Christopher French, "Death in Kingston upon Thames": Analysis of the Bonner Hill Cemetery Burial records 1855-1911. (November, 2001)

Introduction

The last few years have seen a great deal of research into the whole area of mortality in the nineteenth century, tackling such questions as age-specific mortality, infant mortality, regional variations in mortality, and the impact of medical, environmental and general social conditions on general mortality levels.[1] A major source for this research has been the Annual Reports and Decennial Supplements published by the Registrar General. These provide aggregate mortality data derived from the information provided on death registration certificates at four levels of locality: registration sub-districts, districts, counties and divisions.[2] Besides this aggregate data, information on the death of individuals is contained in the Civil Registers, but since these are not available for historical research, the historian has to look elsewhere for sources which record information on individuals. If available – and comprehensive enough – such local sources can not only be used to help test conclusions reached from an analysis of the established national sources, but can also help highlight local variations in, for example, the mortality decline of the late nineteenth century and the reasons for this, and in infant mortality.[3]

Such a local source is the burial records held in municipal cemeteries. These are not as comprehensive as individual death certificates – cause of death is not recorded, for example. Nonetheless, they still contain much information of value to the historian interested in nineteenth century mortality, especially as the nature of the records is such that they can be linked to other sources, and thereby provide additional research opportunities which can "…move beyond the collection of the G.R.O.'s statistical information towards detailed locally-based micro-level studies."[4] However, municipal burial records have yet to be fully exploited by local historians and the aim of this paper is to indicate how one research project – the Kingston Local History Project – is making use of such records in its analysis of Kingston in the second half of the nineteenth century.[5] Some of the results are reported in this paper, which begins by establishing the nature of the material contained in the cemetery records; the questions which this material can and cannot help to answer; and considers the potential for much deeper analysis by linking the burial records to other records (such as the census enumerators' books) giving details on nineteenth century Kingstonians.

Bonner Hill Cemetery, Kingston upon Thames

Bonner Hill Cemetery in Kingston upon Thames was officially opened in June 1855. As with many expanding towns during the second half of the nineteenth century, the need for such a cemetery had become acute because the local parish graveyards could no longer cope with increasing numbers of burials. As the population of Kingston began its more than 4-fold expansion between 1851 and 1901 (from 12,144 to 54,119) public health concerns demanded the establishment of a municipal cemetery, '…and in 1855 the spacious site at Bonner Hill, then all fields, opened for burials.'[6] All Kingston burials from June 1855 onwards have been recorded in a number of large ledgers and they

provide the historian, interested in various aspects of mortality in the nineteenth century, with a vast amount of data for analysis.

The Registers begin on June 30th 1855 and in the six large volumes until the end of 1911, there are just under 30,000 entries. Each entry covers a double page, and the information provided in the registers does not change over time, except that in the early Registers, the place of abode provided is very general e.g. Kingston upon Thames, whereas after 1872 the full address is provided. The following information is given for each entry:

1) Number
2) Date of Death
3) Name
4) Abode
5) Age
6) Parish
7) Undertaker's Name
8) Day and Hour of Burial
9) Consecrated or Unconsecrated Part
10) Number of Grave and Place of Burial
11) Private Vault & Graves and By Whom Purchased
12) Date of Burial
13) By Whom the Ceremony was Performed
14) Remarks

All details have been entered into an Access database ready for analysis. The data fields of particular interest for an analysis of mortality trends in Kingston are date of death, name, abode, and age. For children who died before reaching their first birthday, a zero has been recorded in their age column and their exact age (in months, days, or even hours) added to the remarks column. For those who died soon after birth, the poignant comment of 'no ceremony performed' appears very frequently in the remarks column.

The Burial Registers as a Research Tool

Not all Kingstonians who died between 1855 and 1911 were, of course, buried in Bonner Hill Cemetery. Burials continued to take place in one or two of Kingston's parish churchyards (2,208 between 1855 and 1900, for example), whilst undoubtedly some Kingstonians would have been buried elsewhere, either in neighbouring cemeteries in Putney or Teddington or further afield in accordance with family traditions and customs. Equally, not everyone who was buried at Bonner Hill lived in Kingston at his or her time of death. Of the 29,551 entries in the Burial Registers 28,078 (or 95%) recorded the parish of residence as being within the census area of Kingston (i.e. Kingston, Surbiton, New Malden, Ham, Hook, Tolworth, Coombe or Chessington); 266 entries did not record the parish details, thereby leaving 1,207 burials of people who either lived elsewhere and came back to Kingston to be buried or came from a neighbouring parish such as Hampton Wick, East Molesey, or Teddington. This number is relatively small, and it is, therefore, a fair assumption that the majority of those who died in Kingston between 1855 and 1911 were buried in Bonner Hill Cemetery,[7] and that the majority of those who were buried in

this Cemetery were living in Kingston at their time of death. The burial database, therefore, is fully representative of 'death in Kingston' at this time and is certainly large enough to allow various trends in mortality in Kingston in the second half of the nineteenth century and early twentieth century to be fully analysed.

This analysis will be developed in two stages. The first stage will simply present examples of how the data in the burial registers can be used to provide a local case study of mortality in an expanding commercial and suburban town over a fifty-five year period, and to shed light on such important historical questions as the nature of infant mortality and the seasonality of mortality. The second stage will deepen the analysis by indicating how the burial records can be linked to other nineteenth century sources and thereby provide insights into mortality in Kingston which could not be deduced from the burial records themselves.

Analysis of the Bonner Hill Burial Registers: Stage 1

The total number of burials at Bonner Hill increased from an average of 204 per annum between 1856 and 1859, to 289 per annum in the 1860s, to 476 per annum in the 1870s, to 567 per annum in the 1880s, to 656 per annum in the 1890s, and to 727 per annum in the 1900s. To put this increase in context, however, in the three decades of the 1870s, 1880s and 1890s the population of Kingston increased by 32%, 23% and 22% respectively, whereas the average number of burials increased by 25% between 1870-72 and 1880-82, by 16% between 1880-82 and 1890-92, and by only 12.5% between 1890-92 and 1900-02. These comparisons suggest a possible decline in general mortality as a result of improving social and environmental conditions.

To probe this further other variables such as age and month of death need to be introduced as in Tables 1 and 2. The most obvious feature of this data is that infants were

Table 1 Percentage Number of Burials at Bonner Hill Cemetery By Age, 1856-1909

	0	1	2	3	4	5-9	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+	Total
1856-59	17.1	7.7	4.1	1.4	2.0	3.5	4.5	6.2	6.9	7.0	8.3	11.2	13.9	6.2	**796**
1860-69	17.4	6.5	3.6	3.1	1.8	3.9	4.4	7.0	8.0	9.1	7.3	10.7	11.4	5.8	**2864**
1870-79	20.8	6.6	3.7	2.1	1.2	3.5	3.1	5.6	8.7	8.5	9.2	10.9	10.0	6.2	**4708**
1880-89	23.5	6.3	2.8	2.1	1.7	2.8	3.0	5.0	7.7	8.2	8.4	11.1	10.7	6.6	**5657**
1890-99	23.9	5.0	2.5	1.6	1.2	2.8	2.7	5.0	6.7	8.5	8.9	11.7	11.9	7.5	**6404**
1900-09	19.9	4.5	2.0	1.4	0.7	2.5	2.8	4.2	6.1	8.0	9.8	13.9	14.8	9.4	**7207**

Total	**5910**	**1554**	**772**	**520**	**350**	**825**	**856**	**1420**	**1995**	**2303**	**2458**	**3293**	**3345**	**2035**	**27636**

Sources: Burial Registers, Bonner Hill Cemetery, Kingston upon Thames.

Table 2 Percentage Number of Burials at Bonner Hill Cemetery By Month, 1856-1909

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
1856-59	9.3	6.7	9.3	7.8	7.3	7.8	7.0	11.1	9.0	7.0	8.0	9.7	**796**
1860-69	9.6	7.7	9.0	9.0	7.6	7.3	8.1	7.9	8.0	8.1	7.5	10.1	**2864**
1870-79	10.2	9.1	9.1	8.6	8.2	6.9	7.5	7.6	8.1	7.4	7.5	9.9	**4708**
1880-89	10.7	9.1	10.4	7.9	7.9	6.7	7.4	8.1	6.8	7.7	9.4	9.1	**5657**
1890-99	10.9	9.0	9.3	8.3	6.9	6.6	7.6	8.9	8.3	6.9	7.8	9.5	**6404**
1900-09	11.0	10.0	9.5	8.4	7.7	6.3	6.6	8.0	7.5	7.5	8.0	9.5	**7207**
Total	**2926**	**2511**	**2634**	**2308**	**2103**	**1853**	**2023**	**2270**	**2138**	**2048**	**2182**	**2640**	**27636**

Sources: As for Table 1

by far the largest age group in the burial registers, and that relatively the proportion of infant to total burials actually increased during the last decades of the nineteenth century, before dropping back during the first decade of the twentieth century. In the 1860s infants under the age of one made up 17.4% of total burials, increasing to 20.8% in the 1870s, 23.5% in the 1880s and 23.9% in the 1890s, before declining to 19.9% in the 1900s. Children between the ages of 1 and 4 accounted for another 12.0% of total burials in the 1860s, 13.6% in the 1870s, 12.9% in the 1880s, 10.3% in the 1890s, and 8.6% by the 1900s. As with infant mortality, by the early twentieth century the relative number of deaths of young Kingston children was in decline. Nonetheless, over the whole of the period 1855 to 1911, one-third of all burials at Bonner Hill Cemetery was of children aged 4 or under, with peaks of infant burials being reached in 1866 (40%); 1880 (40%); 1882 (42%); 1887 (40%); and 1898 (40%).

Again, to put the above figures in context and to show the extent to which deaths were not in proportion to the age structure of Kingston as a whole, Table 3 gives the age profile of Kingston for each of the census years 1861 to 1891. Not only did this profile remain remarkably consistent from one decade to the next, but it highlights the extent to

which the age profile of burials differed from that of the population as a whole, especially in the case of children aged 4 or under, who consistently never made up more than 13% of the total population, but – as has been shown – accounted for one-third of all burials.

Table 3 Age Profile of Kingston upon Thames 1861-1891 (% of total population)

	0	1	2	3	4	5-9	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
1861	2.7	2.5	2.6	2.4	2.4	10.9	18.9	18.1	13.8	11.1	6.7	4.9	2.4	0.6
1871	2.9	2.7	2.8	2.6	2.4	11.2	18.4	19.0	14.0	10.1	6.7	4.2	2.2	0.7
1881	2.7	2.4	2.5	2.4	2.5	11.8	20.5	17.8	13.4	10.2	6.6	4.5	2.1	0.6
1891	2.4	2.1	2.3	2.1	2.4	10.9	20.7	18.4	14.0	10.1	6.7	4.5	2.4	1.1

Sources: The Census Enumerators' Books for Kingston upon Thames, 1861-1891

Two other features of the data presented in Table 1 need to be highlighted. In the first place, comparing the 1860s with the 1900s, all age groups between 5 and 49 experienced a relative decline in level of burials, whereas, secondly, for those above 50, the reverse was the case. This would seem to indicate that in the second half of the nineteenth century and into the first decade of the twentieth century, Kingston, in line with what was happening elsewhere in the country, was experiencing improvements in housing, public health, diet etc which not only reduced the threat of death among the 5 to 49 year olds, but also helped to ensure that more Kingstonians survived into old age. However, such improvements in environmental and social conditions did not yet improve the life chances of infants – especially those in the first year of their life – and, as has been shown, infant burials remained depressingly high. Infant mortality was very sensitive to such factors as weather conditions, outbreaks of disease, local environmental conditions, and family circumstances including feeding patterns. All of these factors can be seen as having an influence on Kingston's high level of infant burials between 1856 and 1911.

Before examining these factors in more detail it is worth emphasising that the burial registers provide details on another important aspect of infant mortality. The age of death (in days, weeks, months etc) of those who died during the first year of their life is, in most cases, recorded in the age column. In the Bonner Hill Registers for 1855 to 1911 this information is provided for 6,137 infants who died before reaching their first birthday, indicating that 15.3% of all infant deaths occurred during the first week after birth; 56.3% occurred during the first three months after birth and three-quarters of all infant deaths occurred during the first six months after birth. The full data is summarised in Table 4.

Analysis of the burial registers also helps to cast light on the crucial question of the causes behind the high levels of infant mortality identified – especially when linked to other sources such as Medical Officer of Health Reports and Census Enumerators' Returns. For example, time of year and weather conditions certainly had an impact on infant deaths. From the aggregate data in Table 2 it would appear that the most vulnerable

Table 4 Infant Mortality In the First Year After Birth 1855-1911

DEATH BEFORE	NUMBER	%	CUMULATIVE %
One Week	938	15.3	15.3
One Month	1,002	16.3	31.6
Three Months	1,514	24.7	56.3
Six Months	1,204	19.6	75.9
Nine Months	924	15.1	91.0
Twelve Months	555	9.0	100.0
Total	**6,137**	**100.0**	

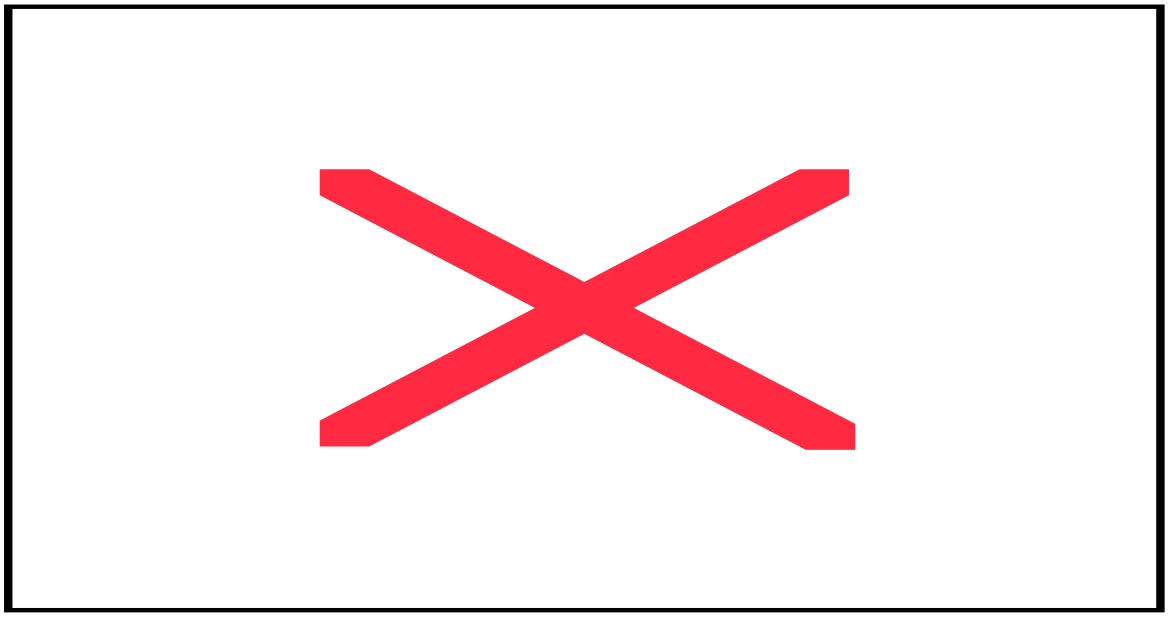
Sources: As for Table 1

time of year for Kingstonians as a whole was, not surprisingly, during the winter months from December to March. However, this was not the case with infants under the age of one. By cross tabulating age and month of burial material, it can be shown that the most vulnerable time for infants was during the hot months of August and September, with the winter months December to March being the second most dangerous time for very young babies. This influence of time of year on the number of infant burials is clearly shown in Figure 1. The generally accepted reason as to why the months of August and September was a dangerous period for infant health – particularly in urban areas - is that the August heat precipitated bouts of infant diarrhoea which often proved fatal. As Williams and Galley have argued in relation to infant mortality: "The urban-rural difference was always present throughout the year, but reached its maximum between July and September; the period when many urban infants succumbed to diarrhoea-related diseases."[8] This was certainly the case in Kingston, and was frequently highlighted by the Medical Officer of Health. In his report covering the year 1899, for example, H.Beale Collins stated in relation to diarrhoea that "The greatest mortality from this disease was in August and September, when 44 infants under one year of age died." The reasons he gives for these 44 deaths are worth quoting in detail:

> "…only one infant was brought up entirely at the breast, and six partly at the breast and partly by artificial feeding. In only eight houses was there a decent larder where milk could be stored, and this is a defect found in houses of even a high rental, where the larder is often placed so as to be

practically useless. It may be placed so as to be exposed to the hot sun for the greatest possible number of hours, or it may be just over the sink waste, or in close communication with a w.c. or where ventilation is only obtained with the accompaniment of dust.

Most of the milk consumed in this town comes from Wilts, Dorset and Hants by train. It cannot, consequently,



Sources: As for Table 1

be delivered to customers until many hours after milking, and is probably doctored with preservatives. The small quantities of boracic acid or formalin used may not be injurious to grown persons, but to quite young infants even small doses must be injurious….

Many of the infants had parents both of whom followed industrial occupations away from home. In only eleven cases was the house of modern construction…"[9]

Nor were these the only reasons operating in Kingston to produce such high levels of infant mortality, which in 1895 stood at 162.4 per 1,000 live births. Such a high rate, according to the Medical Officer of Health, "…compares very nearly with the last quarterly return for St Giles', City of London, Whitechapel and Poplar, instead of such rates as 114, 105, 123 given for districts more like our own, viz., Lewisham, Woolwich, and Plumstead."[10] Four areas of Kingston, in particular, witnessed large numbers of infant deaths due not only to the adverse environmental conditions existing in these localities, including dampness and general overcrowding, but also to what the MOH

rather tellingly called "carelessness combined with ignorance".[11] These areas the MOH termed the Canbury Group, the Hogg's Mill Group, the Norbiton Group, and the Town Group.

Analysis of the Burial Registers enables a more detailed picture of infant mortality in these four areas to be drawn. Although in total they only contained twenty seven individual streets, between 1873 (when street names were first given in the 'abode' column) and 1911 these four areas accounted for 31.6% of all infant deaths before the age of one, and 34.9% of all infant deaths between the ages of one and four. Of course, it is also necessary to look at the proportion of Kingston's children who lived in these areas, and provisional analysis of the Kingston CEBs indicates that in each of the census years 1871, 1881 and 1891 less than 25% of all children under the age of 5 lived in these four areas. Additionally, 14% of deaths before the age of one occurred during the month of August.[12] The spatial concentration of infant mortality in Kingston in the last quarter of the nineteenth century is clearly indicated by the data presented in Table 5. The explanation given by the MOH in the 1890s for this state of affairs – besides the reasons cited above – was that although

Table 5 Number and % of Infant Deaths in Kingston 1873-1911

Area	Number Under 0	% Under 0	Number Aged 1 to 4	% Aged 1 to 4
Canbury Group	1,034	19.5	496	19.2
Hogg's Mill Group	205	3.9	158	6.1
Norbiton Group	289	5.4	167	6.4
Town Group	151	2.8	84	3.2
Total	1,679	31.6	905	34.9
Total for Kingston	**5,316**		**2,590**	

Sources: As for Table 1

Canbury Group: Canbury Park Road, Canbury Passage, Cowleaze Road, Hudson Road, Acre Road, Elm Road, King's Road, Shortlands Road, Cross Road.
Hogg's Mill Group: Mill Street and Place, Fairfield Place, Portland Road district.
Norbiton Group: Cambridge Road, Cambridge Grove Road, Asylum Road, Vincent Road.
Town Group: Fairfield, Young's Buildings, Church Street, London Street, Bridge Street, Apple Market.

Kingston had a large population of children who were most vulnerable to such zymotic diseases as diphtheria and measles, very little was being done to tackle such diseases. For

example, Kingston did not have an isolation hospital; the early diagnosis of diphtheria was made difficult by the absence of any bacteriological laboratory; measles was not a notifiable disease: and too many houses suffered from dampness increasing the number of deaths caused by diphtheria and measles.[13] A number of interlinked reasons, therefore, can be put forward to account for the high and increasing levels of infant burials in Kingston in the late nineteenth century. These reasons embrace environmental, medical, dietary, spatial and personal circumstances. In total, these circumstances provide a powerful explanation as to why a relatively prosperous, medium sized commercial town on the outskirts of London should suffer infant mortality rates comparable to some inner London slum areas. One important strand of this explanation – fathers' occupation/class – will be examined further in Stage 2 of this analysis.

Analysis of the Bonner Hill Burial Registers: Stage 2

So far, this analysis has shown that material in nineteenth century burial registers – such as those held at the Bonner Hill Cemetery in Kingston – can help shed light on many aspects of mortality in a specific geographical area. These aspects include: the age profile of mortality; the seasonal profile of mortality; the domination of these profiles by infants, especially those under the age of one; and the spatial pattern of mortality. The registers do not give causes of death, nor have they been used here to try and calculate such rates as crude death rates or infant mortality rates which are readily accessible elsewhere. However, even though *causes* of death are not specified in the registers, by relating the profiles of mortality which they contain to other sources such as MOH reports, maps and local newspapers, it is possible to identify the inter-linked local geographical, social, medical and environmental *influences* on mortality. Additionally, by employing the technique of record linkage to marry together data in the Kingston Burial Records and the Kingston Census Enumerators' Books (CEBs), it is possible to highlight the influence of one final factor on infant mortality – occupation/class of the father at the time of an infant's death.[14]

Linking together the burial registers for 1855 to 1911 with the CEBs for 1861, 1871, 1881, and 1891 identified 504 children aged ten or under in both sources (the techniques of record linkage adopted are described in appendix 1). More specifically, for the purposes of this analysis, 47 infants who died before reaching their first birthday were identified in both sources; as were 78 who died in their second year; 55 who died in their third year; 49 who died in their fourth year; and 57 who died in their fifth year. Information could therefore be gleaned from the CEBs on 287 children who died before reaching their fifth birthday. Although the sample numbers here are small compared to the total number of infant deaths in these age ranges, they do allow tentative observations to be made regarding the influence on infant mortality of such factors as family size, geographical location (important for the years before 1872 when addresses were not recorded in the burial registers), and father's occupation.

For example, regarding the latter influence, for all of the 47 infants who died before the age of one and who also appear in the CEBs, information is provided on the father's occupation. Using the 1951 Registrar General's *Classification of Occupations* it is possible to translate these occupations into one of the social classes I to V. Only eight of

the 47 fathers could be placed in social classes I and II (professional and intermediate occupations). The majority of fathers (24) had skilled occupations (Class III), whilst 10 were in partly skilled occupations (Class IV), and 5 were in unskilled occupations (Class V). As already pointed out, this is a rather small sample, but if the fathers of the larger sample of 287 infants who died before reaching the age of 5 are classified according to their occupations then a similar class profile of infant deaths emerges: 31 in Classes I and II; 154 in Class III; 58 in Class IV; and 44 in Class V. In other words, the vast majority of infant deaths, where father's occupation is known, were concentrated in social classes III, IV and V (89.2%).

However, to give this data context, it is necessary to look at the class profile of Kingston as a whole in order to judge whether infant deaths were disproportionately concentrated in certain classes. Table 6 gives the class profile of Kingston derived from the occupations of all male heads of household. This shows that the proportion of households classified as social classes I and II increased from 20.8% in 1851 to 25.2% in 1891. As these two classes accounted for only 10.8% of all infant burials, it can be surmised that

Table 6 Class Profile of Kingston in 1851 and 1891

Class	1851	1851	1891	1891
	Number	%	Number	%
Class I	65	3.7	334	5.5
Class II	300	17.1	1209	19.7
Class III	669	38.2	2621	42.8
Class IV	487	27.8	1168	19.1
Class V	229	13.1	795	13.0

Sources: Census Enumerators' Books for Kingston, 1851 and 1891

social class (as indicated by father's occupation) did indeed influence an infant's life-chances in Kingston upon Thames in the second half of the nineteenth century. Admittedly, the numbers on which this conclusion is based are not large. However, the influence of father's occupation on mortality is confirmed by the MOH's report of 1900 which analysed 43 infant deaths during 1899 caused by diarrhoea and showed that 90% of fathers (or in 3 cases mothers where the father was absent) came from social classes III, IV and V.[15] Other influences on infant mortality, as this study has shown, included the poor environmental conditions associated with particular areas of Kingston, a lack of facilities to deal with certain childhood diseases, and an unspecified lack of knowledge in implementing appropriate childcare practices. This analysis of the Kingston burial registers, therefore, adds support to the conclusion reached by Williams in her similar study of the Sheffield burial registers for the early 1870s that:

> "…no single factor can be identified to account for the variability in the level or pattern of infant mortality. Monocausal explanations simply will not work. Both socio-economic status and environmental conditions were important in influencing the pattern of infant mortality within the urban environment. Both acted independently and the effects were cumulative."[16]

Conclusion

This paper has outlined how analysis of a long run of cemetery records - such as those for Bonner Hill Cemetery in Kingston upon Thames - can help to provide insight into various aspects of mortality within a local context, including: the age and gender profile of mortality; infant mortality; child mortality; and how these changed over time. Causes of death are not given in the burial records but further analysis - especially when the burial records are analysed in conjunction with other records such as MOH Reports, CEBs, local newspapers and maps - can highlight a number of factors which influenced the mortality trends identified. These included spatial, social, environmental, seasonal, occupational and medical factors and aspects of these factors have been discussed in this paper. However, research into mortality in Kingston is ongoing and a number of research areas need to be more fully developed in order to add greater depth to the issues discussed here. These research areas include: (1) a closer analysis of places of residence for those who died, and the impact of institutions such as the workhouse or local hospital on mortality levels; (2) the need to consider birth rates and the geographical concentration of children by area and socio-economic status in order to provide context and to judge whether these had an influence on infant mortality; (3) the influence of such variables as socio-economic status, family size, overcrowding and general housing conditions on mortality in general and infant mortality in particular. Through analysis of all of the sources mentioned in this study, it will be possible to extend the general study of mortality in Kingston presented here to a number of micro studies concentrating on, for example, specific areas, streets, houses, socio-economic groups or even families over discrete periods of time.

Appendix 1 A note on record linkage

The aim of the record linkage stage of the research was to identify individuals in both the census database and the burial database. The fields common to both sets of data were surname, forename, age/year of birth and address (but only after 1873 when the burial registers provided the full address). The technique of record linkage used is based on running algorithms to create computer-identified linkages which are then checked by a researcher. For this exercise, we used two algorithms to link the census database with the burial database. These were:

Algorithm One: standardised forename, soundex surname, year of birth + or – 5 years;

Algorithm Two: forename initial, surname, age + or – 2 years.

The large number of possible linkages suggested by these algorithms were checked visually and identified as true, false or in need of a second opinion. Eventually this technique provided 6,681 valid linkages. This meant that 23% of all Kingstonians buried at Bonner Hill Cemetery could also be identified in the census records. Of these individuals who could be linked from the burial records to the census returns 3,773 of them appeared in more than one census as follows:

Number of Links Between Burial Records and Consecutive Census Returns

Combination	Number of Links	Cumulative
5 censuses + burial	180	(180)
4 censuses + burial	571	(751)
3 censuses + burial	1,091	(1,842)
2 censuses + burial	1,762	(3,604)
2 + censuses* + burial	169	(3,773)
1 census + burial	2,908	(6,681)

* These 169 links were between the burial links and more than one census but these censuses were not consecutive.

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Juliet Warren implemented the techniques of record linkage discussed in the text. Andrea Tanner's comments on an earlier draft of the paper were invaluable. Any remaining mistakes are, of course, my own.

[1] See in particular R.Woods & N.Shelton, *An Atlas of Victorian Mortality* (Liverpool, 1997) and their comprehensive bibliography.

[2] Discussed in Woods & Shelton, *Atlas*, chapter 1.

[3] A strong case for historians to go beyond the aggregate data and to analyse infant mortality, for example, in different types of locality within a comparative framework is presented in N.Williams and C.Galley, "Urban-rural differentials in infant mortality in Victorian England", *Population Studies*, vol 49 (1995), pp.401-320. Also see N.Williams and G.Mooney, "Infant mortality in an 'Age of Great Cities': London and the English provincial cities compared, c.1840-1910". *Continuity and Change*, vol 9, pp.185-212.

[4] Williams and Galley, "Urban-rural differentials", p.420.

[5] One reason for the neglect of burial records may be the amount of time involved in transcribing sufficient entries before analysis becomes possible and meaningful. One local study which has made use of burial records is N.Williams, "Death in its season: class, environment and the mortality of infants in nineteenth-century Sheffield", *Social History of Medicine*, vol 5 (1992), pp.71-94.

[6] S.Butters, *The Book of Kingston* (Frome, 1995), p.124. For a discussion of the role of cemetery companies in establishing cemeteries prior to the introduction of national legislation in 1852 see J.Rugg, "Researching early nineteenth-century cemeteries: sources and methods", *Local Historian*, vol 28 (1998), pp.130-144.

[7] For example, the Medical Officer of Health for Kingston reported that in 1894 there were 601 deaths in Kingston, Surbiton, New Malden and Ham. The number of burials recorded at Bonner Hill Cemetery for that year was almost identical at 599. In the same year there were 52 church burials.

[8] N.Williams and C.Galley, "Urban-rural differentials" p.416.

[9] Annual Report of the Medical Officer of Health for 1900, pp.11 and 13. North Kingston Local History Room, (S1 (614) KIN).

[10] Annual Report of the Medical Officer of Health for 1895, p.16. North Kingston Local History Room, (S1 (614) KIN).

[11] Annual Report of the Medical Officer of Health for 1895, p.17. North Kingston Local History Room, (S1 (614) KIN). For a similar catalogue of reasons given for the high levels of infant mortality in Preston at the end of the nineteenth century see P.Chapple, "The Victorian slaughter of the innocents", *History Review*, number 36 (2000), pp.42-47.

[12] A total of 228 deaths. If mortality had been evenly spread between all months this figure would have been 140 deaths.

[13] Annual Report of the Medical officer of Health for 1896, p.4. North Kingston Local History Room, (S1 (614) KIN).

[14] For another case study which has linked together burial registers with CEBs and with an 'edited manuscript copy of the civil death registers' in the early 1870s to show the influence of social class and environment on the seasonality of infant mortality see Williams, "Death in its season".

[15] Annual Report of the Medical Officer of Health for 1900, attached to p.11. North Kingston Local History Room, (S1 (614) KIN).

[16] Williams, "Death in season", p.94. The many interlinked factors which influenced infant mortality and infant health in the nineteenth century are discussed and presented in flow chart form in Williams and Galley, "Urban-rural differentials", pp.416-420.