, at a faster rate, among large sections of Birmingham’s population where little intervention took place, and thus intervention can provide, at best, only a
partial explanation of Birmingham’s declining IMR. The Sheffield reports, though poorer in quality, exhibit similarities with Birmingham’s: both sets of reports show that efforts to reduce infant deaths centred around preventing epidemic diarrhoea; blame for infant deaths was frequently directed towards mothers; and in the early twentieth century efforts were made to improve maternal education. Although Birmingham was more thoroughly interventionist, Sheffield too started to employ health visitors towards the end of the nineteenth century, but only limited progress had been achieved by 1914. Despite the different scale of intervention, the overall pattern of decline in their infant mortality rates was virtually identical, and hence social intervention by itself was not responsible for the turning point in the national infant mortality series, although it became increasingly important as the twentieth century progressed. In widening the discussion, Galley suggests that the key factors for the long-term decline of infant mortality may have been those previously suggested by Woods: fertility decline, improved female education and status, and the health of towns movement.

Our third article in this issue, by Roger Bellingham, long-time treasurer of the Local Population Studies Society, provides a reminder of the value of the Dade parish registers, which survive in considerable—if as yet not fully known—numbers for the dioceses of York and Chester between 1777 and 1812. These registers include far more information than do standard parish registers and, although exact details vary, can give information on occupations, parentage, birth order, date of birth and baptism, age and cause of death, and migration. The historiography presented by Bellingham shows that they are by no means obscure, which makes it all the more surprising that they have not been more fully exploited for demographic purposes, and it is hoped that this article will serve to encourage their use.

Research in progress is provided by Chris French and Juliet Warren, and describes how a database has been created containing all 29,551 entries in the municipal cemetery burial registers at Bonner Hill between 1855 and 1911, which has then been linked to the Kingston census returns for 1861 to 1891. The burial database and the linked data are now being used to analyse the changing profile of mortality in general and infant mortality in particular in the Kingston area to draw out some of the geographical, environmental and personal circumstances which may have influenced that profile. Some preliminary results are presented, the value of combining this data with the reports of the local Medical Officers of Health is emphasised, and the future directions of the research—particularly through a focus upon specific areas within Kingston—is described. Work undertaken to date on diarrhoea suggests that at the individual level those infants who suffered death from summer diarrhoea had parents in low status occupations, lived in a predominantly working class street consisting of small cottages and endured indifferent sanitary conditions, while dietary and child-care factors can be implicated too.

Kevin Schürer provides a research note, describing the Victorian Panel Study pilot project for which funding has recently been awarded by the Economic
and Social Research Council, and this issue also includes our regular Autumn feature, the annual review of periodical literature.

Local Population Studies Annual Conference 16 April 2005

This year’s conference will be held on Saturday April 16 at our usual venue, the Law Faculty of the University of Hertfordshire on Hatfield Road in St Albans. For those who have not attended before, this is situated just a short walk from St Albans station, with its good connexions to the north via Bedford, and to St Pancras and the south coast at Brighton. St Albans is also well placed for journeys by car, lying very close to both the M25 and the M1. Parking is on-site.

Our theme this year is ‘Ageing and the aged in pre-modern and modern Britain’, and I am delighted to announce that we have two keynote speakers this year, Professors Richard Smith and Pat Thane, who will talk on the pre-modern and modern eras respectively, besides a rich array of shorter papers in our panel sessions spanning the period from the fourteenth to the twentieth centuries. A full programme is enclosed. Please note that the paper by Cindy McCreery is provisional, as her attendance is dependent upon funding. The cost, to include tea and coffee and the customary excellent lunch provided by Barbara Bennett, remains at £25. We are hoping again to be able to offer ten free student places, although this is dependent upon the success of a bid for support to the Economic History Society. Should you wish to be considered for such a place, please let me know via email: n.goose@herts.ac.uk or lps@herts.ac.uk.

LPS projects

I am delighted to announce that we have just published a new supplement, E. Higgs, Life, death and statistics. Civil registration, censuses and the work of the General Register Office, 1836–1952 (Hatfield, 2004, ISBN 0 9541621 0 2, pp. xiii +258). Life, death and statistics is a history of the key institution in the production of demographic data in England and Wales in the nineteenth and twentieth centuries, responsible for the civil registration system and the taking of decennial censuses, from which it produced a wide range of statistics on population, occupational structures, birth rates, marriage, mortality and causes of death. The book places the work of the General Register Office in a broad intellectual, institutional and political framework, and demonstrates how this influenced and constrained the information that it published. The price is £12.50, discounted to £10 for multiple orders, plus £1.50 post and packaging per copy.

The proposed reader on Women’s work in industrial England: regional and local perspectives has now been finalised, and will be published in 2005. It will include some key articles that have been previously published, as well as a range of new research.

Local Population Studies is always prepared to consider publication projects in the broad areas of demographic, economic and social history, and such proposals should be sent to the editor at the General Office (address on p.2) in the first instance.
Amendment

J.A. Sheppard, ‘The provenance of Brighton’s railway workers, 1841–61’, LPS 72 (2004), 16–33. The acknowledgement on page 32 of June Sheppard’s article in the last issue should have read, ‘I would like to thank Edward Oliver, cartographer, of Queen Mary College, who drew the figures for this paper, and Graham Allsop, of the Department of Geography, Sheffield University, for his technical assistance’. With apologies to Dr Sheppard for the omission of recognition of Edward Oliver’s contribution.

Editorial matters

For the typesetting of this issue I am again grateful to Ken and Margaret Smith.

Nigel Goose
November 2004
THE USE OF NINETEENTH-CENTURY CENSUS DATA TO INVESTIGATE LOCAL MIGRATION

Andrew Hinde

Andrew Hinde is senior lecturer at the Southampton Statistical Sciences Research Institute, University of Southampton, the author of numerous articles on 19th century historical demography, and has recently published *England's population: a history since the Domesday Survey*.

Introduction

In 1968, Richard Lawton published an article in which he examined changes in the population of the registration districts of England between 1841 and 1911. As part of his analysis, he presented some figures (originally calculated by Cairncross more than 50 years ago) which decomposed the change in each registration district into that part due to natural increase (the difference between births and deaths) and that part due to net migration (the difference between in-migration and out-migration). Table 1 shows a summary of these. Although rural to urban migration was common, in towns of all sorts natural increase was more important than net migration as a determinant of population growth. This was even true of resort (or, as Lawton described them, ‘residential’) towns, such as Bournemouth, which grew especially rapidly in the last two or three decades of the Victorian era. The same pattern can be observed in ‘colliery districts’, where natural increase contributed five times as much to the overall population growth as did net migration, though given the high fertility of coal miners this is, perhaps, less surprising than the results for urban areas.

The greatest impact of net migration is observed in the rural areas, where its contribution almost matches that of natural increase. The population of rural England would, without net migration, have been 5.3 million more in 1911 than it was in 1841. However, a net out-migration of 4.5 million almost completely cancelled out the excess of births over deaths, so that the actual rise in the rural population was only about 800,000. Possibly because of this ‘compensating’ effect, demographers have tended not to recognise the great importance of net migration as a determinant of population change in rural England during the Victorian period.

At the local level, it can be shown that changes in migration patterns were often the main cause of variations from decade to decade in population change. For example the population of the Wiltshire village of Berwick St James fell from 284 to 248 between 1851 and 1861, despite an excess of 32 births over
deaths, because of a net out-migration of 68. During the following decade the population stabilised, falling only from 248 to 242, although natural increase was almost the same, at 35. Thus the main reason for the stabilisation of the population total compared with the previous decade was a reduction in net migration. The implication of this is that an understanding of population change at the local level in nineteenth-century England requires the measurement of migration trends. Variations in the rate of population growth (or decline) from place to place, and in the same place over time, were principally due to changes in migration patterns.

This paper presents an analysis of migration between 1851 and 1861 in four small areas of rural England which were characterised by different social and economic conditions. The analysis makes use of data from the census enumerators’ books (CEBs) but is aggregative in form, avoiding the extremely time-consuming use of record linkage of individual-level data. The next section introduces the four study areas and describes the differences in their social, economic and occupation structure. Following this, I apply the method used by Lawton to the four areas to establish overall rates of net migration and natural increase. The paper then describes a more detailed approach to the

### Table 1 Population change in England and Wales, 1841–1911, by type of district (all figures in millions).

<table>
<thead>
<tr>
<th>Type of district</th>
<th>Population 1841</th>
<th>Population 1911</th>
<th>Natural increase 1841–1911</th>
<th>Net migration 1841–1911</th>
</tr>
</thead>
<tbody>
<tr>
<td>All towns</td>
<td>8.7</td>
<td>23.8</td>
<td>12.7</td>
<td>2.6</td>
</tr>
<tr>
<td>London</td>
<td>2.3</td>
<td>7.3</td>
<td>3.8</td>
<td>1.3</td>
</tr>
<tr>
<td>Other large towns</td>
<td>1.5</td>
<td>5.2</td>
<td>2.7</td>
<td>0.9</td>
</tr>
<tr>
<td>Industrial centres</td>
<td>0.9</td>
<td>2.5</td>
<td>1.8</td>
<td>-0.2</td>
</tr>
<tr>
<td>Residential towns</td>
<td>0.9</td>
<td>2.3</td>
<td>0.9</td>
<td>0.5</td>
</tr>
<tr>
<td>Colliery districts</td>
<td>1.3</td>
<td>5.3</td>
<td>3.4</td>
<td>0.7</td>
</tr>
<tr>
<td>Rural areas</td>
<td>6.2</td>
<td>7.0</td>
<td>5.3</td>
<td>-4.5</td>
</tr>
</tbody>
</table>

**Note:** The difference between the populations of some types of district in 1841 and 1911 may not exactly equal the sum of the natural increase 1841–1911 and the net migration 1841–1911 because of rounding errors.

estimation of migration which uses cohort survival probabilities. In the final section the results of this analysis are related to the local economy and society in the four areas.

Previous analyses of migration using the CEBs have tended to focus on lifetime migration as revealed by the data on place of birth. This approach is not well suited to measuring the impact of migration on local populations, as we cannot usually discover when moves occurred, or even how many took place. So, for example, if we know that a man aged 35 years had been born in a parish different from the one in which he was living at the time of a census, we do not know whether he moved into his current parish of residence one year ago or 34 years ago. Neither do we know how many moves he made into and out of his current parish of residence during his first 35 years. It is therefore very difficult to use this approach to relate migration trends to base populations (which change over time). The inability to pin moves down to specific time periods also inhibits the researcher from drawing conclusions about the relationship of migration trends to economic and social changes which are period-specific. The present approach is designed to try to overcome these limitations. It produces estimates of age-specific in- and out-migration to and from local areas during particular decades.

The four study areas

The four study areas used in this analysis are located in the counties of Norfolk, Shropshire, Derbyshire and Yorkshire and consist of groups of contiguous parishes. Their occupational structures are analysed in Table 2. The Norfolk area comprises the parishes of Beeston with Bittering, Kempstone, East and West Lexham, Litcham, Mileham, Weasenham All Saints and Wellingham, which are situated in classical high farming country between East Dereham and Swaffham. Most of the land in the area was owned by a small number of wealthy gentlemen, including Thomas Coke, whose Holkham estate included the whole of the parishes of Weasenham All Saints, Wellingham, West Lexham and Kempstone. The economy of this area was dominated by agriculture, which relied largely on day labour. More than a third of gainfully employed persons were described in the 1851 census as ‘agricultural labourers’. Indeed, the area fits almost perfectly Howard Newby’s idea of the single ‘occupational community’, in which everyone was engaged either directly in agriculture or in trades and crafts ancillary to agriculture.

The second study area is in central Shropshire, between Shrewsbury and Much Wenlock, and consists of the parishes of Acton Burnell, Church Preen, Cound, Cressage, Eaton Constantine, Harley, Hughley, Kenley, Leighton, Pitchford, Ruckley and Langley, Sheinton and Wroxeter, which lie in a landscape of isolated farms and tiny hamlets. The occupational structure of this area is similar to that of the Norfolk area, save that about one third of the demand for agricultural labour was satisfied by farm servants who ‘lived in’ on the farms where they worked and were hired by the year. The agrarian economy of Shropshire was based on mixed farming and farms were typically small,
around two thirds being under 50 acres, although farms in the study area were rather larger than the county average.\(^{10}\)

The third study area lies in the White Peak district of Derbyshire, and consists of the six parishes of Ashford-in-the-Water, Chelmorton, Flagg, Monyash, Sheldon and Taddington. Apart from the village of Ashford, these parishes lie on a windswept limestone plateau which rises to 1,438 feet near Taddington. Farms here in the mid-nineteenth century were small, many employing only

---

**Table 2** Occupational structure of the four study areas, 1851.

<table>
<thead>
<tr>
<th>Occupational category</th>
<th>Central Norfolk</th>
<th>Shropshire</th>
<th>White Peak</th>
<th>Upper Nidderdale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farmers</td>
<td>4.3</td>
<td>6.7</td>
<td>15.1</td>
<td>12.3</td>
</tr>
<tr>
<td>Agricultural labourers</td>
<td>37.0</td>
<td>23.4</td>
<td>11.5</td>
<td>6.7</td>
</tr>
<tr>
<td>Other agricultural workers</td>
<td>4.4</td>
<td>4.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Miners and quarriers</td>
<td></td>
<td></td>
<td>9.0</td>
<td>15.2</td>
</tr>
<tr>
<td>Textile workers</td>
<td></td>
<td></td>
<td>6.1</td>
<td>20.5</td>
</tr>
<tr>
<td>Farm servants</td>
<td>4.7</td>
<td>11.2</td>
<td>8.1</td>
<td>3.9</td>
</tr>
<tr>
<td>Shopkeepers and traders</td>
<td>3.4</td>
<td>2.5</td>
<td>4.3</td>
<td>3.5</td>
</tr>
<tr>
<td>Skilled manual workers</td>
<td>16.6</td>
<td>12.9</td>
<td>14.9</td>
<td>14.5</td>
</tr>
<tr>
<td>Professional classes</td>
<td>2.4</td>
<td>1.8</td>
<td>2.2</td>
<td>1.9</td>
</tr>
<tr>
<td>Domestic servants</td>
<td>15.6</td>
<td>22.2</td>
<td>13.5</td>
<td>8.8</td>
</tr>
<tr>
<td>Other labourers</td>
<td>0.2</td>
<td>4.2</td>
<td>4.7</td>
<td>0.9</td>
</tr>
<tr>
<td>Other</td>
<td>11.4</td>
<td>10.4</td>
<td>10.5</td>
<td>10.7</td>
</tr>
<tr>
<td><strong>Gainfully employed as</strong></td>
<td><strong>41.6</strong></td>
<td><strong>47.5</strong></td>
<td><strong>38.3</strong></td>
<td><strong>40.9</strong></td>
</tr>
<tr>
<td><strong>percentage of total population</strong></td>
<td><strong>3,044</strong></td>
<td><strong>3,483</strong></td>
<td><strong>2,384</strong></td>
<td><strong>4,318</strong></td>
</tr>
</tbody>
</table>

**Notes:** The gainfully employed are defined as all those stated in the census to be occupied, except for ‘annuitants’, ‘owners’ and those stated to be ‘of independent means’. Farm servants in this table are persons described in the census as both working in an agricultural occupation and as having the relationship ‘servant’ to the head of the household in which they were living.

**Sources:** Census enumerators’ books, 1851: The National Archives HO107/1825, 1990–1, 2149 and 2250.
family labour. Cheese making was one common activity until around 1870, when a transition to milk production occurred. There were more persons described in the 1851 census as ‘farmers’ than as labourers in agriculture. Although agriculture was probably the most important component of the economy, secondary activities included lead mining and artificial marble working. The main source of employment in lead mining was Magpie Mine near Sheldon, which operated intermittently between 1851 and 1881. Ashford-in-the-Water was the centre of the artificial marble industry.

Like the White Peak study area, the Yorkshire area had an economy based partly on activities other than agriculture. The area consists of the parishes of Bewerley and High and Low Bishopside, and the townships of Fountain’s Earth, Stonebeck Down and Stonebeck Up, all of which lie in upper Nidderdale. The higher reaches of the area consist of bleak moorland, rising to 2,310 ft in the township of Stonebeck Up. Lower down, the area includes the small town of Pateley Bridge. The occupational structure of the area was diverse. Fewer than a quarter of the gainfully employed worked in agriculture, compared with more than half in the central Norfolk area and just under half in the Shropshire area. Small farms predominated (in the parish of High and Low Bishopside only one out of 72 farms of five acres or more exceeded 40 acres), and family labour sufficed on most. The second most important sector was textiles (more accurately, flax mills), which employed about one fifth of those gainfully employed, most of these being young (aged under 30 years) and many being women. Finally, lead mining was concentrated in Bewerley, in and around the township of Greenhow Hill.

We might expect migration patterns in these study areas to vary, although the forces encouraging and discouraging migration were complex. On the one hand, the northern areas of the White Peak and upper Nidderdale were relatively close to major industrial cities which might have drawn people away, but on the other hand they had a more diverse economy than the central Norfolk and Shropshire areas, which meant a greater range of indigenous employment opportunities.

Net migration and population change

Net migration in each of the four study areas between any two censuses may be estimated by applying the demographic accounting equation. For example, if the population in a study area in 1851 was \( P_{1851} \) and that in 1861 was \( P_{1861} \), then net migration between 1851 and 1861, \( M_{1851-1861} \), is given by the equation

\[
M_{1851-1861} = P_{1861} - P_{1851} - (B_{1851-1861} - D_{1851-1861}),
\]

where \( B_{1851-1861} \) and \( D_{1851-1861} \) are, respectively, the numbers of births and deaths during the decade. The population figures for individual parishes can be obtained from census data, but unfortunately decadal numbers of births and deaths are not published at the level of the individual parish. Instead, they must be estimated by assuming that the crude birth and death rates in a study
area were the same as those in the registration district (RD) in which the study area lay, and applying these crude birth and death rates to the ‘average’ study area population during the decade.\textsuperscript{15} For the decade 1851–1861, crude birth and death rates can be calculated for every RD in England from the database compiled by David Gatley at the University of Staffordshire.\textsuperscript{16} Thus, for example, the central Norfolk study area lies in the RD of Mitford. This RD had, according to the Gatley database, a mean population of 28,705 during the decade 1851–1861, and an average of 885 births and 572 deaths were recorded per year. This gives a crude birth rate of $885/28,705 = 0.0308$ (30.8 per thousand) and a crude death rate of $572/28,705 = 0.0199$ (19.9 per thousand). Applying these rates to the average population of the central Norfolk study area, obtained for simplicity by taking the arithmetic average of the populations recorded in the CEBs of 1851 and 1861 (see Table 3) produces an estimated average of $0.0308 \times 0.5 \times (3,044 + 3,026) = 93.5$ births per year, or 935 births over the decade, and $0.0199 \times 0.5 \times (3,044 + 3,026) = 60.4$ deaths per year, or 604 deaths over the decade in the study area. Using the demographic accounting equation, therefore, the net migration is given as

\[ M_{1851-1861} = 3,026 - 3,044 - (935 - 604) = -349. \]

A net migration of -349 persons over the decade is an average of -34.9 persons per year. This may be converted into a rough crude net migration rate by dividing by the average population to give $-34.9/(0.5 \times (3,044 + 3,026)) = -0.0115$, or a net out-migration of 11.5 per thousand per year. This compares to an estimated crude rate of natural increase of $0.0308 - 0.0199 = 0.0109$ or 10.9 per thousand per year. In other words, net out-migration was more than compensating for natural increase.

Similar calculations have been performed for the other three study areas (Table 3). Net out-migration was faster in the two purely agricultural study areas, where it just outweighed the natural increase. In the two mixed economy areas, there was a lower rate of net out-migration which did not cancel out the natural increase, so their populations rose during the decade. Thus there is clearly a suggestion that mixed economy areas performed better than purely agricultural areas in retaining their populations during the decade. However, without more detail it is not possible to say a great deal more than this. Net migration is a slippery phenomenon. As one well-known demographer famously remarked: ‘no-one ever met a net migrant.’\textsuperscript{17} A net migration of -349 may mean that 349 people moved out and no-one moved in, or that 1,349 people moved out and 1,000 people moved in. The latter scenario implies a very different impact of migration on the population compared with the former. In addition, it would be illuminating to know the composition of the migrants, at the very least by age and sex. If we knew this, then the relationship of migration patterns to employment opportunities in these rural areas would become much clearer.

The next section proposes a method which allows the estimation of age- and sex-specific net migration rates, and which can also shed some light on the overall amount of migration, both into and out from an area.
Table 3  Estimation of net migration using the demographic accounting equation: four study areas, 1851–1861.

<table>
<thead>
<tr>
<th>Study area</th>
<th>Population 1851</th>
<th>Crude birth rate 1851</th>
<th>Crude death rate 1851</th>
<th>Births in decade 1851</th>
<th>Deaths in decade 1851</th>
<th>Net migration 1851</th>
<th>Crude rate of natural increase (per thousand per year) 1851</th>
<th>Crude rate of net migration (per thousand per year) 1851</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central Norfolk</td>
<td>3,044</td>
<td>0.0308</td>
<td>0.0199</td>
<td>935</td>
<td>604</td>
<td>-349</td>
<td>10.9</td>
<td>-11.5</td>
</tr>
<tr>
<td>Shropshire</td>
<td>3,483</td>
<td>0.0277</td>
<td>0.0181</td>
<td>963</td>
<td>629</td>
<td>-346</td>
<td>9.6</td>
<td>-10.0</td>
</tr>
<tr>
<td>White Peak</td>
<td>2,384</td>
<td>0.0304</td>
<td>0.0201</td>
<td>733</td>
<td>485</td>
<td>-191</td>
<td>10.3</td>
<td>-7.9</td>
</tr>
<tr>
<td>Upper Nidderdale</td>
<td>4,318</td>
<td>0.0310</td>
<td>0.0193</td>
<td>1,372</td>
<td>854</td>
<td>-301</td>
<td>11.7</td>
<td>-6.8</td>
</tr>
</tbody>
</table>

Note: For explanation, see text.

Sources: Census enumerators' books, 1851 and 1861: The National Archives HO107/1825, 1900-1, 2149 and 2250; RG9/1243, 1861, 1868, 2539, 3192-3; database prepared by David Gatley of the University of Staffordshire (see D.A. Gatley, 'Computerising the 1861 Census and vital registration statistics', *Local Population Studies*, 58 (1997), 37–47).
Age- and sex-specific migration

The method is illustrated using data for males from the central Norfolk study area. In order to apply the method, data must be obtained from the census enumerators’ books on the number of people in an area in the two censuses at the beginning and end of the decade over which migration is going to be measured. The method requires the population of the study area in each census to be classified by sex, age (in 10-year age groups) and according to whether or not each person was born in the study area.

Age- and sex-specific survival probabilities for each 10-year age group are then calculated using death registration data for the appropriate registration district for the 1850s. The calculation of these survival probabilities may be described by considering the case of males in the central Norfolk study area (see Table 4). The Registrar General’s Decennial Supplement gives details of the average male population of the Mitford RD (in which the Norfolk study area lay) during the decade 1851–1861 and the total number of male deaths in the RD during the decade. In the Registrar General’s original data, these figures are broken down by age into single years of age at ages under 5 years, then into the age groups 5–9, 10–14, 15–19, 20–24, 25–34, 35–44, 45–54, 55–64, 65–74 and 75–84 years, and 85 years and over. The actual numbers are shown in columns (2) and (3) of Table 4 (after aggregating the figures for those aged under 5 years into a single age group 0–4 years). The age-specific death rate (ASDR) in a given age group is then calculated by dividing the number of deaths by 10, and then dividing the result by the average population in that age group. Thus, for the age-group 0–4 years in Table 4, the ASDR is equal to (1,095/10)/1,815 = 0.0603. The ASDRs for each age group are shown in column (4) of Table 4.

The next stage is to use the ASDRs to evaluate the probability that a male alive at the beginning of any age group will die before reaching the oldest age in the same age group. So, for example, in the case of the age group 25–34 years, we wish to calculate the probability that a man who celebrates his 25th birthday will not be alive to celebrate his 35th birthday. The formula linking the ASDR in a given age group to this probability is:

\[
\text{probability of dying within age group given survival to beginning of age group} = \frac{(2 \times n \times \text{ASDR})}{[2 + (n \times \text{ASDR})]},
\]

where the ASDR is the age-specific death rate in the age group, and \(n\) is the width of the age group in years. Thus, for example, for males aged 25–34 years, \(n\) is equal to 10 and the ASDR is 0.00765. Thus the probability of a man who is alive at exact age 25 years dying before exact age 35 years is

\[
\frac{(2 \times 10 \times 0.00765)}{[2 + (10 \times 0.00765)]} = 0.07368.
\]

The results of performing this calculation on all the age groups for males in the Mitford RD are shown in column (5) of Table 4.
Table 4  Illustration of the calculation of survival probabilities, using the case of males in the central Norfolk study area, part 1:
calculation of numbers of males alive in each age group for age groups used by the nineteenth-century Registrars General.

<table>
<thead>
<tr>
<th>Age group</th>
<th>Average male population of Mitford registration district during the decade 1851-61</th>
<th>Total number of male deaths in Mitford registration district during the decade 1851-61</th>
<th>Age-specific death rate</th>
<th>Probability of a man alive at the youngest age in an age group dying within the age group</th>
<th>Number of males alive at start of age group per 10,000 born</th>
<th>Number of males alive in each age group assuming 10,000 births per year</th>
</tr>
</thead>
<tbody>
<tr>
<td>0–4</td>
<td>1,815</td>
<td>1,095</td>
<td>0.06033</td>
<td>0.26212</td>
<td>10,000</td>
<td>43,448</td>
</tr>
<tr>
<td>5–9</td>
<td>1,717</td>
<td>119</td>
<td>0.00693</td>
<td>0.03406</td>
<td>7,379</td>
<td>36,265</td>
</tr>
<tr>
<td>10–14</td>
<td>1,679</td>
<td>88</td>
<td>0.00524</td>
<td>0.02587</td>
<td>7,127</td>
<td>35,175</td>
</tr>
<tr>
<td>15–19</td>
<td>1,451</td>
<td>71</td>
<td>0.00489</td>
<td>0.02417</td>
<td>6,943</td>
<td>34,295</td>
</tr>
<tr>
<td>20–24</td>
<td>1,074</td>
<td>105</td>
<td>0.00978</td>
<td>0.04772</td>
<td>6,775</td>
<td>33,068</td>
</tr>
<tr>
<td>25–34</td>
<td>1,765</td>
<td>135</td>
<td>0.00765</td>
<td>0.07368</td>
<td>6,452</td>
<td>62,145</td>
</tr>
<tr>
<td>35–44</td>
<td>1,564</td>
<td>134</td>
<td>0.00857</td>
<td>0.08216</td>
<td>5,977</td>
<td>57,315</td>
</tr>
<tr>
<td>45–54</td>
<td>1,257</td>
<td>115</td>
<td>0.00915</td>
<td>0.08749</td>
<td>5,486</td>
<td>52,460</td>
</tr>
<tr>
<td>55–64</td>
<td>1,017</td>
<td>245</td>
<td>0.02409</td>
<td>0.21501</td>
<td>5,006</td>
<td>44,875</td>
</tr>
<tr>
<td>65–74</td>
<td>609</td>
<td>286</td>
<td>0.04696</td>
<td>0.38032</td>
<td>3,929</td>
<td>31,820</td>
</tr>
<tr>
<td>75–84</td>
<td>269</td>
<td>316</td>
<td>0.11747</td>
<td>0.74005</td>
<td>2,435</td>
<td>15,340</td>
</tr>
<tr>
<td>85 and over</td>
<td>44</td>
<td>132</td>
<td>0.30000</td>
<td>1.00000</td>
<td>633</td>
<td>2,108</td>
</tr>
</tbody>
</table>

Note: For explanation, see text.

Source: Database created by R. Woods and obtainable as study number (SN) 3552: Causes of death in England and Wales, 1851–60 to 1891–1900: the Decennial Supplements from AHDS History at the UK Data Archive at the University of Essex (http://www.data-archive.ac.uk/). The population at risk and the decadal numbers of deaths are for males in the Mitford registration district for 1851–60.
Column (6) of Table 4 uses the probabilities in column (5) to calculate the number of males who would remain alive at the beginning of each age group out of a hypothetical 10,000 boys born. So, for example, if 10,000 boys are born, and the chance of dying in the age group 0–4 years is 0.26212, then the chance of surviving to exact age 5 years is 1 - 0.26212 = 0.73788. Therefore, 10,000 x 0.73788 = 7,379 boys will still be alive at exact age 5 years. The probability that a boy aged 5 years will die before his 10th birthday is 0.03406, so the probability that a boy aged 5 years will survive until exact age 10 years is 1 - 0.03406 = 0.96594. This means that the number of boys still alive at exact age 10 years will be 7,379 x 0.96594 = 7,127. Similar calculations for the other age groups produce the rest of the figures shown in column (6) of Table 4.

Column (7) of Table 4 imagines a population in which 10,000 boys are born each year and the ASDRs are the ones shown in column (4) for the Mitford RD. It can be shown that such a population will have a constant number of males alive in each age group which is approximately equal to \( n \) times the average of the number of males alive at the oldest and youngest ages in each (where \( n \) is, again, the width of the age group). Thus, for males aged 25–34, for example, the number alive will be approximately equal to 10 x \([6,452 + 5,977)/2\] = 62,145. Applying similar calculations for the other age groups produces the rest of the numbers shown in column (7) of Table 4.

All the calculations shown in Table 4 use the age groups favoured by the nineteenth-century Registrars General. However, in order to estimate net migration between two population censuses 10 years apart, it is convenient to work exclusively with 10-year age groups. The survival probabilities are based on the numbers alive in each age group, and so the next stage is to use the figures in column (7) of Table 4 to estimate the numbers alive in each 10-year age group (0–9, 10–19, 20–29 years and so on). Continuing with the example of males in central Norfolk, the number of males alive aged 0–9 years is obtained by adding together the numbers alive aged 0–4 years and 5–9 years to give 43,448 + 36,365 = 79,713. Similarly, the number of males alive aged 10–19 years is the sum of those alive aged 10–14 years and 15–19 years. The number alive aged 20–29 years may be calculated by adding together the number alive aged 20–24 years and half the number alive aged 25–34 years (that is, assuming that half of those alive aged 25–34 years are actually aged under 30 years). Using a similar logic, the other half of those alive aged 25–34 years may be added to half of those alive aged 35–44 years to estimate the number alive aged 30–39 years, and so on for older age groups. The results of these calculations are presented in column (2) of Table 5.

The survival probabilities themselves are then estimated as the ratios of the numbers of males in adjacent age groups. For example, the probability that a male aged 0–9 years in 1851 will survive to be alive (and aged 10–19 years) in 1861 is estimated as \(69,470/79,713 = 0.8715\). This approach works for all age groups except the youngest (that is, those aged 0–9 years in 1861, who have been born during the decade 1851–1861). To estimate a survival probability for this youngest age group, consider that if there are 10,000 boys born per year,
then in 10 years there will be 100,000 boys born in total. Column (2) of Table 5 indicates that 79,713 of these will be alive aged 0–9 years at the end of the relevant decade. Therefore, the probability that a male baby born between 1851 and 1861 will still be alive in 1861 is 0.7971 (that is, 79,713/100,000). The complete set of survival probabilities for males in the central Norfolk study area are shown in column (3) of Table 5.

These survival probabilities are used to estimate the expected population of natives and non-natives in 1861 in the absence of migration between 1851 and 1861. In the central Norfolk study area, for example, there were 348 native and 57 non-native males aged 0–9 years in 1851. The probability of survival for males in this age group is 0.8715, so, assuming the mortality of natives and non-natives is the same, the expected numbers of survivors aged 10–19 years in 1861 are 348 x 0.8715 = 303 natives and 57 x 0.8715 = 50 non-natives. The actual populations of native and non-native males aged 10–19 years living in the

Table 5  Illustration of the calculation of survival probabilities, using the case of males in the central Norfolk study area, part 2: calculation of survival probabilities for 10-year age groups.

<table>
<thead>
<tr>
<th>Age group</th>
<th>Estimated number of males alive in each age group assuming 10,000 births per year and mortality of the Mitford registration district in the decade 1851–60</th>
<th>Probability of surviving to be alive and in age group in 1861</th>
</tr>
</thead>
<tbody>
<tr>
<td>0–9</td>
<td>79,713</td>
<td>0.7971</td>
</tr>
<tr>
<td>10–19</td>
<td>69,470</td>
<td>0.8715</td>
</tr>
<tr>
<td>20–29</td>
<td>64,141</td>
<td>0.9233</td>
</tr>
<tr>
<td>30–39</td>
<td>59,730</td>
<td>0.9312</td>
</tr>
<tr>
<td>40–49</td>
<td>54,888</td>
<td>0.9189</td>
</tr>
<tr>
<td>50–59</td>
<td>48,568</td>
<td>0.8849</td>
</tr>
<tr>
<td>60–69</td>
<td>38,248</td>
<td>0.7875</td>
</tr>
<tr>
<td>70–79</td>
<td>23,580</td>
<td>0.6165</td>
</tr>
<tr>
<td>80–89</td>
<td>9,356</td>
<td>0.3968</td>
</tr>
<tr>
<td>90–99</td>
<td>422</td>
<td>0.0451</td>
</tr>
<tr>
<td>100 and over</td>
<td>0</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

Note: For explanation see text.

Source: Table 4.
Table 6  Illustration of the method for estimating age-specific migration using the male population of the central Norfolk study area.

<table>
<thead>
<tr>
<th>Age</th>
<th>Population in 1851</th>
<th>Survival probability</th>
<th>Expected population in 1861 assuming no migration between 1851 and 1861</th>
<th>Actual population in 1861</th>
<th>Net migration</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Native</td>
<td>Non-native</td>
<td>Native</td>
<td>Non-native</td>
<td>Native</td>
</tr>
<tr>
<td>0–9</td>
<td>348</td>
<td>57</td>
<td>0.7971</td>
<td>381</td>
<td>0</td>
</tr>
<tr>
<td>10–19</td>
<td>280</td>
<td>59</td>
<td>0.8715</td>
<td>303</td>
<td>50</td>
</tr>
<tr>
<td>20–29</td>
<td>177</td>
<td>55</td>
<td>0.9233</td>
<td>258</td>
<td>54</td>
</tr>
<tr>
<td>30–39</td>
<td>107</td>
<td>85</td>
<td>0.9312</td>
<td>165</td>
<td>51</td>
</tr>
<tr>
<td>40–49</td>
<td>59</td>
<td>61</td>
<td>0.9189</td>
<td>98</td>
<td>78</td>
</tr>
<tr>
<td>50–59</td>
<td>45</td>
<td>68</td>
<td>0.8849</td>
<td>52</td>
<td>54</td>
</tr>
<tr>
<td>60–69</td>
<td>30</td>
<td>54</td>
<td>0.7875</td>
<td>35</td>
<td>54</td>
</tr>
<tr>
<td>70–79</td>
<td>13</td>
<td>26</td>
<td>0.6165</td>
<td>18</td>
<td>33</td>
</tr>
<tr>
<td>80–89</td>
<td>3</td>
<td>8</td>
<td>0.3968</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>90–99</td>
<td>0</td>
<td>1</td>
<td>0.0451</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

Total 1,062 | 474 | 1,315 | 385 | 1,014 | 479 | -301 | 94 | -207 |

Notes: The survival probabilities alongside each age group refer to the probabilities of surviving to be in that age group in 1861. Thus the figure of 0.8715 for age-group 10-19 years is the probability that a male aged 0–9 years in 1851 would survive to be aged 10-19 years in 1861. The survival probability of 0.7971 in the top row is the probability that a male baby born between 1851 and 1861 would still be alive in 1861.

Sources: See Tables 3 and 4.
study area in 1861 were 253 and 80 respectively. Since if there had been no
migration there would have been 303 natives aged 10–19 years in 1861, but in
the event there were only 253, then this implies a net out-migration of 50 (that
is, 303 - 253) natives. By analogous reasoning, there was a net in-migration of
30 non-natives in this age-group during the decade.

Similar calculations allow the estimation of net migration among natives and
non-natives in all age groups except the youngest (those aged under 10 years in
1861). Net in-migration among non-natives in this youngest age group is
simply equal to the number of non-natives aged under 10 years in 1861 since
these, by definition, were both born during the decade 1851–1861 and not born
in the study area. If there had been no migration during the decade 1851–1861,
then the number of non-natives in this age group resident in the study area in
1861 should have been zero. To estimate the net out-migration of those born in
the study area during the decade we first estimate the total number of births in
the study area between 1851 and 1861 by applying the crude birth rate (CBR) of
30.8 per thousand for the Mitford RD during the decade (calculated from the
Registrar General’s figures) to the average population of the study area during
the 1850s. The average population is taken to be the average of the census
populations recorded in 1851 and 1861, which is 3,035 persons. A CBR of 30.8
per thousand would lead to an annual total of 93.5 births in the study area
during the decade, or 935 births in total. Assuming a sex ratio of 105 male
births per 100 female births, 479 of these were boys. The life table implies that
the probability that a boy born during the decade would survive to the time of
the 1861 census is 0.7971. This means that, in the absence of migration, we
should expect 479 x 0.7971 = 382 native boys aged 0–9 years in 1861. The
observed population of native males in this age group was 310, implying a net
out-migration of 72 between birth and the end of the decade.

Calculations similar to those presented in Tables 4–6 were performed for males
and females in the four study areas during the decade of 1851–1861. The
resulting net migration figures for natives and non-natives, and the total net
migration in each age group, are shown in Tables 7–10. The ages given in these
tables are estimates of the approximate age at migration. Thus a net migration
figure calculated by comparing the 10–19 year age group in 1851 with the 20–
29 year age group in 1861 would relate to an average age at migration of 15–24
years.

The results for all the study areas show that the amount of migration decreases
with age, yet once we go beyond this most simple of generalisations,
considerable differences between the areas emerge. In central Norfolk (Table
7), the main feature is the massive out-migration of native men aged about 15–
24 years. This exceeds the out-migration of native women, and, in contrast with
the case of women, is not compensated for to any significant degree by the in-
migration of non-natives. The difference between central Norfolk and
Shropshire, both almost entirely agricultural areas, is seen mainly in the
migration patterns of men. In Shropshire (Table 8) in-migration of non-natives
is greater, and out-migration of natives rather less, than in central Norfolk. In
### Table 7  Estimated net migration between 1851 and 1861 by natives and non-natives: Central Norfolk study area.

<table>
<thead>
<tr>
<th>Approximate age at migration</th>
<th>Net migration of males</th>
<th>Net migration of females</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Native</td>
<td>Non-native</td>
</tr>
<tr>
<td>2.5–5</td>
<td>-71</td>
<td>63</td>
</tr>
<tr>
<td>5–14</td>
<td>-50</td>
<td>30</td>
</tr>
<tr>
<td>15–24</td>
<td>-123</td>
<td>11</td>
</tr>
<tr>
<td>25–34</td>
<td>-41</td>
<td>12</td>
</tr>
<tr>
<td>35–44</td>
<td>-14</td>
<td>-8</td>
</tr>
<tr>
<td>45–54</td>
<td>2</td>
<td>-8</td>
</tr>
<tr>
<td>55–64</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>65–74</td>
<td>-1</td>
<td>-4</td>
</tr>
<tr>
<td>75–84</td>
<td>-3</td>
<td>-4</td>
</tr>
<tr>
<td>85–94</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>All ages</td>
<td>-301</td>
<td>94</td>
</tr>
</tbody>
</table>

### Table 8  Estimated net migration between 1851 and 1861 by natives and non-natives: Shropshire study area.

<table>
<thead>
<tr>
<th>Approximate age at migration</th>
<th>Net migration of males</th>
<th>Net migration of females</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Native</td>
<td>Non-native</td>
</tr>
<tr>
<td>2.5–5</td>
<td>-134</td>
<td>97</td>
</tr>
<tr>
<td>5–14</td>
<td>-61</td>
<td>69</td>
</tr>
<tr>
<td>15–24</td>
<td>-87</td>
<td>30</td>
</tr>
<tr>
<td>25–34</td>
<td>-32</td>
<td>-15</td>
</tr>
<tr>
<td>35–44</td>
<td>-24</td>
<td>4</td>
</tr>
<tr>
<td>45–54</td>
<td>-11</td>
<td>23</td>
</tr>
<tr>
<td>55–64</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>65–74</td>
<td>-13</td>
<td>4</td>
</tr>
<tr>
<td>75–84</td>
<td>-2</td>
<td>0</td>
</tr>
<tr>
<td>85–94</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>All ages</td>
<td>-354</td>
<td>222</td>
</tr>
</tbody>
</table>
Table 9  Estimated net migration between 1851 and 1861 by natives and non-natives: White Peak study area.

<table>
<thead>
<tr>
<th>Approximate age at migration</th>
<th>Net migration of males</th>
<th>Net migration of females</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Native</td>
<td>Non-native</td>
</tr>
<tr>
<td>2.5–5</td>
<td>-54</td>
<td>55</td>
</tr>
<tr>
<td>5–14</td>
<td>-73</td>
<td>35</td>
</tr>
<tr>
<td>15–24</td>
<td>-63</td>
<td>46</td>
</tr>
<tr>
<td>25–34</td>
<td>-13</td>
<td>29</td>
</tr>
<tr>
<td>35–44</td>
<td>-12</td>
<td>16</td>
</tr>
<tr>
<td>45–54</td>
<td>-2</td>
<td>-6</td>
</tr>
<tr>
<td>55–64</td>
<td>1</td>
<td>-1</td>
</tr>
<tr>
<td>65–74</td>
<td>-7</td>
<td>5</td>
</tr>
<tr>
<td>75–84</td>
<td>-4</td>
<td>-2</td>
</tr>
<tr>
<td>85–94</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

All ages                      -227     177       -50    -235     130       -105

Table 10  Estimated net migration between 1851 and 1861 by natives and non-natives: Upper Nidderdale study area.

<table>
<thead>
<tr>
<th>Approximate age at migration</th>
<th>Net migration of males</th>
<th>Net migration of females</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Native</td>
<td>Non-native</td>
</tr>
<tr>
<td>2.5–5</td>
<td>-29</td>
<td>66</td>
</tr>
<tr>
<td>5–14</td>
<td>-64</td>
<td>38</td>
</tr>
<tr>
<td>15–24</td>
<td>-125</td>
<td>24</td>
</tr>
<tr>
<td>25–34</td>
<td>-26</td>
<td>9</td>
</tr>
<tr>
<td>35–44</td>
<td>-23</td>
<td>1</td>
</tr>
<tr>
<td>45–54</td>
<td>-5</td>
<td>1</td>
</tr>
<tr>
<td>55–64</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>65–74</td>
<td>1</td>
<td>-3</td>
</tr>
<tr>
<td>75–84</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>85–94</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

All ages                      -284     144       -140  -313     163       -150
the case of young women, although the net migration is similar in both study areas, the Shropshire area has a greater inflow and outflow than central Norfolk. In the White Peak of Derbyshire (Table 9), migration patterns are quite different from those prevailing in either central Norfolk or Shropshire. For males, the main difference is that net out-migration at ages 15–24 years is lower, and indeed at ages 25–44 years there is net in-migration. The contrast between the White Peak and the purely agricultural areas is less marked for females, though the amount of in-migration of non-natives aged 25–34 years is greater. The upper Nidderdale study area (Table 10) manifests a pattern different again, its main feature being the low rate of net out-migration of women aged 15–24 years, caused by both a lower rate of out-migration of natives and a substantial flow of non-natives moving in.

Because the study areas have different overall populations, and Tables 7–10 deal in numbers of people, variations in overall rates of migration both between males and females and among the study areas are masked. Table 11 shows both the overall proportions of natives living in each study area in 1851 who are estimated to have moved away and the proportions of the non-natives living in each area in 1861 who had moved in during the preceding decade. The overall level of out-migration among natives was highest in Shropshire and lowest in upper Nidderdale. In three of the four areas, rates for females were slightly higher than those for males, and in the other area (central Norfolk) they were roughly the same. For non-natives, there was less variation among the study areas (the rate for males in the White Peak is artificially inflated by a transient local effect described in the next section), although the two purely agricultural areas experienced somewhat lower rates than the other two areas. Neither was there much variation between males and females.

<table>
<thead>
<tr>
<th>Study Area</th>
<th>Out-migration of natives as a proportion of the 1851 native population</th>
<th>Non-native in-migrants as a proportion of the 1861 non-native population</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Males</td>
<td>Females</td>
</tr>
<tr>
<td>Central Norfolk</td>
<td>-0.28</td>
<td>-0.28</td>
</tr>
<tr>
<td>Shropshire</td>
<td>-0.34</td>
<td>-0.42</td>
</tr>
<tr>
<td>White Peak</td>
<td>-0.26</td>
<td>-0.30</td>
</tr>
<tr>
<td>Upper Nidderdale</td>
<td>-0.16</td>
<td>-0.19</td>
</tr>
</tbody>
</table>

Sources: See Table 3 and study number (SN) 3552: Causes of death in England and Wales, 1851–1860 to 1891–1900: the Decennial Supplements from AHDS History at the UK Data Archive at the University of Essex (http://www.data-archive.ac.uk/).
Figures 1 and 2 show net migration by age for males and females as a proportion of the 1851 population in the relevant cohort. For example in the White Peak study area in 1851 there were 325 males aged 0–9 years. Net migration among this cohort during the decade was -38, so the proportion of resident males in this cohort who moved away was -38/325 = -0.117. On average, these young men were aged 5–14 years when they moved. Consider first the chart for males (Figure 1). Three of the study areas display a similar age pattern, with the highest rates of net out-migration among young men aged 15–24 years, and decreasing net out-migration among middle-aged men (indeed in the Shropshire area there is net in-migration among men aged 45–64 years). The exception is the White Peak area, in which out-migration rates at ages 15–24 years are lower than in the other areas, and at ages 25–44 years there is net in-migration.

Among females (Figure 2) there is less variation among the areas, with net out-migration at all ages under 45 years in all four. The rates of net out-migration vary considerably, though, with upper Nidderdale generally having the lowest rates, especially at ages 15–24 years. Among women of this age, the White Peak area has the highest net out-migration rates, whereas for men of the same age it had the lowest.
Migration and the local economy

The contrasting migration patterns among the four areas can be interpreted in the light of what is known about their local economic conditions. Consider first the central Norfolk area. The main feature of its migration pattern between 1851 and 1861 was the substantial out-migration of young men, and the almost complete absence of any compensating inflow. The 1850s are sometimes seen as a ‘golden age’ of Victorian agriculture, but it seems that the high-farming economy of this area was not capable of providing a livelihood for all native men. Indeed of those aged 10–19 years in 1851 and born within the study area, 45 per cent had left the area by 1861. This figure is higher than that in the other areas, though not very much so. However, in the other areas the compensating inflow of men aged 15–24 was considerably greater. The pattern of migration for females in central Norfolk is roughly as expected, with substantial out-migration of young native women, partially compensated for by the immigration of non-native women, many of whom were employed in 1861 as domestic servants.

The picture for females in the Shropshire area is strikingly similar to that in central Norfolk. For males, however, there are significant differences. The out-
migration of natives was lower in the age-group 15–24 years and somewhat higher in the age group 35–44 years than in Norfolk, and the in-migration of non-native boys was much higher in Shropshire than in Norfolk. There seems little doubt that this contrast was related to the structure of the agrarian labour force. In Shropshire, male farm service was still common during the 1850s, whereas it had almost died out in Norfolk. Many of the non-native boys moving in to the Shropshire area were arriving to work as farm servants. A substantial proportion of these would have been born rather close to the study area, in neighbouring parishes. It seems, therefore, that the institution of farm service led to a higher level of short-distance circulatory migration in mid-nineteenth century England in those areas where it persisted.

The White Peak study area displays a similar pattern for females as Norfolk and Shropshire, but the pattern for males is markedly different, with much higher in-migration rates for non-native men aged 15–44 than in either of the two purely agricultural areas. An initial interpretation of this might reflect the White Peak’s greater occupational diversity, however the main reason was the construction of the railway between Bakewell and Buxton which led to about 100 railway navigators being present in the area (mainly in the parish of Taddington) in 1861. By contrast, the effect of the lead mining industry on migration patterns was, in fact, rather small.

The distinctive features of the migration pattern in the upper Nidderdale study area are mainly seen for females. The male pattern is rather similar to that of central Norfolk. For females, upper Nidderdale is marked out by a lower rate of out-migration among native women aged 15–24 years than the other three areas. The proportions of native women aged 10–19 years in 1851 who moved away during the ensuing decade were 39 per cent in central Norfolk, 48 per cent in Shropshire, 34 per cent in the White Peak, but only 17 per cent in upper Nidderdale. This low out-migration was also associated with a substantial inflow of non-native women in the same age group, which almost compensated for the out-migration of natives. Again, this pattern can be related to the local economy, in which employment for both single and married women was available in the flax mills, which discouraged native-born women from leaving, and encouraged those from nearby parishes and townships to move into the area. The flax mills tended not to employ older women, and it is probably for this reason that the migration pattern for women aged over 25 in upper Nidderdale is similar to that of the other areas.

Conclusion

This paper has proposed a simple approach to measuring the impact of migration on small areas of England and Wales. The method can presently be applied to each decade between 1851 and 1901 except for 1871–1881. For 1871–1881 the Registrar General’s Decennial supplement does not give mortality data separately for males and females, and so the approach may only be used by combining the two sexes, which makes the interpretation of the results less certain. The method requires only limited data from the census enumerators’
books (the population classified by age, sex and whether or not each person was born within the area in question), together with some vital registration data which may be readily obtained in electronic form from the History Data Service at the University of Essex. The availability of the 1881 census enumerators’ books (CEBs) in machine-readable format, and the possibility that the 1901 CEBs will eventually be available in a form suitable for local population historians, should further speed up the data collection. By applying the approach to data from four contrasting areas of rural England, this paper has identified both similarities and differences among the areas in their age-specific migration patterns, which can be interpreted in the light of what is known of local economic conditions.

Substantively, the results seem to indicate that female migration by age in the mid-nineteenth century was fairly similar across rural England except in those areas where a secondary sector in the economy employed substantial numbers of women. Patterns of migration among men, however, varied much more, and responded not only to the existence of occupational sectors other than agriculture, but also to the structure of the agrarian labour force, and to periodic rises and falls at the local level in the availability of employment for men.

Acknowledgements

An earlier version of this paper was presented at the annual conference of the British Society for Population Studies, University of Bristol, 10–12 September 2003. I am grateful to those present on that occasion, and to the members of the Editorial Board of Local Population Studies, for their helpful comments.

NOTES

5. For a good example, see N. Goose, Population, economy and family structure in Hertfordshire in 1851: St Albans and its region (Hatfield, 2000), 126-45.


15. The assumption that ‘average’ birth and death rates across an entire registration district (RD) can be used to estimate fertility and mortality in a study area which only comprises a part of the RD perhaps needs some additional comment. It is likely to be a reasonably good assumption where the RD is homogeneous (for example entirely rural), but where an RD contains, for example, an urban area and a rural hinterland and the study area is, say, just in the rural part, then substantial differences might emerge, especially with the death rates. The four study areas used in this paper are all rural, and the RDs containing them do not include any large towns so the RD-level birth and death rates probably give a good indication of fertility and mortality in the study areas. Moreover, in the case of upper Nidderdale, the study area comprises more than half the relevant RD (Pateley Bridge).

16. For details of this database, see D.A. Gatley, ‘Computerising the 1861 Census and vital registration statistics’, *Local Population Studies*, 58 (1997), 37-47.


18. The data from the Registrar General’s *Decennial Supplement* have been made available in machine-readable form in a database created by R. Woods and obtainable as study number (SN) 3552: Causes of death in England and Wales, 1851-60 to 1891-1900: the Decennial Supplements from AHDS History at the UK Data Archive at the University of Essex (http://www.data-archive.ac.uk/).

19. The reported number of deaths must be divided by 10 because the deaths are decadal totals. In other words, the number of deaths per year is one tenth of the number reported.


21. Note that for the oldest age group (85 years and over) the probability of dying is 1.00000, because the oldest age group is considered to be as wide as is necessary in order to accommodate the oldest age to which anyone survives. Therefore, by definition, everyone who survives to exact age 85 years must die within this age group.

22. The number alive in the oldest age group cannot be calculated in the same way as the other age groups. There are a number of possible approaches to calculating it, described in Hinde, *Demographic methods*, 34. In Table 4, we have assumed that men who attained the age of 85 years lived on average a further 3.33 years, which leads to a population at ages 85 and over of 633 x 3.33 = 2,108.

23. For the age groups 80-89 and 90-99 years, the numbers alive were estimated by assuming that one fifth of those alive at age 85 years were actually aged over 90 years. Thus the number alive in the age group 80-89 years is estimated as the sum of half those alive in the age group 75-84 years (7,670) plus four fifths of those alive in the age group 85 years and over (1,686). The remaining one fifth of those aged 85 years and over are therefore in the age group 90-99 years.
SOCIAL INTERVENTION AND THE DECLINE OF INFANT MORTALITY: BIRMINGHAM AND SHEFFIELD, c. 1870–1910

Chris Galley

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Introduction

The beginning of the secular decline in infant mortality in England and Wales can be dated fairly precisely, since from 1900 substantial and sustained decrease in the national infant mortality rate (IMR) occurred and continued throughout the twentieth century. The causes of long-term infant mortality decline are relatively easy to understand in general terms and are related to the process of modernisation which resulted in lower levels of fertility, increased female status and improvements in child care practices, medical care, living standards and educational provision. However, it is still not clear why infant mortality began to decline at or around 1900, some 30 years later than childhood mortality.1 The fact that decline occurred almost simultaneously in every English and Welsh Registration District (RD) tends to suggest that some exogenous factor was at work and with many local authorities introducing specific measures aimed at reducing IMRs at about the same time, the role played by social intervention in infant mortality decline has been the subject of considerable debate.2 As yet few detailed local studies have been undertaken on this subject, although source material in the form of the under-used Medical Officer of Health (MOH) reports is readily available for most places. The main aim of this paper is therefore to examine the extent to which local initiatives were capable of influencing the IMR in the period before the First World War. It will also draw a number of tentative conclusions about the nature of infant mortality decline in an attempt to stimulate further debate.

Those individuals charged with implementing policies aimed at reducing IMRs were the MOHs. These officials were appointed in every sanitary authority as a consequence of the 1872 Public Health Act and part of their responsibilities was to produce an annual report for the Local Government Board.3 Unfortunately every annual report has not survived, some were not published and some may not even have been written; however, many contain a wealth of demographic material together with details of various initiatives introduced by the MOH. The reports did not need to conform to a set format and their quality varied considerably, reflecting the interests and dedication of individual
MOHs. The best ones provide an excellent picture of local patterns of infant mortality, while others hardly mention the problem. In general urban MOH reports contain far more information than rural ones and more importantly the statistics they report conform to municipal boundaries rather than the General Register Office’s RDs. Taken en masse MOH reports are a unique source that can be used to investigate a wide variety of issues relating to the demographic and medical history of Victorian and Edwardian Britain. An appropriate means of beginning this investigation is therefore to compare two sets of MOH reports, and as the greatest problems with respect to high IMRs were encountered in the large cities, those for Birmingham and Sheffield have been chosen. Both cities suffered some of the highest IMRs and at some stage their MOHs sought to implement policies aimed at reducing these rates. While two case studies cannot hope to encompass the full range of experience, the measures introduced by Birmingham and Sheffield were nevertheless typical of those adopted in many British cities.

Infant health initiatives in Birmingham

Birmingham appointed its first MOH, Alfred Hill, in 1872 and he continued in this post until 30 September 1903. Throughout his period of office Hill returned to the problem of infant mortality at regular intervals but, as Table 1 shows, his efforts appear to have been largely in vain since the IMR did not begin to decline until 1901. Reading through Birmingham’s nineteenth-century MOH reports it is apparent that while infant mortality was mentioned in virtually every report it was often only in passing, and little indication is given that there was any systematic attempt to deal with the problem. For instance, the first report reveals that directions for the prevention of diarrhoea had been provided and posted in courts at risk of such diseases, while in 1875 it was remarked that diarrhoea should, ‘properly (be) regarded as a preventable disease … 72.3% of the deaths occur in children under 1’. The proposed means by which the problem could be tackled, other than through general sanitary improvements, was via greater maternal breastfeeding since, ‘mothers are so ignorant of the true wants of infant life that they disregard all nature’s teachings’. However, no indication is given as to how breastfeeding could be promoted.

The first thorough analysis of infant mortality appeared in the 1877 report. Infant deaths were reported by cause and season and the large number of summer diarrhoeal deaths highlighted. Hill concluded, ‘The principal cause of Infantile Mortality is to be found in improper feeding and careless nursing … infants of the tenderest age are often deprived of the one special food which nature has provided for them, viz., the mother’s own milk’. In a depressing postscript Hill argued that little could be done to lower rates:

The evil of excessive and preventible infant mortality is one which cannot be dealt with by a sanitary authority except in a very partial degree, and in a general manner, it is more a social than a public sanitary problem, and it is only to be solved by better knowledge,
greater prosperity, and a higher morality in the class of society among who it presents itself. 13

Hill effectively put the blame for high IMRs on the mothers themselves and he distanced himself from any responsibility. A final more enlightened section provided suggestions as to how the problem could be tackled:

It appears to me that an organised society of ladies to visit low-class homes and instruct women in a simple manner on the best mode of feeding and nursing children would be of immense service, whilst the establishment of nurseries or crèches, where infants could be properly taken care of while their mothers are at work away from home, would be a most valuable means of protecting children. 14

Thus, as early as 1877 Hill had identified an appropriate strategy to deal with high IMRs, but it appears that he did not have the resources, the organisational structure or perhaps sufficient will to implement effective interventionist measures.

In subsequent years a small section of Birmingham’s MOH reports was always devoted to infant mortality, but it often lacked detail and was limited in scope. Each year Hill noted how variations in IMRs could be linked with the
prevalence of Autumnal diarrhoea and in 1884 there was even a thorough discussion of the relationship between temperature and diarrhoea mortality. In general though, there was no discussion of other causes of infant death in the reports. In 1888 Hill admitted that, ‘Our amount of Infantile Mortality continues to be, in fact, the principal regrettable feature in our mortality statistics’. By 1889 as the IMR had failed to decline Hill simply noted without explanation that, ‘the record of Infant Mortality for the past year is by no means a good one’. Later in 1890 the IMR was, ‘not very satisfactory’ and Hill seemed perplexed as to why this was:

the great loss of infant life is deplorable. It is, I think, probable that there is something connected with the social condition of our labouring classes, and the very wide-spread employment of women in the town, to which the large Mortality in infants is to be attributed, but what these particular conditions are I cannot with certainty determine.

These persistent high rates led to the Council requesting an enquiry into infant mortality in 1891 and this was included as part of the 1892 report. Due to the delay in the Council requesting the report Hill was only able to trace 1,222 of the 2,504 infants who had died in 1891 (49 per cent), a fact that mars much of the subsequent analysis. Hill analysed IMRs by ward, cause of death, housing condition, mother’s employment and whether or not the infant had been breast-fed. He noted that sanitary conditions appear to have little influence on the IMR, but his main conclusions were virtually identical to those of 1877. In particular he assigned the main cause of high IMRs to maternal neglect:

This neglect may be of two kinds: the culpable neglect of those who know how to manage children properly, but fail to do so; and neglect arising out of ignorance. As regards the former it is difficult to see what is to be done regarding it, except the infliction of punishment when discovered and proved, which is very difficult. To remedy the neglect arising from ignorance several means suggest themselves. Among them should be mentioned the teaching of the principles which should govern the management of young children, both in health and sickness, to girls in elementary schools; free lectures to women on the same subject; and the issue of a handbill giving concise directions as to feeding and nursing infants to persons who register births.

Hill ended the report by arguing that, while it may appear from the preceding analysis that Birmingham occupied an exceptionally bad position with respect to its IMR, ‘our City was but little worse than the large towns as a whole’. Subsequent reports again failed to follow up these ideas and throughout the 1890s little attention was directed towards the problem with the sections on infant mortality generally repeating previous ones, sometimes verbatim. Hill noticed the increasing number of infant diarrhoea deaths and, ‘handbills and posters giving instructions as to the precautions to be taken to prevent
Diarrhoea’ were issued every year. In 1897 when the IMR was at its highest (214 per 1,000) an embarrassed Hill made no direct mention of it, hiding it away as part of a larger table. By the end of the 1890s as diarrhoea deaths continued to rise, increasing IMRs to ‘unusually high’ levels, Hill’s reports merely continued to repeat the conclusions of previous ones.

Two conclusions may be drawn from reading Birmingham’s nineteenth-century MOH reports. First, even though one of the MOH’s chief responsibilities was to prevent unnecessary deaths—and approximately one in three of all deaths in Birmingham in this period were those of infants—issues relating to infant health generally received low priority. Second, while Hill had correctly identified many of the factors responsible for high IMRs he appears to have been unable to exert much influence over them. Underpinning all of Hill’s actions was his belief, which he shared with most of his contemporaries, that the key to reducing levels of mortality lay in improving the sanitary environment. This is why much effort was expended on attacking infantile diarrhoea, the one infant disease that was universally considered to be preventable. Hill’s beliefs were reinforced by the fact that in Birmingham, as elsewhere, the general death rate was used to measure the extent of sanitary progress and this had fallen steadily, from 24.8 deaths per 1,000 living in 1873 to 17.2 in 1903. Commenting on this phenomenon in 1882 Hill argued, such a result of ten years of sanitary progress seems to clearly establish the value of preventive medicine, and enables some idea to be formed of the enormous advantage to be gained by the development of a branch of medical science, which at present is only in its infancy.

Hill’s reliance on the death rate meant that less importance was attached to the IMR, even though it had been recorded annually from 1876. Moreover, when Hill sought to explain Birmingham’s high IMR, he did so by comparing it with rates in other large towns (for instance, in 1892 Birmingham was placed fifth out of the ten largest towns). This practice tended to impart a gloss onto Birmingham’s appallingly high IMR since it implied that high IMRs were a natural feature of all large towns. Thus, even though Hill had correctly identified how changes to child management practices could reduce IMRs, he did little to ensure that such reforms were implemented, believing instead that sanitary reform would eventually cause the IMR to decline.

It was not until April 1899, with the IMR refusing to decline, that Hill returned to his 1877 recommendations and appointed four female health visitors. Their responsibilities included helping tenants, ‘make their homes as healthy and as comfortable as possible’ by improving general sanitary conditions. They had no special remit to reduce IMRs, but part of their duties was to, ‘give hints to mothers on the feeding’ of their children. Armed with specially prepared handbills about how to prevent diarrhoea, of which about 3,000 were distributed during the 1899 epidemic, they were directed to visit as many cases of the disease as possible and give advice on nursing and diet. Hill admitted that the four health visitors, ‘were unable to deal with more than a small part
of the large number of houses invaded’ and they probably made little overall impact given that their roles were essentially reactive rather than proactive.\textsuperscript{33} The number of health visitors was increased to eight in 1900 and 12 in 1902 and their duties were expanded to include the promotion of breastfeeding and general cleanliness when dealing with babies.\textsuperscript{34} By 1902, with the IMR at last beginning to decline, Hill was still stressing the importance of sanitary improvement:

\begin{displayquote}
I am convinced that the greater cleanliness now enforced in the town has had a considerable share in the reduction … Everything that conduces to greater cleanliness, both personal, domestic and public, is calculated to reduce the prevalence of diarrhoea.\textsuperscript{35}
\end{displayquote}

John Robertson succeeded as MOH on 30 September 1903 and immediately greater emphasis was placed on reducing infant deaths in the annual reports. One of Robertson’s first tasks was to write a report, commissioned by the town council, on the means of reducing infant mortality throughout the city.\textsuperscript{36} This report, published in June 1906, provides a model for the types of analyses that could be undertaken by an Edwardian demographer. It surveyed the extent of infant mortality throughout the city, highlighting both spatial and social variations. Robertson asserted that infant mortality was, ‘the most important subject engaging the attention of Sanitary Authorities at the present time’, whilst at the same time he acknowledged that, ‘all our efforts in the past have been productive of practically no reduction in infant mortality’.\textsuperscript{37} He also posed the question, ‘Is Birmingham doing as much as other large towns in the direction of reducing infant mortality?’ \textsuperscript{38} Robertson noted the extent of preventable deaths, especially those caused by poor feeding and diarrhoea:

\begin{displayquote}
My own investigations into the causes which are in operation in producing fatal illness from diarrhoea show that this disease is nearly fifty times more frequent in poor class districts than among the middle and upper classes.\textsuperscript{39}
\end{displayquote}

He also believed,

\begin{displayquote}
that a good deal of the difference which occurs in various districts in the amount of infant mortality is due to local customs, certain methods of feeding and rearing infants being handed down from mother to daughter in particular areas, which probably exert a powerful influence for good or evil as the case may be.\textsuperscript{40}
\end{displayquote}

At the end of the report Robertson summarised seven measures that were being undertaken in Birmingham: five related to improving the sanitary environment (three to poor and dirty housing and two to personal hygiene); the others were tackling poverty, and improving the quality of the milk supply.\textsuperscript{41} With the exception of poverty, in each case Robertson made specific recommendations as to how improvements could be made. In the 1905 annual report Robertson had broadened the attack on infant mortality by arguing that
in addition to infantile diarrhoea, infectious diseases such as measles, whooping cough, TB, bronchitis and pneumonia were largely preventable in infants, as were ‘the conditions producing premature birth and congenital debility’, which were influenced by the ‘mal-nutrition of the mother and improper living’. Robertson realised that in order for IMRs to be reduced a wide range of issues needed to be considered and these were addressed by the continued implementation of a range of educational and sanitary measures. Thus, by 1906 a serious commitment had been finally made by the MOH to tackle the problem of high infant mortality.

As the IMR began to decline the causes of variations within the city came to the fore. For instance, in 1906 Birmingham’s overall IMR was 168, but individual wards varied from 268 in St Bartholomew’s, located in the centre of the city and largely populated by working-class families, to 117 in Edgbaston and Balsall Heath, which were suburban and contained more artisan and middle-class families. Such inequalities persisted and in 1908 Dr Jessie Duncan was appointed to address this issue. She first examined the relationship between infant mortality and the industrial employment of women and then she produced reports on infant mortality in two of Birmingham’s worst wards, St George’s and St Stephen’s. Duncan visited the homes of all newly born babies in these wards, gave advice on care and feeding, obtained information about the mother’s circumstances and invited the mother to an ‘Infant Consultation’ where her baby could be weighed and inspected. A health visitor then visited each infant every week for the first five weeks and then afterwards at monthly intervals. If the infant became sick or if artificial feeding was introduced then Duncan made a return visit. Clearly considerable effort was expended in identifying ‘at risk’ infants and mothers were given every encouragement to attend the consultation sessions. Duncan even began a class for expectant mothers. In addition to the work of Duncan, at least five similar schemes, operating in the districts experiencing the highest IMRs, were running by 1910 and proposals were made to extend this work to other parts of the city. The health visitors appeared to be making an impact, but time was needed to achieve results. In the two wards where Duncan worked, St George’s and St Stephen’s, respective IMRs in 1910 were 140 and 163 which compared favourably with rates of 213 and 232 in 1904; however, in spite of all Duncan’s efforts IMRs in these two wards increased to 191 and 200 in 1911 due to the very hot summer of that year, a situation that was repeated in many urban districts. Throughout the 1900s infant mortality declined in every ward in Birmingham, but it is striking that all the outer wards experienced lower IMRs and greater rates of decline than the inner wards, as Table 2 shows. Moreover, all the efforts to reduce IMRs were targeted at the inner wards, which were dominated by working class families and the outer wards—where most of the better-off families lived—were virtually ignored. Thus, it would appear that the middle classes managed to experience infant mortality decline with the benefit of little or no intervention. Even within working-class districts those families deemed to be better-off were excluded from subsequent visiting. Clearly, while health visiting must have brought benefits to some working-class families, these benefits need to be placed
within the context of generally declining IMRs throughout the city and, more importantly, it should be noted that these various initiatives did not prevent a severe diarrhoea epidemic from breaking out in 1911.

It is difficult, if not impossible, to assess how the various measures introduced in Birmingham affected its IMR. The evidence, albeit circumstantial, appears to show that before 1900—even though Hill had correctly identified many of the factors responsible for high IMRs—direct intervention was minimal and it had little impact on the IMR. After 1900 slow progress appears to have been made as the IMR declined at the same time that greater efforts were made by the MOH and the health visitors to influence the rate. This evidence needs however to be tempered by the fact that IMRs were also declining, at a faster rate, among large sections of Birmingham’s population where little intervention appears to have taken place. Thus, it would appear safe to conclude that intervention can provide, at best, only a partial explanation of Birmingham’s declining IMR.

**Infant health initiatives in Sheffield**

The quality of Sheffield’s MOH reports are disappointing, especially when compared with Birmingham’s. The first report for 1873 gives the percentage of deaths under one to annual births for the years 1871–1873, a list of weekly infant deaths and a discussion of the causes of diarrhoea. In 1875 Sheffield’s IMR was also reported by sub-district. The formats of the 1876 and 1877 reports were virtually identical to that of 1875, but no reports for 1878–84 were published. When Dr Griffiths, Sheffield’s first MOH, left office his successor, Thomas Hime, was only engaged on an annual basis at half the salary of his predecessor, although he was allowed to undertake some private practice. These conditions, particularly the one relating to the annual nature of the contract, were not approved by the Local Government Board which meant that they withheld their contribution towards his salary. Relations between the MOH and the council were strained and while there is nothing to suggest that annual reports were not compiled, none have survived and eventually, in 1884, Hime resigned. Sinclair White took over in 1885. He used the death rate to measure sanitary progress, but he also noted that, ‘The infantile mortality is a capital index by which to gauge the healthiness or otherwise of a district’. White ascribed the main causes of high infant mortality to improper feeding and insufficient ventilation and he promoted the formation of voluntary organisations to tackle these problems through improving education. Despite White’s assertion about the importance of the IMR, relatively little information was provided about infant mortality in the annual reports and decline did not begin until 1902, as shown in Table 3. This general neglect of infant mortality continued into the 1890s with the formats of subsequent reports hardly changing, even when Theodore Thomson and Harvey Littlejohn succeeded as MOHs in 1888 and 1891 respectively. Throughout this whole period each report only provided the IMR, a comparison with IMRs in other large towns together with short discussions of illegitimate infant mortality and some causes of infant death.
Table 2  infant Mortality in Birmingham by Ward, 1904 and 1910.

<table>
<thead>
<tr>
<th>Ward</th>
<th>1904</th>
<th>1910</th>
<th>Decline</th>
<th>Per cent Decline</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>IMR</td>
<td>IMR</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Inner Wards</strong></td>
<td></td>
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<tr>
<td>St Mary's</td>
<td>331</td>
<td>202</td>
<td>129</td>
<td>39</td>
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<tr>
<td>St Bartholomew's</td>
<td>263</td>
<td>201</td>
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<td>24</td>
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<tr>
<td>St Stephen's</td>
<td>232</td>
<td>163</td>
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<tr>
<td>St Paul's</td>
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<tr>
<td>Neechells</td>
<td>219</td>
<td>156</td>
<td>63</td>
<td>29</td>
</tr>
<tr>
<td>Duddeston</td>
<td>217</td>
<td>150</td>
<td>67</td>
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<tr>
<td>St George's</td>
<td>213</td>
<td>140</td>
<td>73</td>
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<td>Deritend</td>
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<td>177</td>
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<tr>
<td>St Thomas’</td>
<td>196</td>
<td>152</td>
<td>46</td>
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<tr>
<td>Ladywood</td>
<td>192</td>
<td>123</td>
<td>69</td>
<td>36</td>
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<tr>
<td>Market Hall</td>
<td>187</td>
<td>148</td>
<td>39</td>
<td>21</td>
</tr>
<tr>
<td>St Martin’s</td>
<td>185</td>
<td>148</td>
<td>37</td>
<td>20</td>
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<tr>
<td><strong>Inner Ward Average</strong></td>
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<td>27</td>
</tr>
<tr>
<td><strong>Outer Wards</strong></td>
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<td>Saltley</td>
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<td>99</td>
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<td>44</td>
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<tr>
<td>Rotton Park</td>
<td>178</td>
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<tr>
<td>All Saints</td>
<td>173</td>
<td>113</td>
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<tr>
<td>Balsall Heath</td>
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<td>64</td>
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<td>Bordesley</td>
<td>146</td>
<td>106</td>
<td>40</td>
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<td>Edgebaston and Harborne</td>
<td>133</td>
<td>74</td>
<td>59</td>
<td>44</td>
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<tr>
<td><strong>Outer Ward Average</strong></td>
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<td><strong>Whole City</strong></td>
<td>195</td>
<td>130</td>
<td>65</td>
<td>33</td>
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</tbody>
</table>

*Source: BirmMOH–1909, 19; 1910, 18.*
By the mid-1890s the annual reports contain little evidence to suggest that much was being done to reduce IMRs, even though the main causes of infant deaths were reported year by year:

This appalling mortality amongst young children is no doubt largely preventible, occurring chiefly in children of the poorest class, and being due to exposure, deficient and unsuitable nourishment, and, to a certain extent, insanitary surroundings.\(^58\)

John Robertson, prior to his appointment in Birmingham, succeeded as MOH in 1897. He also provided similar levels of information to his predecessors, although he did draw attention to, ‘the very high mortality among young children ... I believe that to a very large extent this high Mortality is due to ignorance and carelessness on the part of parents and guardians’.\(^59\) The first sign of intervention occurred in 1898 when two female inspectors were appointed and the problem of high infant mortality was first seriously addressed in 1899:

From information obtained from medical practitioners and from personal and other inspections, one can state, without fear of exaggeration, that at least a thousand healthy infants die every year in Sheffield before they reach the age of one year on the account of the ignorance of their parents. The problem of successfully preventing this enormous waste of infant life is one of the most important, and at the same time one of the most difficult which

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Table 3  Infant Mortality Rates in Sheffield, 1885–1910.

<table>
<thead>
<tr>
<th>Year</th>
<th>IMR</th>
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<tbody>
<tr>
<td>1891</td>
<td>170</td>
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<tr>
<td>1892</td>
<td>167</td>
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<td>1893</td>
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<td>1908</td>
<td>141</td>
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<tr>
<td>1909</td>
<td>119</td>
</tr>
<tr>
<td>1910</td>
<td>127</td>
</tr>
</tbody>
</table>

Source: Annual Reports of the Medical Officer of Health for Sheffield.
sanitary authorities have to deal with. ... Some attempt has been made during the year to deal with this question by distributing printed instructions on the feeding and rearing of infants. ... The visits made by the two Women Sanitary Inspectors to the houses in the poorer districts will aid the work of instruction in this direction.60

Breast-feeding was to be encouraged where possible and efforts were made to reduce the risk from cow’s milk, although the MOH accepted that little could be done officially, the female inspectors having only limited impact, and the artisan classes ‘alone can protect themselves’.61

In 1900 four additional women inspectors were appointed and by 1904 their duties had expanded from general house visits to advising mothers who had just given birth about the feeding and rearing of infants, the control of whooping cough and general child welfare.62 They also focussed on cleanliness and the milk supply, although their work was hindered because they did not have access to a list of all the births in their districts.63 It is again difficult to assess the impact of the health visitors, the MOH certainly considered their work valuable, but the policies they and the MOH advocated took time to achieve results. A good illustration of this point was the continued use of the long-tubed feeding bottle. In 1899 Robertson had discovered why long-tubed bottles were generally used in preference to the less dangerous boat shaped bottles:

“In regard to one of the points in the handbill relating to the type of bottle for feeding infants, it has been found that one of the reasons why tube bottles are so universally used in Sheffield is that they are sold by retail chemists cheaper and at a greater profit than those recommended in the leaflet.”64

Measures were immediately taken to change the practice, but success did not occur overnight: ‘The long tube bottles continue gradually to go out of favour. In 1904 the portion of boat-shaped to long-tubed bottles was 12 to 10; in 1905 it was 15 to 10; and in 1906, 24 to 10”.65 As in Birmingham, considerable effort was placed on investigating and attempting to combat infantile diarrhoea. Graphs of diarrhoea deaths appeared in the annual reports and it was concluded, ‘that a very large amount of carelessness exists in the feeding and rearing of infants’.66 In October 1906 a special committee on infantile mortality was set up, but it appears to have been limited in scope with its main recommendations being to improve maternal education, partly with the assistance of the ‘Motherhood League’, and the setting up of a scheme to provide dried milk for bottle-fed infants during the diarrhoea season.67 By 1908 15 women inspectors were employed in Sheffield: they visited homes, educated mothers and helped to reduce diarrhoea deaths, partly through infant depots which had been set up for the distribution of dried milk.68

Some parallels may now be drawn between the infant health work being done in Birmingham and Sheffield. In both cities the main means of measuring
levels of mortality remained the death rate well into the twentieth century, both sets of reports show that efforts to reduce infant deaths centred around preventing epidemic diarrhoea, blame for infant deaths was frequently directed towards mothers and in the early twentieth century efforts were made to improve maternal education. In particular John Robertson did much to highlight issues relating to infant health and when he moved from Sheffield to Birmingham the former’s loss was definitely the latter’s gain. Both cities also started to employ health visitors towards the end of the nineteenth century, but the task they faced was enormous and only limited amounts of progress had been achieved by 1914. Yet in spite of these similarities it is clear that Birmingham was far more active than Sheffield in implementing interventionist policies. Sheffield’s MOH reports are much less detailed than Birmingham’s and they reveal less apparent concern to deal with the problem of high IMRs. Nothing comparable to Hill’s studies of 1877 and 1891 occurred in Sheffield, nor was there Duncan’s relatively sophisticated attempts to identify and target ‘at risk’ babies. However, if IMRs in both cities are compared then the overall patterns of decline are revealed to be virtually identical (see Figure 1). Indeed, the patterns are sufficiently similar to suggest that factors other than purely local ones must also have been important.
Given that the main thrust of the MOH’s preventive strategy was directed towards epidemic diarrhoea it is worthwhile investigating how successful both cities were in combating this disease. While some cause of death data for infants was unreliable in this period and diarrhoea is more of a symptom than a true cause of death, such deaths were easy to identify and the data contained in the MOH reports can be considered to be broadly reliable. Figures 2 and 3 decompose IMRs in Birmingham and Sheffield into their diarrhoea and non-diarrhoea components. The diarrhoea mortality rate was generally higher in Birmingham, although in both cities the effects of this one disease were sufficient to alter the overall pattern of infant mortality. Non-diarrhoea rates show greater stability until 1900, after which steady decline occurred, while diarrhoea rates fluctuated from year to year. The intensity of these epidemics increased during the 1890s, some decline is evident after 1900, but substantial epidemics still occurred in 1904, 1906 and 1911 in both cities. The link between diarrhoea and hot, dry weather during the third quarter of the year had been noted from the 1870s, and part of the overall decline in infant mortality during the early 1900s can be put down to the relative coolness of the summers in some of these years.

While much effort has been expended in investigating the causes of decline from 1900, the reasons why infant mortality increased during the 1890s has
attracted less attention. The series of hot, dry summers during the 1890s were certainly detrimental to infant health, yet equally hot summers during the 1870s and 1880s proved less fatal. Arthur Newsholme believed that during the late nineteenth century there had been, ‘a great increase of artificial feeding of infants, though no exact data are ascertainable on this point’. According to a report commissioned by William Farr in 1870, ‘among the married poor suckling is evidently the rule’, while, ‘among the upper classes it would appear that the tendency for mothers not to suckle their children is on the increase’. The rise of artificial feeding during the 1890s could therefore be an interesting example of the working classes copying behaviour from their so-called ‘betters’ that had a detrimental effect on their health, since artificially fed infants were at greater risk of succumbing to diarrhoea than those who were breast-fed. Moreover, it is likely that working-class mothers living in less sanitary environments found it more difficult to maintain the high degree of cleanliness necessary to ensure successful artificial feeding. Data about artificial feeding and the precise way it was carried out are hard to obtain and none appears to exist covering the whole of the period 1880–1910. Commercial baby foods began to appear at this time and, while few working class families would have been able to afford proprietary brands, plenty of cheaper substitutes such as various forms of pap and condensed or cow’s milk were readily available. Unfortunately, little evidence about infant feeding has survived from
Birmingham and Sheffield and, whatever the truth may be, efforts to combat infantile diarrhoea in both cities failed to prevent substantial increases from occurring during the 1890s and only a limited degree of success can be claimed by 1911 when another epidemic struck during the hottest summer of the period.

This straightforward comparison of MOH reports from Birmingham and Sheffield has identified the measures relating to infant health that were adopted by the MOH. It has proved less useful in assessing the relative successes of these measures. The inevitable delay between the introduction of a measure and its effective implementation has been clearly illustrated and sufficient evidence has been assembled to demonstrate that direct intervention by itself was not responsible for the changing patterns of infant mortality in Birmingham and Sheffield.

Conclusion: explaining infant mortality decline

The annual reports of the MOH are an important but rather neglected source for the study of local populations, and their wider examination will lead to the unearthing of much valuable information. The evidence they contain needs to be treated with caution, however, since they were compiled by individuals who were convinced that sanitary reform was the key to improving health. Moreover, according to John Brownlee many MOHs, unlike John Robertson, were ‘men of narrow outlook’ and it is not surprising to discover that they expressed a wide variety of views as to the causes of infant mortality decline.77 In 1923 James Wheatley, county MOH for Shropshire, conducted a survey amongst his colleagues aimed at identifying the main factors responsible for the recent decrease in infant mortality.78 He found that in analysing replies from MOHs in 44 towns,

- twenty-five give health visiting and child welfare, or better midwifery services as the chief cause. Two give better education, four reduced birth rates, five improved sanitation and social conditions, two dried milk, and six are indefinite or refrain from making any statement.79

A similar analysis of 42 county MOHs showed that,

- twenty-three give child welfare work as the chief cause, one antenatal work, five general education, two improved standard of living, three improved sanitation, three horse traffic replaced by motor traffic, three cleaner milk, one the equitable climate of late years, and one gives no reason.80

While the majority mention child welfare work, these replies just about encompass the entire range of factors that have been posited to account for the fall in infant mortality and this lack of consensus suggests that even by 1923 the MOHs had still not developed a consistent set of policies aimed at driving down the IMR. It therefore seems safe to conclude, as was the case in
Birmingham and Sheffield, that MOHs had little influence over the initial stages of decline, especially given that trends in almost all English and Welsh RDs were identical.81

The most perceptive comments on the infant health movement remain those published by Sir Arthur Newsholme in *Fifty Years in Public Health*.82 Looking back from 1935, Newsholme argued that little of substance was achieved during the nineteenth century. For instance, the distribution of printed bills of instruction had little impact and in some cases they were even misunderstood: ‘The directions as to methods of feeding infants, when artificial feeding became necessary, having been regarded as recommendations of artificial in lieu of breastfeeding’.83 The attack on infantile diarrhoea yielded results only after 1901 when MOHs began to target the disease, but the main effect of the special work of the health visitors and child welfare centres was, ‘to be seen chiefly in the years following 1905 or even 1908’.84 Newsholme further argued that of equal importance in reducing infant mortality were the indirect improvements brought about by the greater emphasis placed on child welfare in this period:

> We must divide the credit for the steady reduction of infant mortality in the first years of the present century between the relatively small amount of specialised child welfare work and the general enlightenment of the population, the work done in sanitary administration in educating the public mind and conscience, and the improvement in domestic sanitation and personal hygiene resulting from these more general sources of enlightenment and reform.85

Using evidence from Bristol and Huddersfield, Newsholme showed that while Bristol did not appoint health visitors until 1912, Huddersfield was very active in introducing a variety of measures, yet IMRs in both towns declined at similar rates.86 The initial benefits of health visiting probably arose as much from the greater knowledge they spread about hygiene and child care rather than their ability to prevent individual deaths and this would explain why those living in better urban environments achieved the greater benefits. Writing in 1939, George Newman also firmly attributed the decline of infant mortality to improved maternal enlightenment,

> It was this almost universal *maternal awakening* which really began to change the outlook of child health – as every Medical Officer of Health knew in his own district between 1904 and 1910. … Best and most effective of all was the wide extension of maternal knowledge, understanding, aptitude and practice of infant nurture and management.87

Even though it took a while for the various messages of the infant welfare movement to reach their chosen targets, many indirect benefits were forthcoming. It is therefore not surprising that the middle classes managed some of the greatest improvements in infant health with some groups achieving IMRs of less than 50 by 1911.88 Similar, but smaller improvements
may also have occurred as a consequence of work done during the nineteenth century and this, together with increasing suburbanisation which resulted in greater numbers of the better-off escaping the consequences of less insanitary environments, may have led to widening social differentials in infant mortality in this period. The effectiveness of the various measures adopted, both direct and indirect, would also have varied from household to household as many infant deaths were clustered within certain families, and this in part may help to explain the complex relationship between class and place in accounting for variations in IMRs throughout the country.89

Almost by chance, the activities of the infant health movement achieved national prominence as a consequence of many recruits to the British Army during the Boer War (1899–1902) being discovered to be physically unfit for service. The Government launched an enquiry with wide terms of reference and the resulting Physical Deterioration Report published in 1904 noted that, ‘infantile mortality in this country has not decreased materially during the last twenty-five years, notwithstanding that the general death rate has fallen considerably’ and it concluded, ‘where the tendency to a decrease in the birth-rate becomes more or less noticeable, the means by which infant mortality can be averted present a social problem of the first order’.90 The Report investigated various issues relating to infant health and it devoted considerable space to the ways in which IMRs could be reduced. Its publication stimulated considerable discussion of child welfare issues and George McCleary, MOH for Battersea, commented that ‘infant welfare became not only popular but fashionable. It had ‘news value’ for journalistic purposes, and was a favourite subject for addresses at drawing room meetings’.91 It is therefore not surprising that in both Birmingham and Sheffield greater effort to implement child welfare schemes occurred around this date. Real progress also began to be made once it became accepted that individual mothers could make a significant impact in ameliorating the detrimental effects of a poor environment.92 Such an approach underlies George Newman’s book, Infant mortality: a social problem. Newman examined a hierarchical set of influences on infant mortality relating to the mother, her child and the environment and he concluded that the problem was mainly one of motherhood.93 Later the health of the mother was realised to be an important influence on her baby’s survival chances and those at greatest risk began to be targeted more effectively.94 During the first decades of the twentieth century the infant welfare movement slowly gained momentum and the underlying causes of infant mortality were identified and addressed; however, of greater importance, at least in the early stages, was the informal dissemination of information resulting from work done by a variety of individuals and organisations.

The preceding analysis has suggested that four broad phases in the infant welfare movement can be identified:

1. Infant mortality first began to be measured accurately during the 1870s, but despite of a number of notable studies, from the 1870s to the early 1890s infants were generally neglected by MOHs. Instead MOHs
viewed their principal role as combating infectious disease through sanitary reform and they implicitly assumed that this would bring about infant mortality decline.

2. During the 1890s it gradually became obvious that IMRs had not fallen and some urban MOHs began to recognise the contribution of infantile diarrhoea, especially in artificially fed infants, to explaining this phenomenon.

3. From the late 1890s a variety of initiatives primarily aimed at tackling preventible diarrhoea deaths began to be introduced. These included the appointment of female health visitors and various measures to educate mothers in the feeding and rearing of their babies. These initiatives were reinforced, following the publication of the Physical Deterioration Report in 1904, when infant health became an issue of national importance.

4. By the end of the 1900s as interventionist policies began to have some impact, the attack on infant mortality was broadened to include a wider range of causes of infant death and the link was established between the health of the baby and its mother. By 1910 the foundations of the early infant welfare movement had been laid, but its greatest achievements were not to occur until the following decades.

Thus, social intervention by itself was not responsible for the turning point in the national infant mortality series, although it became increasingly important as the twentieth century progressed. Infant mortality decline was a complicated process. A small measure of decline coinciding with that of marital fertility is evident in many places from the 1870s and it may have been that the various health initiatives introduced during the late nineteenth century brought indirect benefits to some infants with the middle classes being in the best position to achieve the greatest benefit. The increase in IMRs during the 1890s caused in part by the hot summers clouds the picture, but all the available evidence tends to confirm Woods' view that the causes of underlying infant mortality decline are related to:

1. Fertility decline;
2. Improved female education and status;

Part of the reason why a definitive account has yet to be given is that factors such as female status and environmental improvement remain difficult to quantify and it may not be until large numbers of birth and death certificates become available from the 1850s onwards that these issues become finally resolved. In the meantime, MOH reports can provide a rich seam of evidence for the local population historian and the examination of other series may be able to shed light on further aspects of the secular decline in infant mortality.
Acknowledgements

I would like to thank Bob Woods, Eilidh Garrett and members of the LPS Editorial Board for making helpful comments on an earlier draft of this article.

NOTES

3. S. Chave, Recalling the medical officer of health (London, 1987), 96.
4. In this respect they are different from the various publications of the General Register Office (GRO) which provide consistent, but often limited amounts of data for every RD throughout the country. Most studies of infant mortality in this period use GRO data in one form or another.
5. See A. Hardy, The epidemic streets (Oxford, 1995) for an example of how MOH reports have been used to illuminate London’s epidemiological history.
7. J. Robertson, Special report of the medical officer of health of the city of Birmingham (Birmingham, 1904), 32–7, gives details of measures introduced to reduce IMRs in 30 large towns.
18. BirmMOH–1890, 14 and 15. The link between mother’s employment and infant mortality is a recurrent theme in the reports. However, the most detailed study published in 1906 found little correlation between the two: see BirmMOH–1906, 17–19.
30. BirmMOH–1892, 34.
31. BirmMOH–1892, 34.
32. BirmMOH–1899, 34.
35. BirmMOH–1902, 26. Also, see BirmMOH–1901, 20–1.
36. Robertson, Special report.
37. Robertson, Special report, 3 and 4.
38. Robertson, Special report, 6.
40. Robertson, Special report, 7. Also, see BirmMOH–1904 which shows that of the 408 infants who died aged 6 months and below only 37 were exclusively breast-fed. A further 279 had been fed with the dangerous long-tubed bottle: see V. Fildes, ‘Infant feeding practices and infant mortality in England’, Continuity and Change, 13 (1998), 267–71.
42. BirmMOH–1905, 18.
45. J. Duncan, Report on industrial employment of married women and infantile mortality (Birmingham, 1910); J. Duncan, Report on infant mortality in St George’s and St Stephen’s wards (Birmingham, 1911; 1912). Duncan’s first report on working mothers was carried out following a government initiative. It revealed that IMRs were higher in the group of mothers not industrially employed and while there was a tendency for employed mothers not to breast-feed their babies for as long as those who were not employed, the overall effects of employment were negligible. A more important factor was the level of poverty within families.
47. BirmMOH–1909, 22.
49. Duncan, Infant mortality (1912), 8.
50. This achievement is more impressive given that it becomes increasingly difficult to reduce rates from a low base. The very high IMR of 331 in 1904 for St Mary’s appears to have been an anomaly since subsequent annual rates in this ward were 201, 207, 200, 208 and 208, BirmMOH–1909, 19. IMRs were generally not reported by ward in the nineteenth century.
53. SheffMOH–1875, 12.
54. For a short summary of the missing years see SheffMOH–1959, 201–6.
55. SheffMOH–1885, 14.
56. SheffMOH–1885, 11–12.
59. SheffMOH–1897, 5. Robertson does not state what parents were thought to be ignorant of,
although ‘it would appear advisable for the Sanitary Authority to use every means in their power
to diffus[e] a knowledge of the laws of health’.
63. SheffMOH–1902, 18. It was not until the Notification of Births Act came into force in February
1908 that visits could be made to all mothers of newly-born babies.
68. SheffMOH–1908.
69. Using far better data from Derbyshire in the 1920s, Alice Reid concluded that even by this later
date health visiting was producing only modest improvements in infant mortality: A. Reid,
‘Health visitors and child health: did health visitors have an impact?’, Annales de Démographie
70. Woods, Demography, 275 compares Birmingham with England and Wales. Also, see Seventy-fourth
annual report of the Registrar General for 1911 (London, 1913), xxiv.
72. On diarrhoea and hot weather see BirmMOH–1872, 6; on the role of cool summers see
SheffMOH–1914, xvii.
73. A. Newsholme, ‘Infantile mortality. A statistical study from the public health standpoint’, The
Practitioner, 78 (1905), 497. The Report of the inter-departmental committee on physical deterioration, B.
P.P. (1904); Vol. 1, Report and appendix Cd 2175, 50 provides further supporting evidence: ‘A
decrease at present in breast-feeding is generally admitted to be the case in all classes of society,
at any rate in the urban districts’. See also Fildes, ‘Infant feeding practices’, 252–3.
74. Fifty-fourth Annual Report of the Registrar General for 1871 (London, 1873). This was also published
as ‘Report of the infant mortality committee’, Transactions of the Obstetrical Society of London, 9
(1870), 132–49.
75. Many diarrhoea deaths were no doubt of weanlings, but the MOH reports are largely silent as to
what recommendations were made about weaning. In 1906 the Birmingham MOH urged
mothers not to wean during the hot summer months, see BirmMOH–1906, 53. In Sheffield
exclusive maternal breast-feeding was recommended for the first six to seven months. This was
to be followed by some proprietary infant preparation together with cow’s milk until the infant
was twelve months old. Feeding bottles should be cleaned with water and soda after every meal
and boiled every day. These recommendations were taken to be an example of good practice and
were reproduced in the Physical Deterioration Report: see Physical deterioration, Vol III, Appendix
and general index, Cd 2186, appendix XVIII.
76. The easy availability of alternative infant foods may also have encouraged some mothers who
experienced difficulties breast-feeding to begin artificial feeding. Woods, Demography, 285–91,
shows that levels of maternal breast-feeding were high by European standards, but that many
breast-fed infants were also given supplementary foods and this may have made them more
susceptible to diarrhoea; see also W. Howarth, ‘The influence of feeding on the mortality of
infants’, The Lancet, (22 July 1905), 213. R. Apple, Mothers and medicine. A social history of infant
feeding (University of Wisconsin Press, 1987) charts the rise of artificial feeding in the USA from
the 1890s, but a similar study for Britain has yet to be undertaken.
Statistical Society, 70 (1917), 223.
78. J. Wheatley, ‘Discussion of factors contributing to the recent decrease in infantile mortality’,
79. Wheatley, ‘Recent decrease’, 755. Note that there is an arithmetical mistake in the original since
Wheatley states that replies were received from only 40 county MOHs. Many of these ‘causes’
have been the subject of more recent studies: see for instance I. Buchanan, ‘Infant feeding,
sanitation and diarrhoea in colliery communities, 1880–1911’, in D.J. Oddy and D.S. Miller eds.,
49

81. Woods, Demography, Figure 7.5, 1.
83. Newsholme, Fifty years, 324–5 quoting the work of Dr Sykes, MOH for St Pancras.
84. Newsholme, Fifty years, 332.
85. Newsholme, Fifty years, 335.
87. G. Newman, The building of a nation’s health (London, 1959), 318. Wheatley, ‘Decrease in infantile mortality’, 758, also concluded that the greatest improvements were brought about through better education.
89. See the extensive discussion in E. Garrett et al., Changing family size in England and Wales (Cambridge, 2001), 139–47. For Sheffield see Williams, ‘Death in its season’.
DADE PARISH REGISTERS

Roger Bellingham

Roger Bellingham is a lawyer turned historian with a long-standing interest in Dade registers, which made a significant contribution to his Ph.D. thesis.

Over the last thirty years parish registers have been used with great effect to throw light on the population history of England. To decide whether a parish register was suitable to be used for such purposes systems were developed to assess the quality of that register, and in particular to assess whether a satisfactory percentage of the baptisms, marriages and burials that took place in that parish are likely to have been entered in the parish register. However, until recently relatively little consideration has been given to the quality of the individual entries in a parish register, and still less as to why entries of above average quality appear in a given register. This paper is concerned with the extended parish registers that are to be found in the late eighteenth and early nineteenth century, in particular the so-called Dade registers that are to be found in the dioceses of York and Chester, which contain substantially more information than most parish registers of the period. It will, it is hoped, lead to a clearer understanding of these registers and make local historians and demographers more aware of their potential.

Earlier literature

In 1970 an article by B.A. Holderness on ‘Personal mobility in some rural parishes of Yorkshire’ appeared in the *Yorkshire Archaeological Journal*. It was based on research undertaken using nine parish registers that had been published by the Yorkshire Parish Register Society, and its successor, the Parish Register Section of the Yorkshire Archaeological Society. Holderness commented that ‘The reform of registration [in these parishes] emanated from a directive of Archbishop Markham at the Midsummer visitation of 1777, and that from varying dates thereafter they contained considerable additional information about parishioners.’ He provided the following example from the Saxton in Elmet register of 1791:

Rebecca, 1st dau. of Robert Westwood of Saxton, Taylor, son of Thomas Westwood of Kelfield, Husbandman, by Rebecca his wife, dau. of John Pallister of Stillingfleet, farmer [and] Frances dau. of Isaac Cawthorne of Miclefield, Lab by Elizabeth his wife daughter of Samuel Goodall of Milford, Collier, (born) May 30; (bapt.) June 5.
The information in a full Dade baptism entry, such as this, is remarkably comprehensive. Not only does one have the seniority of the baptised child and precise details of the parents but one also has details of both sets of grandparents and the maternal great grandfathers. In 1972 a note in Local Population Studies mentioned that this article was ‘based on exceptionally detailed entries in the baptism registers of nine parishes in the vicinity of York’. Unfortunately the note did not mention Archbishop Markham’s directive, nor the comment by Holderness that more such registers might exist.

In 1977 an article by E.A. Wrigley in Local Population Studies made use of the entries in the baptism register of Colyton, Devon, between 1765 and 1777, which gave information as to the mother’s father. The following entry was, he said, a typical entry of the period:

Mary, daughter of James Drewe husbandman by Mary his wife
daughter of Joseph Sydenham of the parish of Southleigh yeoman
was born the 22\textsuperscript{d} of November 1770 and baptised the first January following.\textsuperscript{8}

Wrigley mentioned that when attempting to establish the proportion of the adult population of a parish that was born locally, the data from family reconstitutions was not entirely satisfactory. He commented, ‘Occasionally there is more direct and complete evidence to be had from parish registers, and in such cases the female population may be better covered than the male.’ However, Wrigley made no mention of the Holderness article nor of the changes initiated by Archbishop Markham. Although the evidence is purely circumstantial, it could well be that the extended Colyton format of 1765 to 1777 stems from a book by Ralph Bigland esquire, Somerset Herald, published in 1764, which recommended ‘that in entries of all baptisms the names of the father and mother of the child, and also the name of the mother’s father, residence, degrees, or occupations, be set forth in [the following] manner’:

John Bannister, 3\textsuperscript{d} son of John Banister of Woodbridge, in com. Suffolk, mercer, and Mary his wife (2\textsuperscript{d} daughter of William Jones of Penzance, in com. Cornwal, [sic] merchant) was born on the 20\textsuperscript{th} day of October, and baptized the 17\textsuperscript{th} day of the next month following.\textsuperscript{10}

Prompted perhaps by Wrigley’s article, in 1979 W.J. Sheils contributed a valuable note to Local Population Studies entitled ‘Mobility and registration in the north in the late eighteenth century’. Holderness had realised that the registers he had found emanated from a direction by Archbishop Markham. Sheils identified William Dade (\textit{circa} 1740–1790) as the man responsible for the format of the entries in those registers. In 1770, shortly after he became curate of St Helen Stonegate, York, Dade introduced a new form of register for baptisms and burials. The extent of the detail is shown by the baptism entry quoted by Sheils:

Thomas, 1\textsuperscript{st} born [child of] Cochran, William, coachmaker, eldest son of William Cochran, coachmaker, and Elizabeth, his wife [and]
Martha, 3rd daughter of Mr John Brooks, coachman, of the Minster Yard, and Sarah Rhodes, his wife, Davygate, born 20 July baptised 24 July 1770.13

The style of this entry follows closely the proposal by Bigland, except that Dade made the crucial decision to give details for both parents. Then 23 years of age, Dade became assistant curate at St Martin Micklegate, York, in 1763 and it is quite possible that he had seen Bigland’s book before he became curate of St Helen Stonegate.14 Sheils, apparently unaware of Bigland’s book, implied a link to Ralph Thoresby’s Ducatius Leodiensis of 1715, but this connexion seems less likely. Sheils also assessed the parish registers from the present York Archdeaconry then deposited at the Borthwick Institute in York and reported in his note that 82 of the 161 registers ‘gave all details under Dade’s scheme’,15 In 1980 M. Long and B. Maltby’s article ‘Personal mobility in three West Riding parishes, 1777–1812’, considered geographical and occupational mobility in the Dade parishes of Skipton, Addingham and Bolton Abbey.16 Sheils’ article in 1979 provoked comments in Local Population Studies from A. Henstock as to Dade registers in Nottinghamshire and from T.J. Falla who mentioned Berkshire registers which he thought to be in Dade format.17

The article by Holderness was referred to in a course book for the Open University Course D301 Historical Sources and the Social Scientist, but the next published research on the subject appears to be Claire Davey’s paper in Local Population Studies in 1988 based on the Moreton, Essex, parish register between 1796 and 1812, although she did not appreciate that she had found a Dade register.18 Two further notes have appeared in Local Population Studies, ‘The use of marriage horizons to study migration’ in 1990 and ‘Age at marriage in the late eighteenth century’ in 1998. In 2002 an article by the present writer on Dade Registers in Archives provided an overview of these registers and an indication of some of their potential for demographic research.19

The only published attempt at a catalogue of Dade registers is in Webb’s Guide to parish records in the Borthwick Institute of Historical Research (1987). He included a brief note on Dade registers but also indicated which of the registers then deposited at the Borthwick Institute in York were in Dade format and for what period. Wilcox, in Volume 11 of the National Index of Parish Registers, referred very briefly to Dade registers and stated that he had included the Dade covering dates as given in Webb.20

The introduction of Dade Registers

As Sheils mentioned in his note, Dade had also introduced this system in two York parishes, St Helen Stonegate and St Olave.21 By 1773 the parish registers of at least five York parishes were in this format and, for reasons that have not yet been ascertained, the newly founded Christchurch at Macclesfield, then in the diocese of Chester, adopted the Dade system in 1776, although it was discontinued the following year.22 Then, in 1777 Markham, who had been bishop of Chester, was translated to York and asked at the time of his primary visitation in that year that the Dade system should be adopted. In 1777 the
Figure 1  Parish register format indicated in Dean Fountayne of York's visitation articles.

As great Complaints have arisen of the Registers of Marriages, Births and Burials belonging to several parishes, being in accurately kept and drawn out, so as not to identify and ascertain the Persons, etc. whereby they have not their due Weight in point of Evidence: It is required for the future, that the following Form be pursued and adhered to.

A true and perfect copy of the Parish Registry of A from the Day of 1776, to the Day of 1777.

MARRIAGES

When married Names of persons married Man’s Title Profession age Banns or Licence By whom married In whose presence married

177 January 2 A. B. Bat. 21 G. H. J. K.
No C. D. Spr 24 Rector L. M.

BIRTHS and BAPTISMS

Child’s name Father’s name, Abode Profession and Descent Mother’s name and Descent Born Baptised


DEATHS and BURIALS

Person’s Name Abode Descent Profession and abode Died Buried Where Age Distemper

A. B. C Eldest Son of D.E. of F. Esq by G.D.H I of K Gentleman 2nd of March 5th of March In the Chanc 30 Consumption

dioce of York consisted of York, the Ainsty, the East and West Ridings, the eastern part of the North Riding, Nottinghamshire and the peculiar of Hexham. The western part of the North Riding was then part of the archdeaconry of Richmond in the diocese of Chester.
No copy of Markham’s visitation articles have yet been located amongst the papers for the visitation, but several parish registers appear to contain copies of parts of the format that Dade and Markham wished parishes to adopt. Some parishes in the York diocese were peculiars under the jurisdiction of the Dean of York. In 1778 Dean Fountayne issued his visitation articles, which have survived. The relevant part relating to the keeping of parish registers is shown in Figure 1.

The close similarity of the 1777 copies in the registers of parishes which were not peculiars of the relevant parts of the Dean’s articles, suggests that the latter were copied from the instructions issued by the Archbishop. It seems that in neither case was the seniority of either the baptised child or of the parents shown whereas both were given in the format used by Dade at St Helen Stonegate.

Markham’s successor at Chester was Bielby Porteus. His first visitation was comprehensively considered by J. Addy in 1977. Addy’s article makes no mention of parish registers and nothing relating to them has so far been found amongst the visitation papers at Cheshire Record Office. Porteus himself wrote a pamphlet after the visitation but again it said nothing about the maintenance of parish registers. Nevertheless, there is some evidence that, at least in the Archdeaconry of Richmond and possibly in the rest of the diocese, Porteus issued a document remarkably similar to that of Dean Fountayne’s visitation pro forma. At Satterthwaite in the parish of Hawkshead, now in Cumbria, after the visitation of Bishop Porteus on 4 July 1778, the register gives the names of both grandparents and the dates of birth and baptism. After a further visitation in 1783 the register is in the Dade format used by Archbishop Markham and the Dean of York, with headings on each page:

<table>
<thead>
<tr>
<th>Child’s Names</th>
<th>Father’s name, Abode</th>
<th>Mother’s name and Descent</th>
<th>Born</th>
<th>Baptised</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peggy Leck</td>
<td>William Leck of Satterthwaite collier, son of Robert Leck of Satterthwaite by Margaret his Wife</td>
<td>Hannah daughter of John Dobson of Hazel Rigg in Carmel husbandman by Mary his wife</td>
<td>Aug 9th</td>
<td>Aug 10th 1783</td>
</tr>
</tbody>
</table>

The content and use of Dade registers

For the family historian the benefit of a Dade register is obvious, but one should also consider the benefits to the demographer. In a baptism entry there is the immense advantage of near certain identification. Thus when studying occupations in a parish register one can base one’s calculations on the individual fathers appearing in the register and avoid the distortions involved if one bases research on the occupation of the father of each baptised child, when the father’s occupation is counted each time a child is baptised. The data can be used, as it was by Holderness and Long and Maltby, to establish
spatial and occupational mobility. If seniority is given one can quickly see if a child is ‘missing’, perhaps baptised in another parish. Other uses to which demographers can put these, and similar, registers have been considered elsewhere.30

A Dade register records the gap between birth and baptism, usually considered a significant yardstick for assessing the quality of a register. It is commonly stated that any figure for infant mortality, and particularly death within one month of birth, must be suspect by the late eighteenth century because of the increasing delay in baptising children. The true extent of that delay must usually be an informed guess, but in Dade registers both the date of birth and date of baptism are normally shown. At Selby between 1777 and 1788 the mean gap between birth and baptism was three days: 86.5 per cent of all baptised children were baptised within ten days of their date of birth.31

In a burial entry the identification of the deceased is usually clear cut, the cause of death may be somewhat superficial but age at death is usually given. If the deceased was born in the parish one can readily link the dates of death and birth, very important if one is considering infant mortality. The quality of the available data is clear from a burial entry in the Selby parish register in 1782:32

<table>
<thead>
<tr>
<th>Christian Name</th>
<th>Surname</th>
<th>Descent, profession and abode</th>
<th>When died and where buried</th>
<th>Age</th>
<th>Distemper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mary</td>
<td>Fisher</td>
<td>Wife of Stephen Fisher of Selby joiner &amp; daughter of Samuel Stobbard of Selby labourer by Mary his wife, daughter of Michael Turner of Castleford Labourer</td>
<td>March 20th Selby Churchyard</td>
<td>27</td>
<td>Childbed</td>
</tr>
</tbody>
</table>

As to marriages, Webb commented in 1987 that ‘as a result of the workings of Lord Harwicke’s Marriage Act of 1754 the [Dade] scheme as it related to marriages could not be introduced.’33 In about 20 parish registers that are in Dade format the marriage registers are in the usual Hardwicke format but also provide some or all of the data mentioned in the visitation pro forma: the man’s occupation, status and age; and the woman’s status and age. The publication of the parish register of Masham 1717–1800 has, however, drawn attention to Masham’s marriage register which, between 1779 and 1812, appears to have been in precisely the format proposed by the Dean of York in his visitation articles.34 Where such data is available, as at Selby, it is very valuable. In particular the ages of the parties are recorded in the marriage register so that one does not have to rely on ages based on estimated dates of birth. Further, if occupations are shown one can calculate average age at first marriage by occupation.35
It is difficult to say how many Dade registers exist. Very few registers will provide all the data for the full period between 1777/8 and 1812, when virtually all were discontinued after a standard national form of parish register was introduced in 1813.36 Furthermore, the level of data contained is highly variable. In his article in 1979 Sheils said that of the 161 relevant registers deposited at the Borthwick Institute for Historical Research in York, 82 ‘gave all details under Dade’s scheme’.37 This is unlikely since even in a good Dade register, such as Selby, all the details in an ideal Dade entry do not appear in every entry. The parish register section of the Yorkshire Archaeological Society (and its predecessor the Yorkshire Parish Register Society) have published about 100 registers that cover the years 1770 to 1812. Of these, some 25 appear to be in Dade format and about 35 have Dade features. In all approximately 226 Yorkshire registers have been identified, or provisionally identified, as being in Dade format or having Dade features. Of these, 15 were then in the diocese of Chester. There are at least seven in Nottinghamshire, which was then within the diocese of York. Research into the registers in the Chester diocese is at a very early stage and it would therefore be premature to hazard a guess as to the number in that diocese. However, there appears to have been a significant number in the Furness area of Lancashire.

Other parish registers in extended format

There is an understandable tendency to treat Dade registers as a generic term for any register in extended format during the late eighteenth and early nineteenth centuries but to do so causes unnecessary confusion. It is, for example, particularly important to distinguish Dade registers from those introduced in the diocese of Durham by Bishop Barrington in 1796: the Bishop specifically asked that ‘the place of nativity of the parents’ be entered in the register whereas the Dade registers show the names and residence of the grandparents at the date of the event.38 The following sample extract from the Bishop’s ‘improved form’ is preserved in the Whickham parish register.39

Register of baptisms in the Parish (or Chapelry) of A---- in the year 1798

<table>
<thead>
<tr>
<th>Name</th>
<th>Birth</th>
<th>Baptism</th>
<th>Child</th>
<th>Names of the parents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sarah Smith</td>
<td>July 21st</td>
<td>July 28th</td>
<td>4th daughter of</td>
<td>John Smith, farmer, Native of Newark on Trent by his wife</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>John Smith, farmer, Native of Newark on Trent by his wife</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Jane Thompson, Daughter of Henry Thompson, native of this parish</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Before Bishop Barrington had been translated to Durham he had been the Bishop of Salisbury. An entry in the parish register for Cholsey, Berkshire, in 1789 suggests that he had introduced the ‘Barrington format’ into that diocese before he moved to Durham.40

Bishop Barrington’s brother, Daines Barrington, may have been responsible for the ‘Proposed Form of Baptism and Burial’ mentioned in the Gentleman’s
Magazine in 1781. Registers ‘Printed by and for J. Nichols in London in 1781’ were in use at Milton Ernest, Bedfordshire, in 1783 and showed the following sample entries under the printed headings:

**BAPTISMS**

<table>
<thead>
<tr>
<th>Date</th>
<th>Aged</th>
<th>Name of the child</th>
<th>Names of the father and mother</th>
</tr>
</thead>
<tbody>
<tr>
<td>1781 May the 4th</td>
<td>– days</td>
<td>John Smith, Son of John Smith, Labourer, and Mary his Wife; formerly Mary Evans</td>
<td></td>
</tr>
</tbody>
</table>

**BURIALS**

<table>
<thead>
<tr>
<th>Date</th>
<th>Name of the deceased</th>
<th>Names of the father and mother</th>
<th>Aged</th>
<th>Supposed cause of death</th>
<th>Where buried</th>
</tr>
</thead>
<tbody>
<tr>
<td>1781 May the 10th</td>
<td>John Smith of this Parish, labourer</td>
<td>Son of John Smith and Mary Smith formerly Evans</td>
<td>– years</td>
<td>Smallpox</td>
<td>On the –side of the churchyard</td>
</tr>
</tbody>
</table>

There are also other registers in the later part of the eighteenth century that give more than the basic level of information. Colyton in Devon has already been mentioned and, following the arrival of a new Bishop in 1783, it is understood that many Norfolk parish registers show the maiden name of the mother of the baptised child and that this continues until 1812.

**Future use of Dade registers**

In general registers in Dade format exist only between 1777 and 1812, about 25 years. But the quality of the data available can be outstanding and, in contrast to family reconstructions in the Cambridge Group format, it does include information on migrants. Whilst Wrigley’s opinion is that those who left a parish probably displayed much the same characteristics as those who stayed, for some demographers a potential flaw in the work of the Cambridge Group is that migrants are under represented in the reconstructions upon which their work is founded. Research using the Selby Parish Register, which is in Dade format, has also suggested it may be unwise to exclude migrants when calculating age at first marriage.

When considering these registers one is reminded of the all too familiar claim that the only thing which equals the extraordinary importance of the topic is the strange neglect in which it has been left by earlier workers. It is now over 30 years since the article by Holderness appeared in the *Yorkshire Archaeological Journal*, yet relatively little research has been undertaken using Dade registers. One reason for this neglect is understandable: the full
Potential of the data can only be realised by first inputting it into a relational database, and this can be very time consuming. But ignorance of that potential has also played its part, and it is hoped that this article will enliven interest in these valuable registers and encourage their fuller exploitation.

NOTES


12. The evidence for this is purely circumstantial. Markham certainly adopted the Dade system and he may have well have been aware of Dade’s activities before Markham was translated to York.


15. Sheils, ‘Mobility and registration’, 42.


22. Cheshire Record Office, Macclesfield P84/1.
23. See, for example, Braithwell Parish Register, Doncaster Record Office P71/1/A2; Selby Parish Register, Borthwick Institute of Historical Research, York PR SEL; Alne Parish Register, Borthwick, PR ALN.
24. York Minster Archives, C1/112.
25. The headings in certain printed registers produced by York printers show the child’s seniority but not that of the parents; see, for example, Selby Parish Register.
27. Bielby Porteus, A charge delivered to the Clergy of the Diocese of Chester at the primary visitation of Bielby Porteus (Chester, 1779).
32. Selby Parish Register—the burial register did not show date of burial.
33. Webb, Guide to Parish Records, v; Lord Hardwicke’s Act, 22 Geo II c33.
36. Rose’s Act 52 Geo III c 146. A few parishes appear to have maintained a Dade register after 1812, as well as the register in the Rose format. See C. D. Rogers The family tree detective (3rd edn, Manchester 1997), 77. The Dade register for Witton in Cheshire was maintained after 1813.
37. Sheils, ‘Mobility and registration’.
39. Durham County Record Office EP/WHM. This parish register was used by Alan Wright in his article, ‘Birth-baptism intervals in Whickham parish, Co. Durham c.1770–1820’, Local Population Studies, 71 (2003), 81–7, although he does not mention that it is a Barrington register.
40. Berkshire CRO D/P 38/1/2. See comment in footnote 17 above.
41. Bedfordshire Record Office P90/1/6; see Falla, ‘Further material for eighteenth century mobility’.
44. P. Glennie, Distinguishing men’s trades, Historical Geography Research Series, 25 (1990) 64.
45. Holderness, ‘Personal mobility’.
Introduction

Recent research has greatly increased our understanding of the geography, the extent and the causes of infant mortality in England and Wales since 1850. This research has focused in particular on the timing of the beginning of the decline in infant mortality, on urban/rural differentials, and on the complex of causes of infant mortality. As a result the traditional picture, that not only did the level of infant mortality fail to fall in the last decades of the nineteenth century but it actually increased during the late eighteen-nineties before beginning its long run decline in the first decade of the twentieth century, has been significantly qualified. For many geographical areas, the beginning of the decline is now located in the later decades of the nineteenth century, the increase in the 1890s was a short term interruption to a longer run trend caused by adverse climatic conditions, whilst national levels of infant mortality were disproportionately influenced by the levels of infant mortality in London and the ‘great cities’.1

The causes of high levels of infant mortality—and the reasons for any subsequent decline—have also been subjected to close scrutiny and debate, with various authors arguing that high levels of infant mortality were the result of geographical, environmental, housing, family, dietary or medical factors.2

Much of this research is based on aggregate data covering registration sub-districts, districts, counties and divisions or individual towns/groups of towns. However, it is becoming increasingly recognised that to test these research findings, it is now necessary to go beyond the aggregate studies on which they are largely based and to analyse individual localities and communities in depth to see to what extent they suffered from infant mortality and why. Indeed, as Williams and Galley have argued:
from the broad spectrum of factors affecting the life chances of infants, many cannot be quantified, and there is often an unwillingness to move beyond the security of hard statistics, graphs, and tables in search of qualitative, often patchy, and invariably local material.³

This can only be done, however, if suitable local evidence is available to provide the necessary details for micro-level studies and to overcome the problem that "data limitations usually prevent such analyses from focusing on individuals."⁴ Local authority burial records are one such source, especially when the information they contain can be enriched with further information from other sources via record linkage.⁵ A second place to look is in the Medical Officer of Health (MOH) Reports, which cover all towns and cities from at least the eighteen-seventies onwards.⁶

Both of these sources—the municipal burial records and MOH Reports—have been extensively researched as part of the Kingston Local History Project.⁷ One of the areas being investigated as part of the project concerns the extent and causes of infant mortality in the Kingston area between 1855 and 1911.⁸ The aim of this ongoing local research is to help test conclusions reached by studies based on the established aggregate national sources, and to highlight local variations in the incidence and causes of infant mortality. To underpin the research, a database has been created containing all 29,551 entries in the municipal cemetery burial registers at Bonner Hill between 1855 (the year the cemetery opened) and 1911. Information provided for each burial includes name, age, date of death, date of burial and, after 1872, address. This burial database has also been linked to the Kingston census returns for 1861 to 1891.⁹

The burial database and the linked data are now being used to analyse the changing profile of mortality in general and infant mortality in particular in the Kingston area over time and to draw out some of the geographical, environmental and personal circumstances which may have influenced that profile. For example, research results already reported show that over the study period all age groups between 5 and 49 experienced a relative decline in level of burials, whereas the reverse was the case for those aged 50 or more. This profile would seem to indicate that Kingston experienced a number of improvements in housing, public health and diet which not only reduced the threat of death among the 5–49 year-olds, but also ensured that more Kingstonians survived into old age.

Infant burials, on the other hand, showed a relative increase in the last four decades of the nineteenth century. In the 1860s infants under the age of one made up 17.4 per cent of total burials, increasing to 20.8 per cent in the 1870s, 23.5 per cent in the 1880s and 23.9 per cent in the 1890s before declining to 19.9 per cent in the 1900s. Over three-quarters of these infant deaths occurred during the first six months after birth and were particularly high during the hot summer months of August and September. Additionally, throughout the whole study period, infant mortality was concentrated not only in specific geographical areas of the town—in particular the two areas highlighted in
Figure 1—but also in households of low socio-economic status. For example, the research has shown that of 287 infants who died before reaching the age of five and who could also be identified in the Kingston census returns, 89 per cent had fathers whose occupation placed them in social classes III, IV and V. In the 1891 census, however, only 72 per cent of all male heads of household followed occupations associated with these three classes.

The next stage in the research is to illuminate this general picture of infant mortality in Kingston between 1850 and 1911 with a number of micro-studies which are now seen as necessary in sharpening our understanding of local populations and local communities. To take the research further, therefore, as well as this paper detailing the 44 diarrhoea deaths recorded in August and September 1899, two other micro-studies of infant mortality in Kingston in the late nineteenth and early twentieth centuries are being undertaken. These studies, building on the illustrative material presented here, will provide two wider ranging analyses of infant mortality in the Canbury area of Kingston and in Asylum Road—both notorious as slum areas. They will concentrate research on, for example, specific areas, streets, houses, socio-economic groups and even families over discrete periods of time.

In-depth studies such as these need to draw on the second important source noted above and that is the Medical Officer of Health (MOH) Reports. One of the preoccupations of the MOHs was infant mortality, and this paper considers how the MOH for Kingston, H. Beale Collins, reported on infant mortality during the late-nineteenth century. Special attention is given in this paper to an important document (which is, quoting Williams and Galley again, ‘qualitative’, ‘patchy’ and ‘local’) produced for the 1899 Report which highlights the many factors influencing infant mortality in one particular community at a particular point of time.

Despite its development into a relatively prosperous suburban town in the late nineteenth century, Kingston still suffered from high levels of infant mortality, particularly in the eighteen-nineties. The MOH continually referred to this state of affairs, even comparing Kingston’s infant mortality rate in 1895 of 162.4 per 1,000 registered births with that of some of the worst inner-London slums. By 1899 the rate had dropped to 139.9 with 137 infants dying before reaching their first birthday compared to 155 in 1895. Nonetheless, the 1899 rate was still worryingly high and of particular concern to the MOH was the fact that 55 of the infants had died from infant diarrhoea, 44 during the months of August and September alone. To highlight this situation, Beale Collins produced a table giving details of each of the 44 ‘summer’ diarrhoea deaths recorded. Names of the infants who died are not given, but these can often be ascertained by cross-checking details which are given with those in the municipal burial registers which do provide names. Analysis of the material provided on these 44 individuals helps to shed light on the location and possible causes of infant mortality which are more difficult to identify from the aggregate data normally used in studies of infant mortality.
The following information was provided by the MOH on each infant death:

a) District
b) Road or street\textsuperscript{17}
c) Occupation of parents
d) Disease as stated to Registrar
e) Age
f) Duration of illness
g) Other cases of diarrhoea
h) Other cases of illness
i) Characteristics of street
j) Style of house
k) Concrete over basement
l) Pavement in yard
m) Sanitary conditions
n) Dust collection
o) Soil
p) Feeding
q) Milk supply
r) Arrangements for storage of milk etc
s) Occupation of house, tenement, lodger etc

a) and b) provide details on the geographical location of infant diarrhoea; d) e) and f) detail certain characteristics of the ailment; whilst a number of interlinked factors influencing the incidence of infant diarrhoea such as personal and family circumstances, housing and sanitary conditions, and dietary factors can be analysed from the rest of the information provided.

Geographical location

Infant deaths from diarrhoea in August and September 1899 were concentrated in just a few roads in two areas of Kingston. Out of 44 such deaths, the Canbury area of the town north of the railway line experienced 22, and an area south of the railway line concentrated between the London Road and the local cemetery experienced 14 deaths. The eight remaining deaths occurred in other parts of the town. The two main areas—highlighted in Figure 1—contained some of Kingston’s worst slum roads, including Canbury Park Road (six deaths), Vincent Road (three deaths), Cross Road (three deaths), Asylum Road (two deaths), and Hudson Road (two deaths). The Canbury district was adjacent to the course of the old Latchmere Brook which, as a source of drinking water for the area, the MOH continually referred to as a major health hazard. For example, in his very first Report for 1893, he stated that ‘…we find
in the Canbury district the remains of a stream called the Latchmere Brook... Here again there are more wells for supplying drinking water. In this latter
district there has been a number of cases of Diphtheria. The same Report,
when discussing infant deaths from summer diarrhoea, emphasised that these
‘deaths mostly occurred during the hot weather in the same neighbourhood as
the Diphtheria cases, viz., near the Hogg’s Mill Stream and the old Latchmere
Brook.'

When considering the geographical concentration of infant mortality, it is also
necessary to try to determine the number of infants who were ‘at risk’ in the
areas/roads highlighted. Although the main intention of this paper is to consider
the level and location of infant mortality in the summer of 1899, future research
will also try to estimate the rate of infant mortality. This will be done by using the
Kingston baptism registers to estimate the size of the at risk infant population by
geographical location and by social class of parents; and by tracing infants
through the baptism registers into the burial registers. The MOH, himself,
recognised the importance of accounting for the number of infants at risk. All of

Figure 1 Areas of high infant mortality in Kingston-upon-Thames in the 1890s.

Source: Ordnance Survey Map of Kingston upon Thames 1914.
the roads mentioned in this paper were picked out by the MOH as being particularly prone to high levels of infant mortality, but he also maintained that ‘I only cite the roads where the figures were high for the numbers living in the roads.’ Such a statement, however, deserves further consideration since preliminary research indicates that the number of baptisms per house in 1898 and 1899 was indeed higher in the ‘slum’ roads than in the more salubrious areas of Kingston. In other words, higher fertility in the roads being analysed here meant that there were higher numbers of children at risk of death. In the 1890s 243 children from Canbury Park Road were baptised and 27 (11 per cent) of these children were found in the burial records as having died before reaching their first birthday. The situation in Asylum Road was even worse since of the 71 children baptised between 1893 and 1901, 22 (31 per cent) could also be located in the burial records less than a year after their birth. For the much more salubrious Kingston Hill, however, the figures were 58 baptisms and 3 (5 per cent) infant burials. Further research along the lines discussed here will help to clarify not only the relative levels of infant mortality in specified areas of Kingston but also the rates of infant mortality in these areas.

Characteristics of infant diarrhoea

The first characteristic of infant diarrhoea which can be considered from Beale Collin's 1899 document is how the disease was reported to the Registrar. Disease reporting was a particularly haphazard affair in the nineteenth century, but since diarrhoea was a symptom and not a disease it was easily recognisable and cause of death was recorded either as a diarrhoeal disease or as a disease of the digestive organs. Of the 44 recorded diarrhoea deaths, 29 listed diarrhoea (often qualified by such terms as ‘acute’, ‘infantile’, and ‘vomiting’) as the primary cause of death, whilst in the remaining 15 cases it was given in a secondary category, while ‘gastro-enteritis’ or ‘acute entero-colitis’ was recorded as the main cause of death. The justification for including deaths from enteritis was set out by the MOH for Croydon when he claimed that although the term ‘enteritis’ probably includes a certain number of deaths that differ in their antecedents from the acute form of diarrhoea which is variously known as ‘summer diarrhoea,’ ‘zymotic enteritis,’ or ‘epidemic diarrhoea.’ Yet there can be no doubt that the majority of cases of ‘enteritis’ differ neither in causation nor in symptoms from the other group. Both ‘diarrhoea’ and ‘enteritis’ are summer diseases. 

However recorded, once contracted, infant diarrhoea was swift in its deadly impact. One infant survived for 21 days, but this was unusual since 33 of the infants who died from infant diarrhoea did so within a week of contracting the ailment. The remainder died within the second week.

The third characteristic of infant diarrhoea which can be assessed concerns the age at which the infants died. In fact, the distribution of mortality is fairly even across the age range, with 11 infants dying in the first three months of their lives, another 11 dying in months four, five and six, 8 infants dying in months
seven, eight and nine, 10 infants in months 10, 11 and 12, and, finally, four children died after 12 months of their short lives. The relative importance of diarrhoea as a cause of infant mortality may well have varied between these different age ranges and further research into the material produced by the MOH on causes of death among the infant population, in the 1890s in particular, will aim to explore this possibility in more detail. Nonetheless, the conditions which helped to bring about this high level of diarrhoea-induced infant mortality in the summer of 1899 were a mixture of interlinked environmental, housing, personal, and dietary factors. Although each factor may have had its greatest impact on infant mortality at different times in these infants’ brief life-cycles, when they coincided their overall impact was lethal, especially during a hot, dry summer.

The MOH did not deal with climatic conditions in the 1899 Report being discussed here, but he did provide comparative information on the weather in subsequent reports. In fact, August 1899 was the driest August for the period 1899 to 1913 with only 0.74 inches of rain and only six days in the month experiencing rain. In 1903, in contrast, rain fell on 19 days of the month to give a total of 4.09 inches of rain. These climatic conditions help to explain why there was only one death from infant diarrhoea in August 1903 since, as the MOH reported, in conditions where rainfall is plentiful and evenly distributed throughout the month ‘the streets were not dusty, the surfaces of yards and gardens were well washed, and the sewers were well flushed.’ In 1899, when these conditions did not apply, there were 44 deaths in August and September from infant diarrhoea. Overall, in fact, Beale Collins argued that infant diarrhoea ‘depends largely upon climatic conditions but its malignity is greater under conditions which I venture to suggest can be ameliorated without great trouble or expense.’ These conditions need to be examined.

Influences on infant diarrhoea in Kingston in 1899

The factors which influenced the high level of mortality from summer diarrhoea outlined above will be considered under three broad headings: personal circumstances; housing and sanitary conditions; and dietary factors. Personal circumstances (including income, affordable rent and food, and time to provide adequate child care support) largely derived from the occupation followed by one or both parents. The parents of the 44 infants who died in August/September 1899 on the whole followed unskilled occupations of low status and low income or skilled/semi-skilled manual occupations. Of the 40 fathers’ occupations provided by the MOH, 17 were labourers, costermongers, vendors or carmen; 15 followed more skilled/semi-skilled occupations such as tailor, painter, plumber or gas fitter; while the remaining eight had slightly higher status occupations including commercial traveller, commission agent or antique dealer. In the three cases where the father was absent, the mothers worked as a laundress, a general servant and a housemaid. Sixteen of the other mothers also worked, mainly in occupations such as laundress, charwoman and lodging house keeper or simply as ‘occasional workers’. The parents of one child could not be traced, so no occupation and very few other details are
provided in this case. The high number of working mothers was of concern to Beale Collins. Clearly not understanding the economic reality of many working class households he argued that children could be far better looked after ‘if the mother was not anxious to go out and earn money, or amuse herself.’ The occupational profile of the parents of these 44 infants clearly confirms earlier research findings (see above) that not only was infant diarrhoea geographically concentrated in Kingston in the summer of 1899, it was also concentrated among the lower social groups following low status occupations.

Systematic analysis of the housing and environmental conditions in which these 44 infants lived is more problematic given the rather subjective classifications used by the MOH when describing characteristics of the streets and general sanitary conditions, including ‘fair’, ‘indifferent’ and ‘good’. Although infant deaths from diarrhoea occurred within a range of street, housing and sanitary conditions—as described by the MOH—a general picture does emerge, however, of small cottages in predominantly working class areas/streets, suffering from indifferent sanitary conditions. Only one of the streets—Cavendish Street—is characterised as ‘middle class’, with typical descriptions of the rest being ‘bad’ (Asylum Road), ‘poor class’ (Canbury Villas), ‘varies’ (e.g. Hudson Road and Kings Road), or ‘working class’ (e.g. Elm Road and Canbury Park Road). Styles of house were largely given as ‘cottage’ with qualifications including ‘small’, ‘semi-detached’, ‘very old’, ‘not clean’, ‘badly built’, ‘small and old’ and ‘old-fashioned’. Only two of the cottages were characterised as ‘good’ and ‘small but good condition’.

H. Beale Collins was also a keen advocate of concreting over basements and the paving of back yards of all working class housing. In his very first Report he set out his creed as follows:

In all new houses concrete over the basement is obligatory, and rightly so, when it is considered that the heat of the house (more especially in cold, wet, or frosty weather, when the ground is sealed), tends to draw the air that is always present in the interstices of the soil, into the house, unless it is covered over with impermeable material.

....

The paving of back yards in all houses of this class is most necessary for the health and well being of the occupiers, and every effort is being made to get the improvements carried out.28

Out of the 44 houses in which infants considered in the 1899 Report lived, however, only three had a fully paved back yard and only 12 had concrete over the basement. Of the other houses, 24 did not have concrete over the basement and 19 did not have a paved back yard; 18 had a partly paved back yard, whilst the situation with the remaining houses is not given. Research currently underway into the housing stock available to the working classes—especially in the Canbury and Norbiton areas—in the late nineteenth and early twentieth centuries will not only allow the relationship between housing conditions and
infant mortality to be explored in more detail, but also indicate how successful Beale Collins was in putting his housing principles into practice.29

Finally, regarding general sanitary conditions there were—as has been indicated—a range of descriptions, including ‘good’ (7), ‘fair’ (17), and ‘indifferent’ (16). Not a great deal can be read into these very broad descriptions, but the evidence reinforces the overall picture that at the individual level those infants who suffered death from summer diarrhoea, had parents in low status occupations, lived in a predominantly working class street, consisting of small cottages and enduring indifferent sanitary conditions.

The factor that caused the Kingston MOH the most concern when he considered the question of infant mortality, was the lack of breast feeding on the part of many mothers and the quality of artificial foods and cow’s milk used as alternatives. More recently Atkins has argued that ‘the switch to a greater consumption of “fresh” cow’s milk and condensed milk at the end of the nineteenth century meant a greater convenience for working women, but their offspring may have suffered.’30 Such concern was typical of many medical and child care writers at the end of the nineteenth century, summed up, dramatically by Beale Collins when he wrote ‘mothers who shirk breast feeding, either for convenience or pecuniary benefit, are guilty of cruelty to their babies.’31 In his survey of infant mortality in the summer of 1899, therefore, the MOH included details on infant feeding, milk supply and arrangements for keeping milk.32 Of the 44 infants who died of infant diarrhoea, only two had been entirely breast fed; eight had experienced ‘breast and artificial’ or ‘breast partly’ feeding; while the remainder (where known) were subjected to artificial food only, sometimes with the food names such as ‘Allenbury’, ‘Mellin’s’ and ‘Ridge’s’ food given. Milk supply was often ‘condensed’ or ‘Nestles’ (14 cases) or provided by a number of named Kingston suppliers. Unfortunately, not all of the suppliers’ milk was produced locally since, as the MOH reported:

The milk supply of this town is largely from Hants and Dorset, and in neither of these counties is the sanitary administration very highly regarded. Even those cow-keepers who have their own cows purchase ‘railway milk’ in addition, only purveying the milk of their own cows to particular customers who, of course, are not found amongst the poor, who purchase small quantities at a time.33

Nor was locally produced milk above suspicion. Three of the named suppliers in the 1890s were ‘Tilley’, ‘Morley’ and ‘Castledine’ who can be traced in the census returns for 1891 as running their milk supply businesses from three of the worst roads in Kingston—Washington Road, Acre Road and Canbury Park Road. Between December 1895 and December 1897, for example, the Borough Sanitary and Drainage Committee frequently resolved that ‘notice be served upon Mr. Tilley for the immediate compliance with the cowshed regulations in regard to his cowsheds in Washington Road, and that in default proceedings...
be instituted against him. Although Tilley had finally complied with this notice by April 1898, the general state of Kingston’s dairies and cowsheds was still a cause of major concern. According to Beale Collins, although these were inspected regularly, he regretted that ‘...little has been done to bring them up to modern standards. With such a delicate article of consumption such as milk, dairymen ought to endeavour to do something more than comply with the very moderate requirements of the law.’ In addition, of course, the proximity of animals such as cows to living quarters was an additional health hazard especially during hot weather when, as Morgan has shown in the case of horses in Preston, animals—and animal excreta—attract flies and flies spread disease.

Even if milk reached a house in good condition, it could swiftly deteriorate—especially in hot summer weather. Cool, dry larders were needed in which to keep the milk, but of the houses experiencing an infant death in the summer of 1899, only ten were recorded as having a larder, and only eight of these were described as suitable for the storage of milk.

Conclusion

Kingston suffered from relatively high levels of infant mortality throughout the 1890s and infant diarrhoea was a major cause of these high levels, accounting for the following numbers of infant deaths: 28 in 1893; 8 in 1894; 20 in 1895; 18 in 1896; 28 in 1897; 32 in 1898 and a peak of 55 in 1899. Infant diarrhoea was particularly virulent during August and September of the peak year when 44 infants succumbed to this ailment. In turn, the hot dry weather appears to have been the catalyst for the high incidence of infant death from summer diarrhoea during these two months. The influences which ensured that the potential threat of hot, dry weather was turned into a very real threat were numerous and they cannot be measured by precise statistical models, except at the aggregate level. But systematic analysis of infant mortality at the micro level—as discussed, for example, in the MOH Reports—indicates that levels of infant mortality were conditioned by a mixture of inter-linked environmental, housing, family, dietary and child-care factors. Individually such factors could have an adverse impact on infant survival rates, but in combination they proved particularly deadly for many infants during the first year of their lives.

NOTES


4. Millward and Bell, ‘Infant mortality in Victorian Britain’, 700. The Civil Registers containing details of all individual deaths in the country would provide such local material, but these are not available for historical research; the historian needs to look elsewhere for suitable sources. On the need for studies of infant mortality to move from the aggregate to the individual level see also P. Laxton and N. Williams, ‘Urbanization and infant mortality in England: a long term perspective and review’, in M.C. Nelson and J. Rogers (eds), Urbanisation and the Epidemiologic Transition (Uppsala, 1989), 109; and A. Reid, ‘Infant feeding and post-neonatal mortality in Derbyshire, England, in the early twentieth century’, Population Studies, 56 (2002), especially 151–2.


10. All of the research findings reported here are discussed further in French, ‘Death in Kingston upon Thames’, 36–47.


12. But see C. Galley in this volume for a discussion of the sometimes patchy treatment of infant mortality as a subject in the Medical Officers of Health Reports.

13. Table attached to page 11 of the Annual Report of the Medical Officer of Health for 1899, the North Kingston Local History Room, (S1 (614) KIN) (hereafter Annual Report MOH). It is the details from this table which are analysed in the text of this paper. Henry Beale Collins (MRCS Eng. and LSA, 1873, Kings College) was a retired surgeon from the Royal Navy and formerly an Assistant Instructor in Naval Hygiene at Gosport in Hampshire. In 1891 he was Resident Medical Officer at St. George’s Hanover Square Provident Dispensary, and Public Vaccinator for the Mayfair District. He published articles in the British Medical Journal on such subjects as influenza, rashes and eruptions in relation to the spread of infectious diseases, and the prevention of diphtheria. I am grateful to Pamela Reading, a research student attached to the Centre for Local History Studies at Kingston University, for providing me with this information from Black’s Medical Directory for 1891.


15. The 1899 figures are from the table attached to the front of the Annual Report MOH 1899.
Throughout this paper, all of the deaths discussed will be covered by the term ‘infant mortality’ although 4 of them occurred after the child had passed his/her first birthday. These are included since they were detailed in the 1899 MOH document being analysed in this paper, and to exclude them would reduce an already rather small number of cases. In addition, the date attached to each of the MOH’s Reports refers to the year covered although the actual report appeared in the early months of the following year.

Although only the initial of each road is given, because the general area is also given in some detail, it is not too difficult to identify each road by name. Roads can also be identified by linking material in this document (e.g. age at death and father’s occupation) with the local authority burial registers to identify individual infants and their place of abode.

This distinction is discussed in A. Hardy, “‘Death is the cure of all diseases”: using the General Register Office Cause of Death statistics for 1837–1920’, Social History of Medicine, 7 (1994), 486. See also N. Williams, The reporting and classification of causes of death in mid-nineteenth century England, Historical Methods, 29 (1996), 65.

H. Meredith Richards, ‘The factors which determine the local incidence of fatal infantile diarrhoea’, Journal of Hygiene, 3 (1903), 328.

These figures assume that those 10 infants who are recorded as having died within ‘a few days’ did in fact die within a week of the symptoms appearing. The duration of the illness is not given in 2 out of the 44 cases.

For some of the details of this research see C. French, ‘Infant mortality in Asylum Road, Kingston upon Thames, 1872–1911: an exercise in microhistory’, Family and Community History (forthcoming).

An additional aspect of infant feeding, especially for older infants and one highlighted by Millward and Bell (but not dealt with in this paper) is that ‘claims on household food were higher in direct proportion to family size. This may have been especially important in months seven to 12 as the child was weaned on to solid foods…’. See Millward and Bell, ‘Infant mortality in Victorian Britain’, 710.

For a comprehensive study of the impact of milk on ill-health between 1850 and 1930 see Atkins, ‘White poison?’, 207–27.

These figures are all taken from the MOH Reports for the relevant years.
The idea of generating a Victorian Panel Study (VPS) arose from an initiative taken by The National Archives (TNA, formerly Public Record Office) to enter into collaborative agreements with appropriate Higher and Further Education (HE/FE) stakeholders in order to generate new Information Technology and Communications (ITC) resources to the mutual benefit of both parties. In the discussions between TNA and the ESRC that followed, the idea of jointly creating a VPS was first raised. An outline plan was subsequently presented to the ESRC’s Research Resources Board (RRB) who initially agreed to fund a pilot project.

In outline the proposed VPS would take as its base the individuals and households recorded in the existing ESRC-funded computerised national 2 per cent sample of the 1851 British census, created by Professor Michael Anderson, and trace these through subsequent registration and census information for the 50-year period to 1901. The result would be a linked database with each census year between 1851 and 1901 in essence acting as a surrogate ‘wave’.

This project is timely because great advances have been made in recent years in terms of the creation of computerised and searchable indices to major collections of historical sources. In relation to the proposed VPS, of particular importance are the national databases that exist for the censuses of 1881 and 1901. Following on the success of creating the 1901 internet-based resource, TNA is already committed to a programme of computerising the remaining nineteenth-century censuses for England and Wales. Likewise for Scotland, where the census has been administered separately from that of England and Wales since 1861, plans are well advanced to digitise and index all remaining un-indexed censuses. In addition to this massive programme of census computerisation and indexing, the Office for National Statistics (ONS) has announced its intentions to produced a searchable database of the ‘historic’ civil registers of births, marriages and deaths. Although the precise timescale for the completion of these indexing projects is not available at present, it is expected that they will be generated over the course of the next five years. In the case of Scotland, for which all the civil registration material has already been computerised, as has the 1891 census, it is anticipated that work on most
of the remaining censuses will have been completed by the end of 2004. Although these resources are being created primarily with the huge genealogical and family history communities in mind, they potentially offer significant opportunities to the academic research community as well, particularly in facilitating the possibility and potential for tracing individuals over the course of the second half of the nineteenth century.

The primary purpose of the pilot project is to test differing sampling and methodological issues, examine the linking problems involved, investigate the relationship between the VPS and other longitudinal data projects (both contemporary and historical), explore the strategic partnerships which will support the VPS, and moreover, to recommend a framework and strategy for creating a full VPS. In assessing and testing the possibilities and methodological issues relating to the creation of a national VPS for the period 1851 to 1901, the pilot project will encompass the following key aims and objectives:

1) to examine methodological issues including different cohort and panel approaches, different 'target' and 'observation' strategies and the problem of refreshment;

2) to investigate potential user needs;

3) to explore and discuss the potential involvement of other stakeholders and to develop working arrangements with volunteer researchers;

4) to prepare initial designs for a linkage database and to investigate possible automated record linkage strategies;

5) to assess coding and standardisation schemes used in other longitudinal studies and investigate what other source materials could feasibly be linked to a VPS subset.

An important early task for the pilot project was to identify what parishes or other census tracts it might focus on in order to test linking techniques and other methodologies associated with longitudinal studies. Ideally, the pilot requires areas for which (i) computerised census materials already exist; (ii) the civil registration information for this period has already been indexed; (iii) there is a mixture of settlement 'types', for example, urban, rural, market town, etc, and (iv) where there are active family history or similar societies from which it would be possible to recruit and test volunteers. Thus an initial task for the project was to undertake a survey of what existing materials and sources exist and to select a sample from this for testing purposes. This task also investigated the possibility of including some Scottish materials in the sample.

The pilot will need to examine the possibility of extracting sub-samples from the existing 1851 sample and test the validity and properties of the 1851 sample as a basis of a representative longitudinal database. In particular, the inclusion
of institutions within the 1851 sample needs further exploration as initial investigation suggests that these may be statistically unrepresentative. As part of this task a fact-finding visit was made to Professor M. Anderson, the creator of the 1851 sample, to check various details with him and also to consult additional materials concerning the sample in his possession. Professor Peter Lynn, a recognised expert on sampling, will also be consulted in relation to this task.

The pilot will examine and test various strategies for automated record linkage. In particular, it will investigate the work currently being undertaken at the Cambridge Group for the History of Population and Social Structure on the Kilmarnock/Skye/Torthorwald reconstitution project, the work of Peter Tilley on the Kingston local history project, the work of the Minnesota Population Centre on linking US census samples, and that of the Swedish Demographic Database. Various methods will be applied to the test data and a longitudinal database will be constructed from the selected test materials. This linkage work will also necessitate work to be undertaken at the Family Records Centre and the purchase of several sample civil registration certificate copies as part of the process. The purchase of the civil registration certificate copies is vital not only to act as a check on the linkage work, but also to assess the accuracy and completeness of the information contained in the certificates. This task will create a series of longitudinal bases for future testing. It will also establish a data design for potential future use in a full VPS. This aspect of the work will be undertaken in conjunction with discussions with experts in this field at the ESRC UK Longitudinal Studies Centre (ULSC) and others working on present day longitudinal databases.

An important task for the pilot project will be to use the linked test data to explore the feasibility and sampling implications of differing observation rules. This task will form a large component of the work of the pilot in the second half of the project. The linked test data will also be used to explore and measure the sampling implications of differing data refreshment strategies. One particular aspect to be studied under this task are the possibilities and problems associated with the cluster nature of the 1851 sample, with whole enumeration districts as the sampling unit creating potentially a geographical component to the VPS, absent in most other longitudinal studies. Not only are there potential advantages in making the VPS comparable, where possible, with other historical national longitudinal databases, but in order to facilitate the use of the VPS in conjunction with present day longitudinal data sources to examine social scientific issues in the longer-term, it is also important to examine the potential for harmonisation with other present day databases. This task will focus on the potential database design of the VPS and investigate the possibility of mapping coding schemes between the VPS and other longitudinal studies. It will be undertaken in consultation with experts working on present-day longitudinal studies based at the Institute for Social and Economic Research, University of Essex and at the Institute of Education, University of London.
The success of a full VPS will in part depend on data materials being made available from a number of key stakeholders including:

- TNA, regarding the availability of census data and indices for 1861 to 1891;
- ONS, regarding the proposed changes relating to changes to the historic civil registration information;
- The General Registry Office, Scotland (GROS), regarding access to the Scottish census and civil registration materials;
- QinetiQ, regarding access to the 1901 census material;
- FreeBMD, regarding access to their database of the indices to the English and Welsh civil registers, as well as their related census database;
- Genealogical Society of Utah, regarding access to their database of parish register materials;

Discussions are being held with these various organisations in order to establish their future plans and time scales, and to develop future working relationships.

Obviously the main purpose in creating a VPS would be to promote and produce high quality research. The pilot study will undertake a potential user consultation exercise, including the wider social scientific community in addition to economic and social historians. Work will be undertaken to try and ascertain research requirements from the VPS database so that these can feed back into the pilot project and specifications for a full project. This consultation work will be undertaken chiefly in two phases. An initial phase will be undertaken through virtual email based surveys and follow-up meetings, as appropriate, when the test database is being constructed, in the hope that it will feed back into this process. The second phase will consist primarily of a user consultation workshop to be held in London in the later stages of the pilot project, at which preliminary outcomes of the project will be presented and feedback and responses sought.

In planning the VPS it is desirable not only to learn from the experience of other national historical longitudinal database projects but also to ensure where possible that the VPS is designed in such a way as to allow cross-country analyses to be undertaken. For these reasons the pilot project will investigate the work of other national historical longitudinal database projects, in particular the Historical Sample of the Population of the Netherlands and the project linking census samples from the US censuses based at the Minnesota Population Center. From a research point of view it may prove desirable to link (implicitly or explicitly) records from the VPS to other economic and social historical materials. The pilot will investigate the potential for this and suggest what might be considered as candidate materials.

Due to the effort potentially needed to create the VPS in terms of person hours, it is proposed that volunteers from local history groups and family history societies be enrolled to help with the task of checking and verifying links and possibly capturing additional civil register and census information. This model
has previously worked satisfactorily in related projects based at the Cambridge Group for the History of Population and Social Structure and the Universities of Hertfordshire and Lancaster. The research team will seek to identify groups and organisations that would potentially support and promote the VPS. It will also work with a small body of initial volunteers to develop prototype data entry software that they might use for capturing data, together with a set of procedures and instructions for managing the work of volunteers.

There will be two main deliverables from this pilot project: a detailed report and a series of linked databases. The detailed report will be submitted to RRB in order that the Board can consider what the next steps for the proposed VPS should be. Drawing on the experience of the pilot project, this report will make specific recommendations on how the VPS might proceed, including specifications for a full project, management requirements and projected costs, in a form that could be used as a basis for a future call to tender. The VPS pilot project will create several linked longitudinal databases, developed as part of the testing procedures. Although limited in scale and scope, these will have research and teaching potential beyond this pilot project and therefore will be offered for deposit with AHDS History (formerly the History Data Service), one of the five centres of the Arts and Humanities Data Service located within the UK Data Archive.

NOTES

2. See Office for National Statistics, Civil registration: delivering vital change. (London, 2003). It is not known at this stage was will be included within the ‘historical’ category, and this will most probably vary depending on the nature of the event, but certainly all records relevant to the VPS would be ‘historical’.

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REVIEW OF RECENT PERIODICAL LITERATURE

Nigel Goose and Andrew Hinde

All articles reviewed were published in 2003 unless otherwise stated.


The demography of Sandwich in this period has attracted attention from previous historians but has not been systematically studied. This article goes some way towards rectifying this situation by tracing the town’s growth from c. 1,500–1,700 in the mid-sixteenth century to c. 5,500 by 1610, population growth ending during the 1630s after which decline set in, the 1671 Hearth Tax suggesting a population of just 2,600. Immigration was the main cause of growth, for burials exceeded baptisms in this coastal marshland town over the period as a whole and for every decade except 1600–10, its growth punctuated by mortality crises. Partly these migrants came from elsewhere in England, but Dutch immigrants formed a very large component, temporarily accounting for as much as half of the town’s population, their numbers dropping towards the end of the sixteenth century before rising once again in the early seventeenth. Their overwhelming number created overcrowding and tension with the indigenous inhabitants, but their introduction of the new draperies revived the town’s economy. The demography on offer here is a little unsophisticated, and at times even contradictory: no evidence is provided for ‘an underlying increase in the birth rate’ (p. 80), the statement that ‘After 1640 that natural increase ceased’ (p. 80) sits uneasily with evidence of almost continual natural decline, while the estimate of a population of 3,700 in 1642 is difficult to square with an average of 4,277 in the 1630s for the native population alone plus c. 1,000 Dutch. The basis for estimates of the Dutch population in the early seventeenth century is not clear. It is also surprising to find no mention of M. Backhouse’s book, *The Flemish and Walloon Communities in Sandwich (1561–1603)* (Brussels, 1995), only reference to his article in *Immigrants and Minorities*, 3 (1991), but this paper provides a useful supplement to his work, without providing a full-blown demographic analysis.


This paper is a detailed examination of the impact of the railways on various aspects of social and economic life in east Kent, including the movement of goods, the additional employment provided by the railways, and the rates of
population growth in places served by railways and places which were bypassed. The closing sections of the article present an analysis of the effect of the railways on the number and range of commercial and service activities in different types of settlement. Andrews concludes that the railways did not transform the economy of east Kent: ‘there was less change than the generally received view of the railways’ economic influence would lead the student to expect’ (p. 199). Railways ‘tended only to reinforce an existing trend’ rather than to herald a new development (p. 199). Neither did they create population growth, although ‘the lack of a station was likely to produce stagnation, or more likely a population decline’ (p. 200). Readers interested in this paper might also like to consult the author’s earlier paper reviewed in *Local Population Studies (LPS)*, 67 (2001).


Tom Arkell’s extensive and valuable work on the hearth taxes, and indeed other early modern population listings, will be familiar to many readers of *LPS*, and this article extends this work considerably. After a rehearsal of some of the essential administrative background and an explanation of the diversity of the surviving lists, Arkell focuses upon their analysis, moving from a detailed study of Kineton hundred in Warwickshire to a national survey which covers the whole of England and Wales with the exception of just six counties and ‘significant parts’ of seven others, the data for which are presented in full in a valuable appendix. From this extensive analysis he concludes that there clearly was correlation (in the non-statistical sense) between hearths, house size, wealth and social standing, but it remains to be established just how close this was between regions, and between town and countryside. In other words, we should expect to discover significant differences between the circumstance of the occupants of, for example, three-hearth houses in the various regions and localities of the country, a conclusion that has obvious implications for any conclusions that might be drawn from the currently on-going national hearth tax project initiated by Margaret Spufford.

S. Bowden and G. Tweedale, ‘Mondays without dread: the trade union response to byssinosis in the Lancashire cotton industry in the twentieth century’, *Social History of Medicine*, 16, 79–95.

Byssinosis, or ‘brown lung’, is a chronic respiratory disease caused by exposure to cotton or flax dust that can lead to permanent respiratory disability and death, and was rife in the Lancashire cotton industry in the nineteenth and earlier twentieth centuries. But despite the fact that it became accepted by the British government in the latter part of the twentieth century as a disease for which compensation should be paid, with about 6,000 successful claims being made between 1941 and 2000, the disease has attracted relatively little historical attention. This paper assesses the role the trade unions have played in identifying the disease, campaigning to rectify its causes and ultimately in securing compensation. While in many areas of occupational health trade
unions have received an unfavourable or at best lukewarm press, Bowden and Tweedale conclude that in relation to byssinosis their determination to overcome the impediments presented by medical uncertainty, government reluctance to accept the evidence of industrial disease, employer aversion and a legal system stacked against the worker is ‘striking’ (p. 94). Indeed, it is argued that they were deeply concerned about occupational health issues, and had a relatively sophisticated understanding of the medical issues involved, and their greater strength explains the earlier recognition of the impact of the disease in Britain as compared to the United States. That said, even in Britain they achieved little in the crucial area of safety in the workplace, where employers and government held sway, tending instead to concentrate upon compensation claims, and it was only the demise of the cotton industry that brought the disease to an end.


This is a study of the census enumerators in Durham in the nineteenth century censuses. It includes some summary statistics about the ‘population’ of enumerators, for example their age structure and their average age at recruitment. It also contains an interesting appendix in which potted biographies of all the enumerators are given.


This article is a good summary of Irish immigration to England and western Scotland during the nineteenth century. Camp divides the overall movement into separate flows: from Ulster to the west of Scotland, from central and western Ireland to north-west England, and from the south-west of Ireland to London via south Wales, and describes the experience of the second two groups concisely and accurately.


This article focuses upon a particular category of refugee in the 1930s and 1940s: those of the medical profession. Drawing upon the files of the ‘Aliens Committee’ at the archive of the British Medical Association, the private papers of Yvonne Kapp and other relevant documentation in the archive of the Society for the Protection of Science and Learning, Decker identifies many internal divisions in attitudes between individuals and organisations, as well as a diversity of responses to the various nationalities of medical refugees, mainly German, Austrian, Czech and Polish. The British medical establishment was at no time proactive in assisting their refugee colleagues, perceiving them above all as competitors. Restrictions were especially tight between 1936 and 1939, while in 1940, together with the majority of refugees in Britain, they were subjected to mass internment as ‘enemy aliens’, a policy quickly revoked in the
same year. Matters improved during the war when physicians were in short supply, although it was not until 1947 that they were granted the right to unrestricted practice by the Medical Practitioners Act, facilitating their integration into the National Health Service a year later, and representing the triumph of the Department of Health view of the need for their services over a reluctant Home Office.


This article employs the Geographical Information System to combine documentary evidence from charters, registers rental and accounts from Durham Cathedral Priory with retrogressive analysis of cartographic evidence from enclosure documents, tithe maps, coalfield maps and place-names, to investigate the extent of the wasteland of Durham between 1100 and 1400. Those wastes were ‘remarkable for their distribution and extent’, not only in the medieval period but right through to c. 1625, particularly in the fertile Tees Lowlands where population density was highest. The evidence does not suggest that the margins of cultivation had been reached by the early fourteenth century, and hence the downturn experienced by Durham from the 1320s cannot be explained in terms of Postan’s model of preceding over-expansion and the reduction of pastoral resources to a point where they were inadequate to provide manure for the arable. Enclosure from the waste was most common within episcopal estates, which were mainly situated towards the centre and the north-west of the county, but this had the effect of reducing the pressure on wastelands elsewhere, allowing them to survive even in the more fertile and populous parts of the county. The authors suggest that, at least outside of the midlands and the south-east, there may also have been more substantial amounts of waste in other counties than is often appreciated, the potential for exploitation of which may throw further doubt upon the population-resources model of medieval economic development.


This article uses poor law records, parish registers and settlement examinations for the large north Lincolnshire parish of Broughton in the late eighteenth and early nineteenth centuries to examine who the poor were and how generous the relief system was. It turns out that only a minority of the population of the parish received assistance from the poor law at any one time, the relief lists being dominated by the old, the widowed and young children. Relief rolls did rise after 1800, extending increasingly to married men with families, but even by 1803 only 15 per cent of the population were being supported by the parish. Those deemed to be in need were generally given just enough to survive on, pensions and casual relief for the majority of paupers approaching the earnings of a typical labourer. The poor law operated as a safety net rather than an all-encompassing welfare system.

This paper reports a study of the health experience of the members of the Hampshire Friendly Society. By studying the experience of two cohorts of members, those joining in 1871 and those joining during the late 1890s, the authors are able to describe the effect of disease outbreaks and administrative changes in the way the Society was run on the pattern of sickness claims over time. They also consider how their evidence bears on the thesis of James Riley that morbidity increased in late nineteenth and early twentieth century England as mortality declined (see Riley, *Sick not dead: the health of British workingmen during the mortality decline*, (Baltimore, 1997)). Although morbidity did rise among the members of the Society between 1872 and 1911, most (if not all) of the increase was due to changes in the age composition of the members. Age-specific morbidity did not increase, at least before the introduction of statutory health insurance in 1911.


This is a work of synthesis, largely reliant upon the primary research of others, which attempts to view the impact of foreign immigration to Kent in its wider regional context. It rehearses the well known political and religious background to the diaspora from continental Europe that occurred from the mid-sixteenth century, while noting that this built upon a long tradition of more restricted immigration, as well as the equally well known impact of the renewed persecution of the late seventeenth century that culminated in the Revocation of the Edict of Nantes in 1685. Although there is little that is new here in terms of factual information, Edwards does offer some very sensible considerations. Hence restrictive regulation and independent congregations did not mean that there was no integration between stranger and host communities, and the longevity of the major settlements rendered assimilation inevitable in the long run. Information available on their numbers is often difficult to interpret, and must be treated with circumspection, particularly in the sixteenth and earlier seventeenth centuries when many may have operated clandestinely. The evidence for the existence of smaller settlements is often precarious, even no more than hearsay. And while there can be little doubt that the immigrants made major contributions through the stimulus they provided to the production of the new draperies, or to the silk industry in Canterbury, that influence can be exaggerated too: many of the agricultural developments with which they might be associated, and features of the built landscape of the county, were probably the result of ideas brought back from the continent by English travellers. Her suggestion that the Maidstone community ‘did not have their own separate establishment’ (p. 281), however, is rather puzzling, for they certainly maintained their own congregation—with regular assistance from the Dutch church in London—through into the 1630s when they numbered a
minimum of 50 communicants, suggesting a population of perhaps 100–130 (see J. Bulteel, A Relation of the Troubles of the Three Forraign Churches in Kent. Caused by the Injunctions of William Laud Archbishop of Canterbury Anno Dom. 1634 (London, 1645), p. 22). Indeed, the Dutch community in Maidstone limped on until its final demise in the later 1650s.


It is now well known that the decline of fertility within marriage in England and Wales was largely achieved without the widespread use of modern appliance methods of birth control. Among the working classes, especially, withdrawal and abstinence were the most commonly used methods. This paper is based on interviews with a sample of couples from Blackburn, Lancashire, who were of childbearing age during the inter-war period, and tries to explain why there was such resistance to appliance methods, despite the energetic promotion of the latter by the largely middle-class birth control movement. Fisher and Szreter conclude that withdrawal remained popular partly because it suited the fertility intentions of working class couples (many of whom did not have a specific target number of children, and so did not consider failure as a major disaster), partly because it was perceived as ‘natural’, and partly because it interfered less with the spontaneity of sexual activity than the appliance methods (principally condoms, caps, diaphragms and pessaries) that were then available. This paper is one of a series of papers in this issue of the Journal of Interdisciplinary History which deal with aspects of the fertility and contraception during the demographic transition in various countries. The introduction to this collection of papers, by S. Szreter, R.A. Nye and F. van Poppel, ‘Fertility and contraception during the demographic transition: qualitative and quantitative approaches’ (pp. 141–54), will also be of interest to LPS readers.


The Marriage Duty Act of 1695 imposed a tax on births, marriages and burials, besides an annual charge upon bachelors over the age of 25 and childless widowers to finance William III’s trade war with France. It proved complex and difficult to administer, and was abandoned in 1706, and this paper examines its administration at the local level through a case study of Lyme Regis. The extant documentation for Lyme is described in considerable detail, providing a very useful indication of what the local historian might be confronted with when attempting to use this data. In particular, Ford amply underlines the complexity of the tax and the difficulties local officials had in keeping their records up to date. Whether or not it was widely evaded is itself impossible to determine given the haphazard and confused state of some of the returns. Comparison with other contemporary sources suggest that even the bare population figures are not entirely accurate, while the layout of the documents and the lack of clarity regarding how bachelors were listed makes
elucidation of household structure very difficult. While it is claimed that they provide a ‘valuable and unique insight into the life and structure of the borough’, the overriding impression is that their complexity and inconsistency makes them very difficult to use for demographic analysis, and no such analysis is attempted here.


This paper describes and reports a preliminary analysis of the records of burials in Kingston upon Thames cemetery. The years 1855–1911 yield about 30,000 cases, each of which has details of the name and address of the deceased, and his or her age at death, but no information on cause of death. French’s initial analysis of these data reveals a general mortality pattern consistent with what we know of national trends, including those in infant mortality (see R. Woods, *The demography of Victorian England and Wales*, (Cambridge, 2000), 250–80). There were, however, local variations in mortality which were probably related to differences in the urban environment. French also attempts some record linkage between the cemetery records of the deaths of children and the census enumerators’ books in order to ascertain the social class of their parents. Unfortunately, the proportion of deaths he can link is low, but the results are suggestive of a social class gradient in infant and child mortality.


It is well known that in nineteenth-century and early twentieth-century England, illegitimate children fared worse on a whole range of social and demographic indicators (living standards, mortality, educational attainment) than legitimate children. By examining a wide range of qualitative evidence, including autobiographies and oral history data, this paper seeks to try to understand the experience of being illegitimate in England at this time from the perspective of the child. In order to limit the scope of the analysis to manageable proportions, Frost concentrates on the working class, ‘particularly those who tried to be “respectable” ’ (p. 293). The paper gives a fascinating insight into the ways in which the stigma of illegitimacy was maintained through the first half of the twentieth century (even after the changes in the law of 1926).


This article provides an introduction to and a transcript of a ‘chief rental’ for the town of Machynlleth in 1687 and considers how it might be used. In particular, Gibson demonstrates the value of combining the information it provides with evidence from the Notitia (a parochial survey) of 1686, parish registers and probate evidence to more accurately map both property
ownership and occupations in the town and its rural hinterland. Such an enterprise is not attempted here, but the concentrated nature of land ownership evident from the rental and the rarity of English names among them are both noted. Although the rental was not a census, it is suggested that in combination with the other sources it gives as detailed a picture of the town as it is possible to achieve prior to the national censuses of the nineteenth century.


Since the 1960s, the use of Geographical Information Systems (GIS) has increased in a number of scientific disciplines, but historians have generally been rather reticent about employing them. This paper is an introduction to a special issue of History and Computing dealing with the use of spatial data by historians, and briefly describes the history of GIS and their strengths and weaknesses as research tools. It then turns to the potential uses that historians might make of them. Having described some of the few historical projects which have made extensive use of GIS, the paper then focuses on three challenges which will have to be overcome before GIS can be more widely incorporated into historical research. These are first, that GIS are not well suited to handle the ambiguous geographical or locational data common in historical documents (for example, ‘close to the bend in the river’); second, that the representation of change over time in GIS is still underdeveloped; and, third, that although GIS are potentially well suited to integrating quantitative and qualitative data sources, this will require the incorporation into mainly quantitative databases of more information about sources and documentation than is customary at present. Readers of LPS might also be interested in the other papers in this issue of History and Computing.


This article analyses a new body of evidence on deaths occurring in 323 ships arriving in South Australia between 1848 and 1885, which records the cause, age, sex, and date of death. The records were generated by surgeon-superintendents, who worked under strict regulations, were subject to careful scrutiny and faced severe penalties for faulty record-keeping. The authors discover that the distribution of deaths by voyage was heavily skewed, as was the distribution of deaths by age, with infants and children under the age of six accounting for 76 per cent of all deaths. Female adult and child rates were higher than those of males. Age-specific causes of death are compared with those on land, producing some differences but also substantial congruence, leading to the conclusion that these vessels ‘offer us a window on the mortality experience of Britain and Ireland’s working-class citizens whose maritime environment emulated conditions in the crowded dwellings of the United Kingdom’s rural and town-dwelling poor’ (p. 208). With regard to the timing
of the deaths on these voyages, a hump-shaped pattern was discovered rather than the expected U-shape, deaths peaking towards the middle rather than at the start and end of the journey. This is explained by the more severe and changing climatic conditions—the intense heat of the tropics being swiftly followed by the sudden cold of the Southern Ocean—which particularly impacted upon the infants and young children who accounted for the bulk of the deaths. This study is presented as a parallel to recent developments in the historiography of nineteenth-century mortality more generally, with individual-level data increasingly superseding published aggregate data as the basis for analysis.


The immediate cause of the cotton famine of 1861–1865 was the interruption of cotton supplies by the American Civil War, though previous overproduction exacerbated its effects. In this article Hall looks at the effects of the crisis on the weavers of Clitheroe in Lancashire and at the responses of employers, employees and local institutions. She argues that the employers tended to act in ways that served their own interests (though they made a lot of noise about the concessions they were making to their workers). The Board of Guardians, responsible for administering poor relief, did not see the situation during the cotton famine years as anything out of the ordinary. Applicants for relief were more numerous, to be sure, but no special measures were called for. Additional relief was provided by national agencies set up for the purpose of alleviating the effects of the famine, and it was perhaps because of these that extant institutions were not overwhelmed.


These two papers are about perceptions of the causes and nature of specific diseases in Britain during the late nineteenth and early to mid-twentieth centuries.

The first deals with the relationship between typhoid and the consumption of shellfish. The popularity of shellfish in Britain’s towns and cities during the late nineteenth century has often been noted by historians, but less attention has perhaps been paid to why oysters, mussels, cockles and the like became much less sought after during the twentieth century. In this paper, Hardy describes one probable reason: the growing realisation that shellfish contaminated by sewage were responsible for many of the cases of typhoid reported in Britain. The paper traces the history of attitudes towards the risks posed by shellfish. Initially, suggestions that shellfish posed a health hazard were met with denial, but public opinion gradually changed in the face of the weight of evidence and a few spectacular episodes, such as outbreaks of
typhoid among the guests at banquets held by the Lord Mayors of Southampton and Winchester in 1902.

The second paper analyses perceptions of the character of tuberculosis, concentrating on the mid-twentieth century (though the study actually ranges beyond this period in both directions). It charts how the image of tuberculosis changed from the late nineteenth century one of sickly young adult men and women lying on couches to one centred on children and the elderly. Hardy notes that tuberculosis occupied an important position in the epidemiological prospectus of the country for as long as treatment was perceived as difficult, lengthy, and not necessarily guaranteeing a cure. It was only when simpler and more effective treatments emerged in the 1960s that tuberculosis dropped off the epidemiological radar.


This article offers a challenge to the what has become the orthodox interpretation of early modern English demographic development as proposed by E.A. Wrigley and R.S. Schofield in The population history of England: a reconstruction 1541–1871 and associated publications: the existence of a fertility-dominated, low-pressure demographic regime, controlled essentially by fluctuations in levels of nuptiality, which responded readily to long-term changes in levels of real wages—a regime that is characterised here as a Malthusian interpretation, but one in which mortality has been relegated to a minor role, with the swings of the demographic pendulum further restricted by the existence of prudential restraint. First, Hatcher dismisses the possibility of extending this low-pressure regime back into the later Middle Ages by rehearsing the range of evidence for high and variable mortality in these years, which prevailed despite the fact that real wages rose significantly from the late fourteenth and into the fifteenth centuries. Second, he argues that the Cambridge Group data for the mid-sixteenth century reveals remarkably high levels of nuptiality in historical terms, high and widely fluctuating fertility, and may also—due to the sample of parish registers employed—understate the extent of mortality crises in the mid 1540s and later 1550s. Third, the manner in which weight is assigned to the contribution of fertility and mortality to population growth is questioned through a close consideration of how quinquennial movements in the gross reproduction rate and expectation of life at birth have been analysed. An interpretation that assigns roughly equal weight to each variable is favoured over one which gives primacy to fertility, while the important point that changes in mortality and fertility do not operate independently of one another is also made (mortality crises have, for example, been shown to produce a short-term slump in fertility, often followed by a rise in the number of marriages and, subsequently, births). Fourth, serious concern is expressed about the reliability of estimates of the proportion of the population that married over time, a variable that has become increasingly central to the ‘Cambridge Group interpretation’. Nor did nuptiality respond with immediacy to changing levels of real wages, and the population
continued to grow through the sixteenth and early seventeenth centuries despite a substantial, long-term decline in real wages, while occupational changes—particularly the increasing weight of the wage-labouring classes within the population by the early seventeenth century—must also be taken into account, as must the impact upon marriage chances of regionally skewed sex ratios by the later seventeenth century, and probably a host of cultural factors too. The critique closes with a restatement of the importance of local and regional factors in demographic analysis which will strike a resounding chord with readers of Local Population Studies, as well as an appeal to explanations of demographic behaviour which embrace a wider range of economic, social and cultural variables.


Coleridge suffered from a variety of bowel disorders throughout his life, which may have been largely due to his opium addiction, but possibly also to attacks of Asiatic cholera, about the precise nature of which there was much contemporary debate. This article attempts to establish the exact nature of his illness, and in so doing highlights the problems of identifying new diseases in the past in general, and bowel disorders in the early nineteenth century in particular.

M. Herber, ‘Sex, lies and crime: clandestine marriage in the 17th and 18th centuries’, Family Tree Magazine, 19, 12, 4–6 and 20, 1, 6–9.

This two-part article presents a history of clandestine marriage before 1754, outlining the most common reasons for such marriages and describing the circumstances under which they most commonly occurred. One reason cited for marrying clandestinely was a desire to have the marriage recorded before a couple’s first child was born in order to avoid the stigma of illegitimacy. Another was the habit of indebted women of marrying penniless men in order to protect themselves from creditors (who would, after their marriage, be entitled to pursue only their husbands). The article makes extensive use of data from the Fleet prison in London, which was the venue of many clandestine marriages during the period.


Known since the sixteenth century, pauper apprenticeship peaked in the late eighteenth and early nineteenth centuries, featuring in craft trades, factories and mines. By the middle of the nineteenth century it was generally being superseded as the ‘free’ labour supply, particularly in expanding towns and cities, grew more rapidly. However, the rapid expansion of the North Sea fishing grounds after mid-century gave it a new lease of life, and from 1876 this encouraged the poor law guardians of Headington to renew the practice,
supplying a number of pauper children to Garleston trawlers to relieve overcrowding in the boys section of the union workhouse. Within twelve years 7 of the 12 Headington apprentices were dead, a death rate well in excess of that experienced by apprentices in general at the port of Grimsby in the 1880s, studied previously by Horn, and by the 1800s the practice had been abandoned.

S. Howard, ‘Imagining the pain and peril of seventeenth-century childbirth: travail and deliverance in the making of an early modern world’, Social History of Medicine, 16, 367–82.

This richly titled article discusses the agony of labour revealed in an account of childbirth found in the memoirs of a seventeenth-century Yorkshire gentlewoman, Alice Thornton, which exemplifies a providential world view—juxtaposing danger with deliverance—that permeates her memoirs as a whole. While accepting that Thornton’s words do indeed reflect her experience of extreme physical pain, it is also suggested that her prose was culturally mediated, and that she drew on contemporary discourses of martyrdom where pain could be understood as test of faith and endurance, her writings in consequence becoming proofs of her virtue and religiosity as well as a personal account of her suffering. In this way Alice Thornton’s narrative, Howard suggests, ‘illuminates some historical confrontations and interactions between discourse and the physical, between perception and reality, between individuals and their social contexts’ (p. 381). Population historians may be particularly interested in her brief discussion of the recent historiography of childbirth which, inter alia, refers to Schofield’s estimate that the risk of dying in childbed was only 6 to 7 per cent over an entire procreative life-span. The point that it is not at all straightforward to move from statistics to attitudes is well made, for intense fear is not necessarily well-grounded in evidence, and nor did early-modern mothers have any reference points against which to compare their experiences. Fear of childbirth undoubtedly existed, but it was not necessarily the overriding characteristic: there is no sense in which it is claimed that Alice Thornton was representative of seventeenth-century women in general. Her experiences, and the construction she placed upon them, remain of interest nevertheless.


This is the latest in Gary Howells’s series of articles on assisted pauper emigration from England in the mid-nineteenth century. In this paper, Howells argues that those who promoted parish-assisted emigration often invested a considerable amount of time and money in the enterprise. Many of them seem to have been genuinely concerned that the experience of assisted emigrants should be as positive as possible. Of course, this was not pure altruism: it was also a rational strategy for those who were financing the New Poor Law, for emigrants who did well might encourage others to follow them, thereby helping rural parishes in southern and eastern England reduce their surplus labouring population.

In this paper, Jonker uses data from the inquisitions post mortem to estimate adult life expectancy in early fourteenth-century England. Previous estimates were made using these data in J.C. Russell, British Medieval Population (Albuquerque, 1948) and T.H. Hollingsworth, ‘A note on the medieval longevity of the secular peerage’, Population Studies, 29 (1975), 155–9. Jonker uses a different method to estimate the life expectancy of males aged 25 years ($e_{25}$). The method is statistically quite complex, and many readers of LPS might want to skip the details, but the results are an $e_{25}$ of just under 26 years among those who reached their 25th birthdays between 1305 and 1325, and of just over 23 years for those who reached their 25 birthdays during the 13 years leading up to the Black Death. These are fairly close to the figures given in M. Ecclestone’s paper in LPS 63 (1999), 6–29 of a life expectancy at age 20 years of 27–28 years for landless men in Wiltshire between 1295 and 1345, based on the Glastonbury Abbey head tax lists.


Drawing upon the experiences of a number of parishes in Hertfordshire, Huntingdonshire, Norfolk and Staffordshire—five of which form the main focus—this article uses overseers’ accounts, pauper examinations, court papers and other records to demonstrate the variety of practices under the Old Poor Law, and the often contradictory attitudes that the poor encountered. The ‘poor’ were themselves far from a homogeneous group, exhibited highly varied powers of negotiation, and widely differing abilities with respect to self-help and mutual aid. Those in the best position to enter into true negotiation with vestry officers usually had something to offer in the way of a service—the ability to offer care to other poor people: negotiations over direct relief such as pensions are not what fills the accounts. These features were overlaid upon enduring regional differences in both the extent and nature of poor relief, previously highlighted by Steve King in his Poverty and welfare in England 1700–1850: a regional perspective (Manchester, 2000). Nor was the Old Poor Law as monolithic as is often portrayed: there were changes over time in both welfare provision and attitudes, changes which occurred prior to the late eighteenth century upon which so much emphasis is often laid. Although this study confirms the general long-term rise in relief payments, these fluctuated quite sharply in most of the parishes in view, and a more parsimonious attitude towards the poor is detected in the last years of the seventeenth and the early eighteenth centuries. Increases in the cost of relief (such as in the early 1740s) often followed an escalation of hardship and were thus a response to changing needs, but could also result from the changing burden of settlement in a parish, or shifts in local attitudes and policies. The ability of the poor to procure extra income by offering their services to the vestry also varied over time, and diminished in some parishes with the rise of residential care in parish workhouses in the second or third decade of the eighteenth century. The role of private philanthropy is mentioned, for apparently all parishes under
consideration had ‘some funds of this kind’ (p. 135) that were periodically used to finance casual payments, but their relative importance over time is difficult to gauge from the evidence presented here.


The gist of this contribution by Steven King is that the membership of protoindustrial families in England during the eighteenth and early nineteenth centuries was much more fluid and volatile than the nuclear family model would predict. Using data for several areas of Lancashire, he shows that households could become complex in a variety of ways: for example the bearing of illegitimate children led to three-generation households; and elderly people were encouraged to move in with offspring. These kinds of arrangements were encouraged by the operation of the poor law, increasingly so as the demands on the poor law rose. King also appeals in this paper for more research on the protoindustrial household in England, lamenting the lack of progress made in this country during the last 20 years compared with other European countries.


Bridget Hill, who will be familiar to some readers of *LPS* through her work on the age of women at marriage (see ‘The marriage age of women and the demographers’, *History Workshop Journal*, 28 (1989), 129–47, and on the reporting of women’s work in the nineteenth century censuses, see ‘Women, work and the census: a problem for historians of women’, *History Workshop Journal*, 35 (1993), 78–94) died in 2002. This short piece is an appreciation of her life and work.


In this paper, Levene examines some of the characteristics of children entering the London Foundling Hospital in the mid-eighteenth century and shows that a far higher proportion of them were legitimate than had previously been thought. Foundlings were not mainly the result of ‘dysfunctional unions between non-married individuals’; many were the result of ‘breakdowns in established marital relationships through poverty, or the death or absence of one partner’ (p. 227). The fact that foundlings were not all illegitimate has implications for the use of foundling data to estimate illegitimacy ratios in London.


During the 1870s, 1880s and 1890s, London was beset by frequent and progressively more severe episodes of what we would now describe as smog.
In this paper, Luckin discusses how these fogs were interpreted by contemporaries as symptoms of urban decline, leading to an alarmist literature predicting a gloomy end to the urban way of life. Many of those contributing to this literature were conservative advocates of country living, but, as the century drew to its close, their ranks were swelled by social Darwinists using the fogs as pegs on which to hang arguments about the degeneration of the urban population. Readers of LPS may be particularly interested in Luckin’s comments on the death toll from the fogs (which was arguably greater than that from the cholera epidemics earlier in the century), and his description of attempts to calculate their economic cost.


Interest in rats and plague continues unabated, and here McCormick throws down another challenge on the basis of archaeological evidence and the insights of zoology and molecular biology. As Yersinia Pestis is a rodent disease, the presence or absence of the black rat, and the mobility of those rats, is crucial to its spread, and hence its ability to wreak havoc amongst human populations. Until recently, there were no Roman rats, but new discoveries of tiny bones and DNA samples are providing glimpses of the rat’s migration from south-east Asia into the Roman Empire and medieval Europe, so much so that the diffusion of rats across Europe ‘looks increasingly like an integral part of the Roman conquest’ (p. 1). Why are the sources so silent about the die-off of rats that would accompany an outbreak of plague? McCormick’s answer is to invoke literary disinterest, as well as a terminological confusion that arises from the fact that there was no ancient term for ‘rat’ to distinguish it from mice: the term is of medieval coinage. The spread of the black rat, a largely sedentary rodent, is discussed in terms of communication channels such as the canal built to link the Nile corridor with the Red Sea by Darius I (521–486 BC), and their affinity with ships. Climatic differences and the general growth of communications might also be relevant, and it may be that the spread of the black rat can provide us with insight upon ancient urbanisation and communications, reversing the usual explanatory model. While McCormick’s enthusiastic belief that the evidence for the presence of the black rats across the Roman Empire, and their expanding population in the fourteenth century, is infectious, many questions remain to be answered before we can resurrect from the ashes a plague-driven model of later medieval demographic (and economic) development, and this article should be read in conjunction with that by Twigg published in LPS 71, as well as that by Cohn summarised in the periodical review published in the same issue.


In 1841, Wales had only six towns with more than 8,000 inhabitants (the largest of which was Merthyr Tydfil). It was held that during the late eighteenth century, the urban area with most influence over south Wales was Bristol. But by 1850, Bristol’s influence was declining, and Swansea was in the ascendancy
(Cardiff at this time had yet to rise to prominence as a coal port). This paper is about the rise of Swansea’s star. Miskell describes the important role of the Swansea Institution, a scientific society founded in 1835 (later to become the Royal Institution of South Wales). Supported principally by the town’s professional and commercial inhabitants, this Institution was assiduous in promoting the virtues of the town, their efforts resulting in attracting the annual meeting of the British Association for the Advancement of Science (BAAS) to Swansea in 1848. The BAAS had chosen Swansea with trepidation, worried both by the lack of good transport links and its distance (perceived even more than real) from traditional academic centres, however the meeting was a great success. For about three or four decades, Swansea successfully combined the attractions of a resort with the demand of industry. However, as the nineteenth century drew to a close its industrial functions began to dominate, and its reputation as a genteel resort town declined.


If any readers of *LPS* were encouraged by the two articles by Mortimer and Gee reviewed in *LPS 71* to think that a more flexible policy which tried to cater for the different needs of different classes of user might be introduced in Record Offices and other archives, this paper will come as a reminder that such enlightened attitudes are not universal. For Moran and Taylor argue that discriminating between different types of reader is (1) impractical with existing resources; (2) elitist—in that it would regard ‘a group of users, defined by us as those doing research more worthy of support than any other’ (p. 62); and (3) ‘in direct opposition to national and international principles on access as well as current government initiatives such as Best Value, life-long learning and social inclusion’ (p. 63).


This paper is based on the notebooks of Rev. Edmund Tew, rector and magistrate of the parish of Boldon in the county of Durham during the second half of the eighteenth century. It describes the many cases which came before such a lone magistrate at that time. Among these, criminal cases were in a minority, so that most of Tew’s time was taken up with employment disputes (often between masters and apprentices), and matters connected with the poor law (and notably the vexed question of settlement). Morgan and Rushton argue persuasively that ‘the magistracy acted in part as mediators … between the central state and the local community’ (p. 76).


This article, which is part of a longitudinal study of the administration of insanity in east London from 1800 to 1870, combines documentation generated
by boards of guardians with Poor Law Commission statistics and correspondence to demonstrate that—in its early years at least—the Poor Law Amendment Act of 1834 failed to produce the uniformity of policy towards the insane that it desired. The new boards of guardians were as culturally distinctive in their style of administration as the parishes had been under the old dispensation, and could determine the local interpretation of regulations where they had the capacity for leadership and chose to exercise it. The final direction the board took was a product of a complex interplay between personality, politics and class. This ability to maintain local autonomy, however, diminished with increasing centralisation of government policy on insanity after the introduction of the Lunacy Act in 1845 and the creation of Commissions in Lunacy.


During the last two decades of the eighteenth century, many people left the Highlands of Scotland, attracted by opportunities of employment in lowland manufacturing industries. This paper describes the history of a certain group of these migrants, those who ended up living and working in David Dale and Robert Owen’s ‘model village’ of New Lanark. Most of the ‘New Lanark Highlanders’ came from Caithness, Skye and the Western Isles (particularly Barra). Nicolson and Donnachie describe the efforts made to integrate these largely Gaelic-speaking migrants into the lowland community. There was, apparently, no ‘deliberate language policy’ (p. 28) although Gaelic religious services were provided. In their conclusion, the authors lament the lack of attention paid to linguistic issues in studies of Scottish family and community history.


In recent years there has been considerable debate about whether or not people who had smallpox as children or young adults suffered a long-term effect on their growth (for reviews of the earlier contributions to the debate, see LPS 67 and 69). In this paper, Oxley uses a hitherto unused source, namely prison records (from Wandsworth prison) and indents of transported convicts to cast light on the question. These records included details of ‘distinguishing marks’, one category of which were the pockmarks left on the faces of survivors from attacks of smallpox. Oxley shows that transportees and prisoners with pockmarks were indeed shorter than those without pockmarks, but that closer analysis showed that this effect was confined to those who came from London. In rural areas, smallpox had no effect on height after controlling for potentially confounding variables. Her interpretation of this finding is that the apparent effect of smallpox on heights arises because smallpox was more common and more severe in urban areas, and is therefore acting as a ‘proxy’ for aspects of urban life which did cause stunting. As she puts it: ‘[p]ockmarks are associated with stunting only in London because in the city smallpox ran most wild in
overcrowded properties in overcrowded areas that suffered a whole set of urban disamenities: high levels of exposure to a multiplicity of diseases, including chronic illnesses capable of long-term insults to growth; inadequate quantities of poor-quality nutrition; work demands in excess of nutritional inputs; pollution; and more. One or more of these factors was culpable, although which one has yet to be identified (p. 652).


This paper is a description of the parish registers of Long Newton between 1564 and 1812, giving details of the variables recorded at different points in time, and some statistical analysis of long-term trends. Pallister estimates the population of Long Newton as being roughly constant during this period at 300–400 people by assuming a crude birth rate of 30 per thousand. Since there was an average of 1.33 baptisms per burial, this suggests a steady net out-migration from the parish. The paper includes a calculation of the expectation of life at birth (44 years) based on the distribution of ages at burial, and assuming a stationary population. Overall, this is a good example of the kind of analysis that can be achieved from a single parish register traced over two centuries.


This is a long and complicated article, but it deals (in a theoretical way) with a topic of great relevance to those engaged in research on local demography and social structure in Britain: the extent to which historians of the structure and internal dynamics of the household should attempt also to study the interaction between co-resident household members and their wider kin networks. In recent years several historians have suggested that, although the nuclear family was the predominant residential unit in England, weaker relationships with non-resident kin, especially those living within a few miles, were nevertheless important at times of crisis in the nuclear family, and at other critical points in the life course of nuclear family members, such as when leaving home and seeking employment. In this paper Plakans and Wetherell examine the role played by these wider kinship networks, and in particular whether it is worth historians’ time to try to recover them from the limited source materials available. Their conclusion is not entirely clear, but this reviewer (AH) interpreted it to mean that the impact of extended kin networks on the lives of nuclear family members, at least in north-western Europe, was probably quite limited, and the difficulties of identifying these kin networks with extant sources very great, such that historians were justified (on a cost-benefit analysis of research effort balanced against the likely contribution to knowledge) in restricting attention to relationships within co-residential groups, and their immediate (non-kin) neighbours.

The contributors to *The Cambridge Urban History of Britain*, Vol. II 1560–1840, (Cambridge, 2000) disagree about the fortunes of ancient English county and market towns during the industrial revolution. Some argue that these old towns gradually declined, whereas others suggest that they found a new lease of life as ‘fashionable social centres’ (p. 45). In this study, Raven uses trade directories and the 1841 census enumerators’ books to study the economic history of Chelmsford during the late eighteenth and early nineteenth centuries. He finds that, although Chelmsford had no manufacturing sector in 1790 and did not acquire one by 1841, its fortunes were not adversely affected by industrialisation. Its wide range of trade and craft activities persisted and even increased during this period. The town benefited from being near enough to London to take advantage of the vast and expanding markets in the capital, but far enough away for several gentry to have their country seats nearby, making the town attractive to the well-to-do.


This article analyses the significance of eighteenth-century portraiture for our understanding of the history of the family, with particular reference to the growing focus upon the affective relationships revealed in family portraits between 1740 and 1760. While aesthetic influences played a part in that transition, it was mainly the result of an increasing sentimentalisation of family ideals, producing in particular the ‘promenade portraits’ that celebrated companionate marriage. This was not, of course, all that such portraits were intended to convey, and they also reveal more traditional concerns with lineage, and dynastic and political loyalty. This article is a salutary reminder of the variety of routes available to the population historian, not all of which are necessarily built upon a foundation of statistical data.


This is one of *Gender and History’s* ‘thematic reviews’, the five books under discussion being P. Fleming, *Family and household in medieval England* (Basingstoke, 2001), A. Lynn Martin, *Alcohol, sex and gender in late medieval and early modern Europe* (Basingstoke, 2001), N.J. Meduge (ed.), *Medieval women and the law* (Woodbridge, 2000), P. Skinner, *Women in medieval Italian society, 500–1200* (Harlow, 2001) and F.A. Underhill, *For her good estates: the life of Elizabeth de Burgh* (Basingstoke, 1999), a collection that covers the spectrum of academic genres. For Rigby, they remind us of how historians are still only in the very early stages of understanding many issues relating to gender and the family in this period, as well as the need for user-friendly summaries where research is more advanced. This is a very useful summary and critical review of these five volumes.

This paper describes the age at baptism in the parish of All Saints, Sudbury, between 1809 and 1828. The baptism registers of this parish give dates of birth as well as dates of baptism during this period, which allows the exact calculation of ages at baptism. Saxby suggests presenting the results by looking at the percentages of babies baptised within given periods after birth. This, he suggests, is more illuminating than the method, pioneered in B.M. Berry and R. S. Schofield, ‘Age at baptism in pre-industrial England’, Population Studies, 25 (1971), 453–63, of quoting the numbers of days by which 25, 50 and 75 per cent of babies had been baptised. The results show that the majority (about two thirds) of children were baptised within 75 days of birth, but that a significant minority, which in some years could be around 20 per cent, were not baptised within one year of their birth.


Julie Schlarman draws upon evidence from the Grosvenor estate in Mayfair, London, which developed rapidly between 1720 and 1760, to explore the social geography of the area with particular reference to a neglected facet of urban development—the involvement of women in urban space and the built environment, their role in architectural consumption, development and appreciation. This is a notable lacuna given the well-known skew in urban sex ratios towards women evident in English towns and cities from at least the later seventeenth century, and Schlarman shows that far from all of these were humble service workers or domestics, for as many as half of all ratepayers living on the Grosvenor estate in this period were women, while 30 single women (predominantly widows) were identified compared to just two single men. She concludes that the physical layout of the streets, designed for display as much as for traffic, the garden squares and boulevards, and the opulent townhouses all provided women with the urban spaces that they needed to enlarge their public role in the political and social life of the metropolis.


This is an introduction to a special issue of Continuity and Change, the articles in which arise from a ‘workshop … called to celebrate the thirtieth anniversary of another conference,… held in Cambridge at the Faculty of History and at Trinity College in September 1969 … that resulted in the publication of Household and family in past time’ (p. 9). The first part of the paper, which will probably be of most interest to readers of LPS, is an appreciation of Peter Laslett’s life and work, and the second part introduces the other articles in the issue. Most of the latter do not relate to Britain, but one of them, by Plakans and Wetherell, is reviewed earlier in this section.

In the eighteenth century, dietetic medicine was far from firmly in the control of a professional body of practitioners, for patients were understood to possess much pertinent and reliable knowledge, and issues of moral prudence already challenged for the central ground. These issues are addressed here in relation to the work of George Cheyne (1671–1743), an iatromechanist, dietary author and fashionable physician. Cheyne’s informal approach to his elevated clients, largely conducted through correspondence, apparently rendered him very successful in persuading his patients to adopt a dietetic regime of asses’ milk and seeds, a diet that flew in the face of ‘tradition, appetite, and common sense’ (p. 297).


The evacuation of children from London was an issue of concern among contemporary epidemiologists and public health officials, for fear of the spread of epidemic disease, although studies conducted at the time proved inconclusive as to its impact. The present study explores the temporal and spatial evidence for the raised incidence of scarlet fever, diphtheria and polio. Isolation of the pattern of disease activity once background levels have been allowed for indicates that there was indeed a considerably raised incidence of infectious disease in the reception areas of London evacuees, as well as an associated epidemiological integration between London and those same areas. The effect was largest for scarlet fever, and least and most variable for polio. Contrary to expectations, however, these increases were no more pronounced in rural as compared to urban districts. The authors acknowledge that other factors might be implicated too, such as general wartime trends in population realignment and mixing, while it has proved impossible to analyse disease activity by age, evacuation status or case fatality. The general conclusion—that the geographical dispersal of concentrated urban populations in wartime propagated the spread of epidemic disease—remains clear, however.

S.M. Smith, ‘“Who you are or where you are?”: determinants of infant mortality 1876–1888’, Family and Community History, 6, 113–21.


These four papers, which appear in the same issue of *Family and Community History* and are preceded by an introduction by Michael Drake, are all micro-level analyses in infant mortality in small localities during the last three decades of the nineteenth century and the first decade of the twentieth. Smith’s contribution, which deals with Fulham in west London, shows that infant mortality responded both to social class and to environment. Davies’s contribution, which considers a single street populated by coal miners, suggests that high rates of migration and overcrowding may have contributed to the notoriously high mortality of coalminers’ infants. Higher infant death rates among migrant families are also suggested by the results of Clark’s analysis of rural Kent. Finally, James’s study focuses on neonatal mortality (deaths in the first month of life) and shows that this was high in a range of Northamptonshire towns.


The essence of Snell’s argument in this paper is that in eighteenth and early nineteenth-century England, people’s identification with their locality (which usually meant their parish) extended to suspicion of and hostility towards people from elsewhere, and especially the inhabitants of neighbouring parishes. This tendency was probably reinforced by the high level of pauperisation in rural England at this time, which caused the parish-based law of settlement to loom very large in the eyes both of poor rural dwellers (whose settlements were, almost literally, their lifelines) and of those paying the poor rates and administering poor relief (who were anxious to keep the number of persons settled in their parish to a minimum). The emergence of loyalties to supra-parochial groups (defined, for example, on the basis of occupational or class) was much slower than many historians have believed, and was probably not fully developed until the very end of the nineteenth century.

A. Steel and L.A. Hall, ‘Sir Henry Wellcome’s archival legacy and the contemporary historian’, *Contemporary British History*, 17, 95–111.

This paper describes the archival material held by the Wellcome Library for the History and Understanding of Medicine in London, and how to gain access to it. There is also a short biography of Sir Henry Wellcome. It will be useful to any readers of *LPS* who are interested in twentieth-century medical history.


It has become the accepted wisdom that the water supplied by private water companies to the cities of London and Westminster during the 1820s, 1830s and 1840s was insufficient in quantity, very expensive and inadequate in quality. This wisdom derives from analysis of the evidence of contemporary critics of the metropolitan water supply. In this article, Sunderland argues that many of these critics were motivated by self-interest and characterised by a failure to marshall objective evidence. The truth was, he suggests, that ‘the
supply of water provided by the companies was generally sufficient, ... the prices paid were reasonable, given the companies’ large capital investment, and ... though the quality of water may have been poor compared to modern standards, it was far purer than sometimes supposed’ (pp. 360–1).


This paper traces the historiography of old age and aging, focussing on ‘the history and social meanings’ of these phenomena. The article is wide-ranging, covering demographic studies, cultural work examining the meaning of old age at different times and in different places, and the relationship between old age and welfare provision.


Arwyn Thomas provides a description of the Llanpumsaint vestry book which survives for the period 1801–29 in the form of a volume of some 250 pages, and also transcribes some sample entries from the year 1802. The administrative arrangements of the vestry and its officers are described, as well as the key items of expenditure: church fabric, the roads and (most notably) poor relief. In 1802 25 recipients of relief were listed out of a population that numbered 449 in 1811, receiving markedly varying sums totalling £68 12s 6d. A significant rise in the amount collected from ratepayers is detected in the 1820s. Humane and caring to their own poor, the vestry officers ruthlessly pursued strangers out of the parish or into the Quarter Sessions courts, although cases involving removal or bastardy concerning neighbouring parishes such as Conwill and Abergwilly were generally settled quietly and unofficially, without resort to legal action. One hopes that this introduction to the Llanpumsaint vestry book will encourage more systematic analysis of its content in the near future.

S.S. Thomas, ‘Midwifery and society in Restoration York’, Social History of Medicine, 16, 1–16.

This highly readable article is a micro-history of the social networks of an elite midwife, Bridget Hodgson, in the city of York in the later seventeenth century. As a member of the city’s elite circle, the daughter-in-law of a former Lord Mayor, she occupied a rather different position to that of more humble midwives, including her own maidservant and deputy, Martha Stopford. While the pecuniary return was no doubt of importance to Stopford, for Hodgson and other relatively prosperous midwives, serving the rich of the city underlined their status, while the work they performed with the poor demonstrated their compassion and social responsibility. Thomas uses testamentary evidence and the hearth taxes very effectively to indicate the relative social standing of Hodgson, Stopford and other York midwives, and is able to demonstrate how their activities could build bridges between the city’s social strata. Recent research has exploded the myth of midwives as generally
poor and ignorant, and is increasingly revealing the diversity of their social backgrounds, to an understanding of which the present article adds considerable weight.

S. Thompson, ‘“That beautiful summer of severe austerity”: health, diet and the working-class domestic economy in south Wales in 1926’, Welsh History Review, 21, 552–71.

Between May and December 1926, a lockout drastically reduced the incomes of the families of coal miners in south Wales. The effects of this on the health of the miners and (especially) of their families has been debated by historians and politicians ever since. In particular, left-wing commentators have tended to assert that the reduced incomes had a seriously detrimental effect on health and led to increased mortality. In this paper, Thompson shows quite conclusively that this claim is nonsense. Mortality of both adults and infants was lower (in the case of infants aged 1–12 months much lower) in 1926 than in surrounding years. There are a number of reasons for this, but Thompson’s account stresses three. First, family incomes did not fall as precipitously as might be imagined, as miners drew on savings accumulated during previous prosperous years to tide them over the lock-out. Second, rents were not required to be paid during the lockout, thus reducing domestic expenditure. Third, local authorities stepped in to provide regular meals for children, which probably resulted in an overall improvement in their nutrition relative to ‘normal’ years. Clearly the lock-out produced hardship, but this hardship did not necessarily lead to a worsening of health outcomes.


This paper reports the results of a series of interviews conducted with British nationals who emigrated to Australia during the twentieth century but who subsequently returned to Britain. Thomson describes the range of experiences they had in Australia, and the factors which motivated them to return. Some returned for family reasons; others because they found economic conditions in Australia much less attractive than they had been led to believe before their original departure from Britain. All but a handful, however, retained vivid memories of their time in Australia. Perhaps the most striking result of the interviews is that even those whose experience in Australia was unhappy nevertheless regarded it as a crucial experience for them, so that ‘far from being a bitter memory, for most return migrants the years in Australia are remembered and told as “the time of my life”’ (p. 64).


Although there has been recent interest in the contribution of female workers to the agrarian economy during the eighteenth and nineteenth centuries (see,
for example, the paper by P. Sharpe reviewed in *LPS 65*, p.74) the role of the farmer’s wife has been neglected. In this paper, Verdon challenges the conventional wisdom that during the early nineteenth century farmers’ wives retreated from working actively on farms and became ladies of leisure. This may have happened in a few areas, notably East Anglia, but elsewhere, and especially on smaller farms, they continued to play a pivotal role in supervising servants, managing dairies and looking after poultry and pigs.


The idea that unwholesome meat should be a public health concern emerged in the 1850s, when attention shifted from the adulteration of food to the problem of ‘clean’ food. By the 1890s, questions about tuberculosis meat served to transform the issue into a more concrete threat, particularly after Robert Koch identified the tubercle bacillus in 1882 and recognised the connection between the bovine and human form of the disease. The extent of the problem remained open to doubt, however, with disagreement over the localisation of infection, and a belief that cooking rendered infected meat safe.

J. Warner and R. Griller, ‘“My Pappa is out, and my Mamma is asleep”. Minors, their routine activities, and interpersonal violence in an early modern town, 1653–1781’, *Journal of Social History*, 36, 561–84.

This study examines 144 assaults involving children between 1653 and 1781 occurring in Portsmouth, described as ‘by all accounts an exceptionally violent town’ (p. 565). As in 24 cases children were only incidental victims, the sample is reduced to 120, 47 girls and 73 boys. It detects the operation of a dual morality: some adults felt free to assault the children of others, while parents objected when they did so. Such assaults were, it is suggested, generally relatively restrained, suggesting that the dichotomy between the two moralities was far from clear cut. These attacks most commonly took the form of kicking or punching, and ‘only in a minority of cases’ were weapons employed, but that minority constituted fully 43 out of the 130 for which information could be found. The data is too thinly spread to support detailed chronological interpretation, but an analysis of victims and assailants is offered, male assailants outnumbering female by a ratio of two to one, and relatively few being identifiable as minors (or juveniles) themselves. In only one case was a parent prosecuted for using excessive force in disciplining their own child. While the authors’ rightly emphasise the importance of this study in offering an insight into adult-child relationships among the working-classes, in contrast to earlier studies of social elites, the evidence for motives is largely absent or is intractable.


This article is mainly concerned with the emergence of medical specialisation in nineteenth-century Paris, perceived as a necessity by the 1880s as a product
of a collective desire to expand medical knowledge through specialisation and an administrative rationality that favoured proper classification of large populations into respective classes and categories. But it is also suggested that these preconditions were ‘uniquely undeveloped’ in the fragmented medical community of London during the same period.


This is another oral history study, this time of a sample of people who grew up in the households of ironstone workers in the North Riding of Yorkshire. The focus is on the power of women within marriage, and how it was related to the extent to which women controlled the household finances. Williamson describes two broad ways in which family budgeting was organised: one in which the husband would hand over his entire pay packet to his wife, who then gave him an ‘allowance’ of spending money; and the other in which the husband gave his wife an ‘allowance’ to run the domestic side of the household, and kept the rest for himself. She says that the first of these models was associated with greater autonomy for the wife. Certainly women in families whose domestic economy was run this way perceived themselves to have more power than those who were forced to rely on ‘allowances’ from their husbands. In general, however, even in households where the wife received the entire pay packet, major financial decisions (especially those of a strategic nature) were made by the husband.


Woledge and Smale examine patterns of migration using evidence from appeals against removal orders heard at the East Riding Quarter Sessions 1708–99. Some of their conclusions provide local confirmation of trends identified elsewhere, such as the predominantly local nature of migration, with a radius of seven or eight miles generally defining the main catchment area and towns showing inward movement. The analysis also confirms a feature of migration in the county already remarked on in anecdotal evidence, that the newly enclosed areas of the Wolds were attractive to migrants who were drawn in by employment opportunities.


These three short articles deal with aspects of the impact of the railways on mid-nineteenth-century England. The first considers the variety of jobs offered
by the railways after the 1830s, and other ‘beneficial repercussions’ of the coming of the railways on local economies (p. 8). For a detailed local study on this theme, see the paper by Andrews reviewed earlier in this section. The second two papers deal with an often neglected group of workers, those who built the railways. Wood explains that these navvies were drawn from England, Ireland and Scotland, and that during the ‘railway mania’ of the 1840s some 250,000 were employed. It is likely that the demand for labour to build the railways was one of the factors boosting out-migration from pauperised areas of rural England during the 1840s. Groups of navvies may be found in the census enumerators’ books for 1841, 1851 and 1861, though after the 1860s fewer were required, as the rate of railway construction fell back.


This paper is a critique of Philippe Ariès’s parental indifference hypothesis, according to which high rates of infant mortality in the past led parents not to view the death of their offspring as seriously as modern parents do. Ariès cited the sixteenth-century Gascon author Michel Eyquem de Montaigne to back up his idea, but Woods, using other literary evidence, questions Montaigne’s indifference to the deaths in infancy of all but one of his six children. Further, he points out that very high infant mortality rates may have been characteristic of the north of France (including the Paris area), where wet nursing was common, but that elsewhere in France, and certainly in England, rates were much lower, and infant death a less routine feature of life. There is little evidence from England to support Ariès’s hypothesis. However, though the parental indifference hypothesis probably did not apply in England, Woods’s analysis does not show that it could not have been true of those parts of Europe where infant mortality was especially high.
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Editor’s note

Readers are reminded that the *LPS* Editorial Board is always prepared to offer advice on subjects within the scope of *Local Population Studies*, so if you think we might be able to help please do not hesitate to write to us.

Private baptism

Dear Sir

I agree with Dennis Mills (*LPS* 72) that data for a full assessment of the impact of the practice of private baptism in eighteenth-century England are difficult to obtain. However, I do think that it is possible to have a fairly clear idea of what the practice involved and of some of the issues that arise for those analysing data from parish registers.

First, though—as Dennis Mills says—we need to separate the practice of private baptism in nonconformist congregations from that in the Church of England. The whole nonconformist ceremony—which was very short—seems to have taken place quite frequently at the parental home in the 18th century, as described by Alan Wright in *LPS* 71. There are periods, for instance, in which the majority of baptisms in some Shropshire congregations were marked as ‘private’, as opposed to ‘in chapel’ (see Shropshire Parish Register Society, *Nonconformist Registers* (1903)).

In contrast, the Anglican practice of private baptism did not involve the whole ceremony. The Book of Common Prayer includes a service for ‘The Ministration of Private Baptism of Children in Houses’. This service consists simply of the naming of the child and the recital of the baptism formula, with the application of water to the child. As the Prayer Book makes clear, this rite was meant to be only the first stage of the complete baptism ceremony. It was to be followed—if the child lived—by the completion of the ceremony in public at the local church, where the child was ‘received into the church’, signed with the cross and the baptismal vows undertaken on its behalf by its godparents (who do not appear at the private stage). In the eighteenth century, it was often only at this point that the baptism was registered (and therefore became a potential demographic statistic).

When did private baptism take place? Parson Woodforde’s Diary (ed. J. Beresford, 5 vols. (1924–31)) is an interesting guide here, at least to the practice of one later eighteenth-century clergyman often held to be typical of his age.
Woodforde followed the widespread practice of providing an initial private baptism to children of the local gentry (as described both by Sally Bush and by Dennis Mills in LPS 72). He also privately baptised sickly children who were not expected to survive long enough to be taken to a ceremony in church. But he also seems to have privately baptised the healthy children of the poor, usually at the parsonage.

It is the latter practice—the private baptism of the children of the poor—that should most concern the historical demographer working with eighteenth century parish registers. This is because there are contemporary sources that suggest both that the practice was common amongst the poorer sections of the community, particularly in urban and industrial areas, and that significant proportions of children never went on to the second (public) part of the ceremony and, therefore, to registration.

As always, the comments of John Rickman in his introductions to the Parish Register Abstracts that accompanied the first censuses are pertinent. Of the 1811 data, for instance, he wrote: ‘...the great defect in Baptismal Registers arises from Private Baptism, which is carried out to an extent not at all in the contemplation of the Founders of the Church of England; for the Canon ordaining Registers applies to Christenings, without further explanation; and this word is usually understood to mean Public Baptism only. The practice of the Clergy is not uniform on this point; and it appears from the Remarks subjoined to many of the Parish-Register Returns, that the Registry of Private Baptisms is denied in many places, from a conscientious desire thereby to induce persons to cause their children to be publickly received into the Congregation. On the other hand, it appears that “the great cause and necessity” mentioned in the Rubrick as necessary to justify Private Baptism, is so little regarded by Parents in some places, that such Baptism (or Half-Baptism as it is popularly called) is become nearly general, and this whether it is intended afterwards to carry the Children to Church or not. Public Baptism is sometimes prevented by the difficulty of procuring Godfathers and Godmothers, many persons being deterred from undertaking this office by scruples of conscience; and sometimes it is prevented by an unwillingness or inability in the Parents to incur the expense which in some places is customary on the occasion.’

Yours sincerely,

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