
The evaluation of Bedfordshire burial registration, 1538–1851

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Abstract

This article is based mainly on a digital transcript of burials for 126 Bedfordshire parishes 1538–1851, and a county index of wills for the same period. The comparison of probate with burial register data indicated that there was little long-term change over time in burial under-registration, with between 21 and 27 per cent of will entries missing in the registers. There was also little variation between parishes of different population sizes, suggesting that burial under-registration was predominantly a random process linked to clerical negligence. A comparison of 1841 and 1851 census data, linked to the Bedfordshire burial database, revealed that missing burials amongst married couples was 29 per cent, similar to that found in the probate/burial register comparison in the 1840s. These findings on the adequacy of burial registers suggest that similar research on others counties will be necessary in order to establish reliable conclusions about England's population history.

Introduction

One of the major issues of historical demography has been the reliability of Anglican parish registers and its relationship to English population history in the period 1538–1850.¹ Assumptions about the reliability of registers have had a major effect on the interpretation of population change, and this has had a significant impact on the debate about the nature of population growth during the 'parish register period'. Much of the uncertainty about demographic change is due to the inflation factors used for the correction of missing births and deaths in the eighteenth and early nineteenth centuries. One set of assumptions suggests that an increase in fertility was the prime factor in eighteenth century population growth,² whereas other inflation ratios have indicated that reduced mortality was the most important variable.³

In order to obtain reliable inflation ratios it is necessary wherever possible to establish independent measures of births and deaths through comparison with alternative sources, allowing objective estimates of the accuracy of coverage of these events.⁴ The reliability of

1 E.A. Wrigley and R.S. Schofield, *The population history of England, 1541–1871: a reconstruction* (London, 1981); P.E. Razzell, *Essays in English population history* (London, 1994); E.A. Wrigley, R.S. Davies, J.E. Oeppen and R.S. Schofield, *English population history from family reconstitution, 1580–1837* (Cambridge, 1997); P.E. Razzell, *Population and disease: Transforming English society, 1550–1850* (London, 2007).

2 Wrigley and Schofield, *Population history of England*.

3 Razzell, *Essays*; Razzell, *Population and disease*.

4 Razzell, *Essays*, 82–149; Razzell, *Population and disease*, 1–39.

the coverage of baptism registration has been previously assessed through the comparison of census statements of birthplace and age with baptism register entries, and a number of studies have been carried out on individual parishes for the period 1760–1850.⁵ Additionally, research has been conducted on the reliability of burial registration coverage by using the same-name technique and comparing information in probate and poor law records with that in burial registers.⁶ Most of these studies have been based on a limited number of parishes because of the time-consuming nature of the research. The overall conclusion from this research is that between a quarter and a third of both births and deaths were missing from baptism and burial registers, and there was little or no variation over time during the eighteenth and early nineteenth centuries.⁷

As a part of a wider project on the quality of digital transcripts of Bedfordshire parish registers, the authors have drawn on an unprecedented selection of materials for research on burial registration reliability. In addition to research on registration coverage, these materials will also allow the study of the accuracy of burial registers, by comparing the details of entries in alternative sources.

Sources used in the research

Bedfordshire Family History Society burial database

The database includes a total of 344,989 burials for the period 1538–1850, providing details of parish, name of person, date of burial, names of parents where available, and all other information, such as occupation, age and address, recorded in the original registers.⁸

This database was created to enable family historians to search for individual ancestors and not for the purposes of demographic research. This is particularly relevant when making comparisons of counts of events from different sources. The Bedfordshire Family History Society (BFHS), for example, sometimes transcribed as separate records the following items in the parish register: alias names, name variants between original registers and bishops' transcripts, and the surnames of both parents of illegitimate children. This duplication of events artificially inflates the number of entries in this dataset, which must be allowed for in any comparison of counts.

This database is based on the published parish register transcriptions initially carried out by F.G. Emmison and colleagues at the Bedfordshire Record Office in the 1930s to 1950s,

5 E.A. Wrigley, 'Baptism coverage in early nineteenth century England: the Colyton area', *Population Studies*, 29 (1975), 299–316; Razzell, *Essays*, 82–149.

6 Razzell, *Population and disease*, 3–39.

7 Razzell, *Essays*, 82–149; Razzell, *Population and disease*, 1–39.

8 The Bedfordshire Family History Society kindly made this database available for the project on which this paper is based. For further details see the research report to the ESRC: Peter Razzell, Christine Spence and Matthew Woollard 'Evaluation of a digital transcription of English parochial registers, 1538–1851: a pilot study. Research Report', Reference Number RES-000-22-2215 (2008).

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rather than the actual registers.⁹ It seems that Bedfordshire was the first county to complete a transcription of its parish registers, with the last volume being published in the 1980s. Emmison, the deputy archivist for Bedfordshire, was one of the outstanding archivists of this period, and his colleagues used not only surviving original registers but also copies of bishops' transcripts deposited in the county record office, collating different entries and publishing details of name differences and other variants. For the post-1812 period, the BFHS burial database used the original parish registers deposited in the Bedfordshire County Record Office.

British Record Society index of probate materials

The authors created a database of the published index to the probate records of the Archdeaconry of Bedford—covering primarily the county of Bedfordshire—for the period 1484–1858.¹⁰ The original index was compiled by archivists and volunteers working at the Bedford Record Office, with detailed knowledge of Bedfordshire records and local history. This index suffers (and indeed benefits) from being organised by surname variant. Thus 37 individuals are listed under the surname heading of 'BISHOP, BYSSHOPP' with no indication of the different spellings identified in the original documents. Furthermore, reported first names have been standardised, often to abbreviations. A limited attempt has been made in this study to assess the accuracy of this probate material, but the prime aim of the research was to compare the details of probate entries with those in burial registers in order to carry out an independent assessment of the reliability of burial registration coverage.

Cambridge Group for the History of Population and Social Structure data

This dataset contains monthly and yearly aggregative counts of burials for 20 Bedfordshire parishes.¹¹ These counts normally covered the period from the beginning of available parish registration up to the year 1812, the end date for which published parish registers were available.

Published data

This research has used population data from the pre-1851 census reports,¹² including

9 A total of 80 volumes of parish register transcripts were published, commencing in 1931.

10 See J. Stuart and P. Wells eds, Alan F. Cirket, comp., *Index of Bedfordshire probate records, 1484–1858* (London, 1993–1994), British Record Society, vols 104 and 105. We are grateful to the BRS which gave us permission to scan these books and to use them for research purposes.

11 This data, known colloquially as the '404' data, are lodged at the UK Data Archive: R.S. Schofield, and E.A. Wrigley, *Parish register aggregate analyses, 1662–1811; 404 Data* [computer file]. Colchester, Essex: UK Data Archive [distributor], April 2003. SN: 4491. A CDROM containing the data and an explanatory pamphlet is available from the *Local Population Studies* General Office. As a result of the collaborative effort necessary to create this dataset, we describe them as Cambridge Group data.

12 This data is published in: 1801 Census of Great Britain, *Parish register abstract, 1801*, BPP 1801–02 VII (112); 1811 Census of Great Britain, *Parish register abstract, 1811*, BPP 1812 XI (317); 1821 Census of Great Britain, *Observations, enumeration and parish register abstract, 1821*, BPP 1822 XV (502); 1831 Census of Great Britain, *Parish register abstract, 1831*, BPP 1833 XXXVIII (149); 1841 Census of Great Britain, *Abstract of the answers and returns made pursuant to Acts 3 and 4 Vic. c.99 and 4 Vic. c.7.... Parish register abstract, 1841*, BPP 1845 XXV (623).

information on the number of burials in the ten Bedfordshire hundreds for the period 1700–1812.¹³ It has also drawn upon indexed versions of the 1841 and 1851 Bedfordshire censuses.¹⁴

Preliminary analysis: accuracy of the transcripts

Transcription accuracy: frequency method for the period to 1812

Our first check on the accuracy of the BFHS database was to compare it with the original manuscript registers. As it was impossible to compare all events between the two sources we constructed a sample for comparison. In order to construct the sample, we worked our way forward in sequence through the parishes in the published volumes of the Bedfordshire registers, selecting the first available year for burials, and then worked forward to fill the next available slot. In order to cover all the 124 parishes in the dataset, we selected every second year in the period 1565–1811.¹⁵ Years were not chosen where there was an indication in the published register that registration had broken down in that period, and the earliest available year was then selected after the breakdown of registration.

Having selected the sample of parishes and event years, we compared the count of burials in the BFHS database with those in the published register volumes for each parish year.¹⁶ Overall, the count of burials was very consistent—1,190 in the parish registers and 1,201 in the BFHS database—a difference of 11 (1 per cent), suggesting that the database is of a very high quality.

Transcription accuracy: alphabetic method, for the period to 1812

Using the sample constructed for the frequency method analysis, we selected from the published parish registers the first 20 burials, starting at the beginning of the sample year for each of the 124 parishes. If this number of events were not available at the end of the period terminating in 1812, the appropriate number was selected by counting backwards from the end date.

13 For sources see the previous footnote. A hundred is (for administrative, judicial and military purposes) a sub-division of an Ancient County. Throughout our research considerable care has been taken to ensure that comparisons between different sources relate to identical geographic units. The administrative geography of Bedfordshire is reasonably straightforward, but a number of places designated as Bedfordshire parishes at different historical periods—Tilbrook, Eggington, Kensworth, Everton, Heath and Reach, and Bedford Holy Trinity—were excluded from the research because of date truncation, relocation of parishes to other counties, and hamlets within parishes becoming parishes in their own right. Early nineteenth-century census reports were used to construct the information on the administrative geography of Bedfordshire. For details of these areas see the Appendix to the report to the ESRC, 'Evaluation of a digital transcription', 63–72.

14 We used Ancestry and the S&N Genealogy digital indexes for this purpose.

15 The published parish registers which were used in this phase of the research ended in 1812.

16 In the BFHS database burials of illegitimate children were often transcribed twice, separately under the surnames of the father and mother. Likewise individuals with alias surnames were transcribed twice under both names. These duplicates were removed for the purposes of counting burials for comparison.

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There were four cases in the 2,480 burials in the burial register sample that could not be traced in the BFHS database, three of which had no surname listed in the original register. There were eight cases transcribed twice, mainly because of variants in names between the original parish register and the bishops' transcript. There was therefore a net difference of four cases between the published registers and the digital transcript, representing 0.4 per cent of the total. Additionally, there were only 20 defective cases (1 per cent) with minor spelling variations and other errors. Overall, the quality of the BFHS digital burial records was very high.

Transcription accuracy: comparison of the BFHS database with the Cambridge Group data

The Cambridge Group's aggregative sample includes 28 Bedfordshire parishes, and detailed data are available for the present research on 20 of these.¹⁷ A comparison has been made of the number of burials in this dataset with those in the BFHS database. The analysis was limited to the period terminating in 1812, in order to allow for additional checks in the original published parish registers.

Comparisons were confined to years with at least one event entry, as there were a number of years in which there were BFHS burials but no entries in the Cambridge Group dataset. Most of these nil entries occurred at the beginning of the data series in the sixteenth and seventeenth centuries, and the reasons for their absence are not clear. Also excluded from the analysis were estimated counts, mainly in the Commonwealth period.

The overall level of exact matching of numbers of burials is high: 77.1 per cent of monthly counts. However, there were count deficiencies in the Cambridge Group data resulting from the under-counting of burials. In the three parishes of Campton, Chalgrave and Toddington the number of transcribed burials is identical, and in one parish, Woburn, there are slightly fewer burials reported in the BFHS database than in the Cambridge Group dataset. In the remaining 14 parishes there are more burials in the BFHS database than in the Cambridge Group dataset—varying between 0.9 and 3.4 per cent of the total BFHS number—which suggests that there was some degree of under-counting in the Cambridge Group data.

There was a total of 60,461 burials (excluding duplicates) in the BFHS database compared to 59,908 in the Cambridge Group dataset—a difference of 553, or less than one per cent of the total of recorded burials in the former. The slight difference between the Cambridge Group dataset and the other transcripts demonstrate how even the most carefully prepared and painstaking calculations of aggregate figures will differ.

Transcription accuracy: comparison with John Rickman's data

In the 1801 *Parish register abstract* returns John Rickman published the totals of baptisms and burials for the decennial years between 1700 and 1760 and individual years between

¹⁷ The parishes are Ampthill, Blunham, Bolnhurst, Campton, Chalgrave, Cranfield, Kempston, Maulden, Millbrook, Northill, Pavenham, Pulloxhill, Riseley, Sandy, Souldrop, Studham, Thurleigh, Tingrith, Toddington and Woburn.

1780 and 1800 by hundred.¹⁸ Each of these returns stated the parishes which were under observation along with comments about the levels of defectiveness of each parish return. For defective hundreds Rickman commented that '[T]hese Defects are, throughout, supplied by stating, for every such Parish, in every such Year, an Average'.¹⁹ The nature of this average remained unstated, making it impossible to compare data in the parishes/years in question.

There were nine hundreds and one borough in Bedfordshire which were relatively stable in their constituent parishes.²⁰ For the burials reported in the 1801 census, five of the ten Bedfordshire hundreds had no noted defects, but one (Clifton) contained the parish of Holwell which was later allocated to Hertfordshire Registration County and consequently not included in the BFHS database. For the four remaining hundreds, we compared the number of burials for all the years covered by the census report.²¹ It is unclear whether the clergymen when making their returns used the Old Style (OS) or New Style (NS) dates before 1752, and so Table 1 includes calculations using both styles.²² We compiled the figures for the OS dates by calculating years from 1 April to 31 March, which was the data available in our monthly/yearly counts. This separation into OS and NS may remove some of the problems relating to this analysis, but there is no way of telling whether the parish totals aggregated by Rickman were based on one, the other, or both styles. To make comparisons more meaningful, Tables 1 and 2 show the results by grouped years.²³

In nearly every one of the four hundreds there are considerably more burials in the BFHS data than in Rickman's returns in the first half of the eighteenth century, but a strong convergence in proportions by the end of the century. Local considerations may also need to be taken into account, and even wide-ranging research such as this is not able to examine all the causes of these differences. The discrepancies in Rickman's figures may occur for a very wide range of reasons. Most notably, the clergymen reporting the figures may have excluded burials where the deceased was from a different parish.²⁴ Furthermore, it is not impossible that infant (and bastard) deaths were not considered by some of the clergy as within Rickman's purview.²⁵

18 1801 Census of Great Britain, *Parish register abstract, 1801*, BPP 1801–02 VII (112).

19 These words, or similar, are used throughout the 1801 Census of Great Britain, *Parish register abstract*. We have quoted from page 1.

20 Henceforth we describe the borough of Bedford as a hundred.

21 For earlier independent comparisons see: E.A. Wrigley, 'Checking Rickman', *Local Population Studies*, 17 (1976), 9–15; W.J. Edwards, 'National parish register data: an evaluation of the comprehensiveness of the areal cover', *Local Population Studies*, 17 (1976), 16–24 and W.J. Edwards, 'National parish register data: a re-aggregation of John Rickman's marriage returns', *Local Population Studies*, 17 (1976), 25–41.

22 See Wrigley and Schofield, *Population history of England*, 613.

23 For the total number of cases in all four hundreds see Appendix B in the report to the ESRC 'Evaluation of a digital transcription'.

24 Wrigley, 'Checking Rickman', 10.

25 J. Rickman, 'Concerning the defects and results of English parish registers', *London Medical Gazette*, XVII (1836), 436–43 is not enlightening on the subject, but notes high levels of female mortality in Bedfordshire, and provides limited evidence of Rickman's early life.

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Table 1 Proportion of burials in the BFHS database compared with Rickman's data, four Bedfordshire hundreds

Hundred	Year	BFHS burials divided by Rickman burials, OS (%)	BFHS burials divided by Rickman burials, NS (%)
Barford	1700/1710	97	109
	1720/1730	117	139
	1740/1750	118	122
Willey	1700/1710	119	121
	1720/1730	106	115
	1740/1750	105	107
Bedford	1700/1710	104	112
	1720/1730	106	116
	1740/1750	92	116
Wixamtree	1700/1710	142	139
	1720/1730	124	143
	1740/1750	124	119
Total	1700/1710	116	121
	1720/1730	113	127
	1740/1750	109	115

Source: Bedfordshire Family History Society Burial Database and Census of Great Britain, *Parish register abstract*, 1801, BPP 1801-02 VII (112).

Note: OS = old style dates; NS = new style dates.

Table 2 Proportion of burials in the BFHS database compared with Rickman's published data, four Bedfordshire hundreds

Hundred	Year	BFHS burials divided by Rickman burials (%)
Barford	1760/1770	112
	1780–1790	107
	1791–1801	82
	1802–1810	94
Willey	1760/1770	97
	1780–1790	104
	1791–1801	101
	1802–1810	84
Bedford	1760/1770	114
	1780–1790	107
	1791–1801	104
	1802–1810	101
Wixamtree	1760/1770	128
	1780–1790	108
	1791–1801	103
	1802–1810	106
Total	1760/1770	110
	1780–1790	106
	1791–1801	99
	1802–1810	95

Source: Bedfordshire Family History Society Burial Database and Census of Great Britain, *Parish register abstract*, 1801, BPP 1801-02 VII (112); Census of Great Britain, *Parish register abstract*, 1811, BPP 1812 XI (317).

Wrigley and Schofield compared the returns for six hundreds from elsewhere in the country made up of single parishes in their own data. They concluded that the 'differences in the overall totals [in the eighteenth century] ... between Rickman's returns and the Group's returns amount to 0.34 per cent for baptisms, 0.92 per cent for burials, and 0.22 per cent for marriages. None of these is large enough to be a cause of misgivings about the parish register returns in the 1801 census if it is safe to assume that the six parishes are representative of the mass of parishes in general'.²⁶ Tables 1 and 2 suggest that this conclusion is not valid for all areas of England. It is possible that there was a difference between hundreds which were single and multiple parishes—each of these four hundreds were composed of multiple parishes²⁷—but this is a topic that requires further clarification.

The comprehensiveness of demographic events: comparing probate records with burial register data

The Bedfordshire probate database (see above, p. 33) covers the whole county of Bedford and includes information on name, occupation and status, parish of residence and date of probate. The database contains a total of 31,917 entries, representing approximately 9 per cent of all burials. However, the probate data and the register data cover slightly different periods and slightly different geographical areas. The probate database also relates almost exclusively to adults whereas the registers include children. Any comparison between the two sources needs to take the first two of these points into consideration, and remember that any results reflect the registration of the adult (and predominantly male) population.

Choosing cases for comparison

In order to consistently compare the probate entries and the burial records we 'edited' the probate list to include only eligible entries. The first series of edits was to exclude from observation cases before 1538, cases with no listed parish, cases with no name, cases from outside Bedfordshire, cases from the Liberty of Chicksands and, lastly, cases which were duplicated through repetitions in wills and admonitions, or for other reasons where only one record was selected. These edits were designed to maximise any links between the two datasets, and allow us to report a minimal level of under-registration. The second series of edits was designed to take account of periods in which burial registration was inactive, as attempting to link records between the probate and the burial databases during periods when registration was inactive will only overstate under-registration and ignore non-registration. Thus, the figures which we suggest below for under-registration will be an absolute minimum.

There were periods when both baptism and burial registration ceased completely, particularly during the Civil War and Interregnum, but there were other times when

²⁶ Wrigley and Schofield, *Population history of England*, 619.

²⁷ The parochial composition of the hundreds can be found by using Appendix A in the report to the ESRC 'Evaluation of a digital transcription'.

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baptism registration ceased but burial registration continued, and vice versa. There is no completely objective method of establishing parish registration activity, and so an assumption was made that in order to establish the presence of registration, at least one burial should be registered in any one individual year.²⁸

This elimination of years without burial entries leads to an under-estimate of parish registration inadequacy, as some blank years would have been the result of burial under-registration rather than the non-existence of parish registration. However, most blank years occurred in very small parishes, with 19 parishes having sizeable multiple gaps in the period 1538–1850, all with populations of 200 or less in 1801.²⁹ Assuming burial rates lay within the range of about 25 to 45 per 1,000 in this period, we would expect on average between about two to four burials per year in these very small parishes with populations less than 100, although statistical variance would generate some genuine zero entries for individual years. However, there were only 3,152 burials in these very small parishes: 0.9 per cent of the total. The remaining 11 small parishes, with populations of less than 200 in 1801, also had only a low proportion of the number of burials: 1.7 per cent of the total.³⁰

The assumptions used for the matching of probate with burial register data diminish the problem of blank years. A five-year period previous to the probate date was assumed in order to allow for the delay between probate and the date of burial.³¹ In order to qualify for the matching exercise, it is therefore necessary for a burial register to have at least one burial entry in this five-year period, and most small parishes have few periods which meet these criteria.

The proportions of eligible probates rise noticeably with the size of parishes, with negligible percentages in the smaller parishes and substantial majorities in the larger ones.³² The six parishes with populations of less than 100 represented 1.2 per cent of the total of number of ineligible probate records, and 0.4 per cent of the eligible ones. The comparable proportions for the 18 parishes with populations of less than 200 are 2.1 per

28 The Cambridge Group developed a computer program to estimate and correct for the number of missing baptisms, marriages and burials due to the complete breakdown of parish registration, such as occurred during the Civil War period. They estimated that about 5 per cent of all burials were missing in 1539-1836 on account of defective registration, mainly in the period before 1700. See Wrigley and Schofield, *Population history of England*, 545-52. Although not strictly comparable, over 90 per cent of Bedfordshire burial registers had more than 5 per cent of blank years, suggesting that 'the blank year' method is cautious in its assumptions about the number of missing burials due to the breakdown of parish registration.

29 Of these parishes 12 (Battlesden, Billington, Chellington, Clapham, Cockayne Hatley, Lower Gravenhurst, Knotting, Potsgrove, Shelton, Souldrop, Upper Stondon and Whipsnade) had a reported population in 1801 of between 100 and 200 and seven (Holcutt, Farnish, Little Barford, Astwick, Eyworth, Edworth and Higham Gobion) a reported population of less than 100.

30 The number of burials is 6,013.

31 This methodology has previously been used in P.E. Razzell, 'An evaluation of the reliability of Anglican adult burial registration', *Local Population Studies*, 77 (2006).

32 The proportion of edited cases for the town of Bedford is lower than expected because it includes a number of parishes, and a small gap in burial coverage in any one parish diminishes the proportion of eligible cases.

cent and 3.8 per cent. This indicates that the problem of gaps in the smaller parishes is not important, as the data for these small parishes only represents a very low proportion of the total.³³ The elimination of blank years from the research will lead to an under-estimation of missing burials, as undoubtedly some deaths would have occurred during these years even in very small parishes. However, it has the advantage of providing an objective procedure which errs on the side of caution in not over-estimating the degree of burial under-registration.

The linking of probate and burial register data requires the careful formulation of matching criteria. Three variables are available for the establishment of matches: name; parish of residence/burial; date of probate and burial. The assumptions made for the matching of cases may be summarised as follows: first, the names of people in the probate and burial records should be identical, although this is subject to phonetical variations.³⁴ Second, the parish of residence in the probate document should be the same as the parish of burial, except where a different abode and burial parish are indicated in the burial register. Third, we have assumed that a matched case must be within the qualifying five year period before the date of probate.

It is worth noting at this point that this final criterion might be considered to be contentious, as the assumption that a burial could occur up to five years prior to the date of probate could lead to an over-matching of data. We have evaluated this by looking in detail at a smaller sample taken from a 1630/1 list of Bedfordshire will abstracts,³⁵ which usually gives information on the date of the will—that is, when the person was still alive, and the date of probate when he or she was dead. There were 211 cases with information on date of will and probate in this list, and the median interval between the two dates in 1630/1 was 2.5 months. The median intervals for the different matching categories were:

Matched: 2 months (N = 143);

Unmatched: 3.5 months (N = 32);

Other, that is, insufficient information to attempt a match: 2.5 months (N = 36).

Information from 1630/1 indicates that probate occurred very soon after the date of death, and this was true of both matched and unmatched cases. However, seven of the 211 cases had intervals of over five years, suggesting that it was only infrequently that probate took place over five years after death. We have assumed that this marginal 'loss' through the five-year rule for eligibility will be more than countered by removing the possibility of 'gain' by incorrect matching.

33 For full details see report to the ESRC, 'Evaluation of a digital transcription'.

34 A single exception to this rule is where a woman is given the "first name" 'widow' in the burial register, and a candidate probate record gives a different first name, with the status widow.

35 See A.T. Clarke ed., *Abstract of Bedfordshire wills, 1630-31, prepared for the County Record Office* (1981), in the Society of Genealogists library.

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It is possible to partly assess the accuracy of matching by comparing the date of burial with the date that a will was made and probated. Seven of the 143 matched cases (4.9 per cent) had burial dates before the date of the will, indicating incorrect matches: in effect 5.1 per cent were false positives. There were probably other such cases, but given the narrow wills/probate date median interval, they are unlikely to have been substantial. The median interval probably increased during the eighteenth century to more than six months as a result of falling adult mortality. The effects of this will require further research on manuscript probate documents.³⁶

Where there was ambiguity in the linking process, additional information was used to clarify matches. This includes data on occupation, family status and the dates of probate and burial. For example, where a man was listed with an occupation in the probate records but described as a son, child or infant in the burial register, this was considered as grounds for rejecting the matching of a case, even though all other criteria were met. Similarly, where a woman was listed as a widow in the probate database, but as a wife, spinster, daughter, child or infant in the burial record, the linkage of records was rejected. However, where a woman was returned as a spinster or maid in the list of probates but as a spinster or daughter in the burial register, this was considered a basis for a matched case.

Where there were two or more cases meeting all the above criteria, the case nearest in time to the date of probate was selected as a match. It was assumed that no two matched cases between probate and burial records should use the same burial entry and, where this occurred, the case with the closest date match was selected, and the second case was considered as unmatched. All unmatched cases were compared on an individual parish basis, both through the burial database index and a manual examination of names in the burial listing. All 22,044 eligible cases in the probate database were compared manually with individual parish records, ensuring maximum quality of outcome.

There is evidence that some people were buried outside their parish of residence (sometimes known as the 'traffic in corpses') and in effect this constitutes a form of migration. The wills themselves provide some information on this. A transcript of Bedfordshire wills for the period 1484–1533 has been made by Patricia Bell, and the first 100 cases for 1510–33 with information on intended parish of burial indicates that only one was outside the parish of residence.³⁷ Similarly, according to the 1630/1 list of Bedfordshire will abstracts, two out of 54 people leaving wills requested that they be buried in outside parishes.³⁸ These samples suggest that between one and 4 per cent of burials occurred

36 The website Surrey Plus Wills Index has transcribed some Bedfordshire wills for the period 1607–1831. The median interval between burial and probate for this sample of 61 will abstracts was 6.5 months. See: <http://www.rootsweb.ancestry.com/~engsurry/bdf.htm> [Accessed 11 April 2008].

37 Patricia Bell, *Bedfordshire wills, 1484–1533* (Bedford, Bedfordshire Historical Record Society, 1997).

38 Clarke ed., *Abstract of Bedfordshire wills, 1630–31*. There were seven cases in this 1630/1 wills abstract sample with information on intended parish of burial which could not be matched against burial registers. In all seven cases the intended parish of burial was the same as parish of residence.

Table 3 The matching of Bedfordshire probate and burial records by half-century, 1543–1849

Period of Probate	No. unmatched	No. matched	Total	% unmatched
1543–99	159	451	610	26.10
1600–49	777	2,954	3,731	20.80
1650–99	1,188	3,438	4,626	25.70
1700–49	1,413	4,617	6,030	23.40
1750–99	839	2,905	3,744	22.40
1800–49	894	2,409	3,303	27.10
Total	5,270	16,774	22,044	23.90

Source: Stuart and P. Wells eds, Alan F. Cirket comp., *Index of Bedfordshire probate records, 1484–1858* (London, 1993–1994), British Record Society, 104 and 105, Bedfordshire Family History Society Burial Database.

outside the parish of residence. However, the 588 cases with different parish abodes and burials were included in the file of matched cases, and as we have seen the undetected ‘traffic in corpses’ was probably of the order of less than 5 cent of all burials.

There is too much uncertainty about the scale of false positives and false negatives to put exact figures on burial under-registration for the probate sample, but these errors are unlikely, on the basis of the evidence reviewed, to be much greater than plus or minus 5 per cent. The evidence reviewed suggests that there were probably more false positives (perhaps of the order of 5 per cent) than false negatives (perhaps of the order of 2 per cent).

The results of the matching exercise by half-century are summarised in Table 3. Overall, Table 3 shows that almost 24 per cent of the individuals in the probate index did not have a corresponding burial record. This result should be tempered by the discussion of false positives and false negatives above, which on balance will probably result in an understatement of the proportion of unmatched cases.

There was no long-term trend in the proportions of unmatched cases over time, but variations occurred within the range 21–27 per cent. Further clarification of trends can be illuminated through a detailed breakdown by decade, which is shown in Table 4.

About 20 per cent of probates were unmatched in the first four decades of the seventeenth century, but the figure rose to 30 per cent in the post-Civil War period. This suggests that the breakdown in parish registration in the 1640s and 1650s—evidenced by the sharp decline in the number of probates eligible for matching—had weakened burial registration in the 1660s and 1670s. Registration improved in the 1680s and 1690s, but fluctuated in the eighteenth century, with between 20 per cent and 25 per cent of all cases unmatched. There was then a slight rise in unmatched cases in the first half of the nineteenth century, reaching approximately 29 per cent in the 1810s and the 1840s. This latter rise may have been the result of the growth of nonconformist burial grounds in Bedfordshire at that time. Overall, Tables 3 and 4 suggest that there were no major

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Table 4 The matching of Bedfordshire probate and burial records by decade, 1600–1849

Period	No. unmatched	No. matched	Total	% unmatched
1600–09	95	380	475	20.0
1610–19	239	882	1,121	21.3
1620–29	161	722	883	18.2
1630–39	195	695	890	21.9
1640–49	87	275	362	24.0
1650–59	65	193	258	25.2
1660–69	275	628	903	30.5
1670–79	353	878	1,231	28.7
1680–89	345	1,121	1,466	23.5
1690–99	150	618	768	19.5
1700–09	256	893	1,149	22.3
1710–19	275	966	1,241	22.2
1720–29	357	1,137	1,494	23.9
1730–39	270	823	1,093	24.7
1740–49	255	798	1,053	24.2
1750–59	199	634	833	23.9
1760–69	206	650	856	24.1
1770–79	136	593	729	18.7
1780–89	151	565	716	21.1
1790–99	147	463	610	24.1
1800–09	163	452	615	26.5
1810–19	188	462	650	28.9
1820–29	182	513	695	26.2
1830–39	166	495	661	25.1
1840–49	195	487	682	28.6

Source: Stuart and P. Wells eds, Alan F. Cirket comp., *Index of Bedfordshire probate records, 1484–1858* (London, 1993–1994), British Record Society, 104 and 105; Bedfordshire Family History Society Burial Database.

variations over time in the adequacy of adult burial registration, a conclusion confirming earlier work on this subject.³⁹

Sample sizes for individual parishes are not sufficiently large for a breakdown over time, except for the two towns of Bedford and Luton, data for which are presented in Table 5. In Bedford, the proportion of unmatched cases rose between 1600 and 1749, before falling thereafter, whereas in Luton the percentage of unmatched cases increased steadily and sharply between 1600 and 1849. There was a relatively low number of unmatched cases in Luton in the seventeenth and early eighteenth centuries, and this may have been the result of procedures adopted in the town for parish registration, which for one period involved the making of rough copies of the registers (used in the transcription of the parish register) which were signed and sealed as correct by local magistrates.⁴⁰

It should be noted that many of the parishes on the county boundary (especially in the north west) where we would have expected seepage were among the parishes with the

³⁹ See Razzell, 'An evaluation of the reliability'.

⁴⁰ According to the introduction to the published Luton parish register, a 'rough copy register appears to have been written by the parish clerk at the time of the ceremony. There are two of these, the first covering the years 1719–1730 and the second 1731–1773. For a time the second one was shown annually to local Justices of the Peace and is signed and sealed by them as a correct record.' 'Introduction', Luton Parish Register (Society of Genealogists Library, Ref BE43R).

Table 5 The matching of probate and burial records in Bedford and Luton, 1543–1849

Period	No. unmatched	No. matched	Total	% unmatched
Bedford				
1600–49	10	24	34	29.4
1650–99	54	108	162	33.3
1700–49	202	334	536	37.7
1750–99	90	201	291	30.9
1800–49	117	255	372	31.5
Luton				
1600–49	15	107	122	12.3
1650–99	49	182	231	21.2
1700–49	57	210	267	21.3
1750–99	40	86	126	31.7
1800–49	71	87	158	44.9

Source: Stuart and P. Wells eds, Alan F. Cirket comp., *Index of Bedfordshire probate records, 1484–1858* (London, 1993–1994), British Record Society, 104 and 105; Bedfordshire Family History Society Burial Database.

lowest proportions of unmatched records. There is a slight association between the population size of a parish and the proportion of unmatched cases. Parishes with low populations tend to have small proportions of unmatched cases (although sample sizes are very small) and the parishes with large populations have greater percentages of unmatched cases. However, there is no statistically significant association between population size and proportions of matched cases, and the hypothesis put forward in previous research that population size influenced registration adequacy is not confirmed in this study.⁴¹

Since the data were available we felt it was worthwhile reporting these rates for occupation. Table 6 summarises matching data by occupation—taken from the probate index—for those occupational groups with at least 100 probate cases.

It is interesting to note that labourers and husbandmen have low proportions of unmatched cases, whereas gentlemen, esquires and knights have higher proportions, which is not what might be expected from the status of these occupations and likely burial registration coverage. Analysis of the relationship between reported occupation and chance of being matched suggests that this relationship is statistically significant and not due to chance. Unmarried individuals (widows, spinsters and bachelors) have relatively high numbers of unmatched cases which may have been the result of the unavailability of relatives to ensure accurate registration of burials. None of the seven dissenting ministers in the probate sample had burials registered in the Anglican Church, which is perhaps as expected in view of their religious affiliation.

The growth of nonconformist registration of births and deaths was seen by Krause and by Wrigley and Schofield as a noteworthy influence on the effectiveness of Anglican

⁴¹ P.E. Razzell, 'Life and death in Bedfordshire: early research findings', *Bedfordshire Family History Society Journal*, 15 (2005).

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Table 6 The matching of Bedfordshire probate and burial data by occupational group, 1543–1849

Occupational group	No. unmatched	No. matched	Total	% unmatched
Victuallers	42	273	315	13.3
Gardeners	24	137	161	14.9
Carpenters and joiners	87	434	521	16.7
Blacksmiths and smiths	61	288	349	17.5
Innholders, innkeepers and publicans	56	240	296	18.9
Husbandmen	248	1,050	1,298	19.1
Clerks/clergymen	40	169	209	19.1
Bakers	36	142	178	20.2
Labourers	275	1,077	1,352	20.3
Weavers	45	175	220	20.5
Bricklayers	26	100	126	20.6
Dairymen	53	203	256	20.7
Farmers	212	794	1,006	21.1
Tailors	68	254	322	21.1
Yeomen	882	3,280	4,162	21.2
Shepherds	36	131	167	21.6
Butchers	56	200	256	21.9
Cordwainers and shoemakers	66	207	273	24.2
Millers	39	122	161	24.2
Maltsters	37	106	143	25.9
Gentlemen, esquires and knights	201	571	772	26.0
Bachelors and singlemen	35	94	129	27.1
Wheelwrights	44	104	148	29.7
Grocers	57	128	185	30.8
Widows	957	2,137	3,094	30.9
Spinsters, singlewomen and maids	179	365	544	32.9
Other occupations	411	1,277	1,688	24.3
No occupation	997	2,716	3,713	26.9
Total	5,270	16,774	22,044	23.9

Source: Stuart and P. Wells, eds, Alan F. Cirket comp., *Index of Bedfordshire probate records, 1484–1858* (London, 1993–1994), British Record Society, 104 and 105; Bedfordshire Family History Society Burial Database.

registration.⁴² We can explore this topic, as the BFHS burial database includes returns of the number of nonconformist burials in Bedfordshire, data for which is summarised in Table 7.

The total number of nonconformist burials recorded in the BFHS database is relatively small: 2,595 (0.8 per cent of all entries in the database). Nonconformist burials were concentrated in towns, particularly Bedford and Luton (accounting for 1,690 burials, 65.1 per cent of dissenters). However, these 1,690 nonconformist burials formed a very small proportion (4.4 per cent) of the 38,640 Anglican burials in the two towns during the

⁴² J.T. Krause, 'The changing adequacy of English registration', in D.V. Glass and D.E.C. Eversley eds, *Population in history* (London, 1965), 379-93; Wrigley and Schofield, *Population history of England*, 89-96.

Table 7 Number of nonconformist Bedfordshire burials by religious congregation

Congregation	No. of burials	Period covered
Amphill Methodist	27	1817–1841
Amphill Quaker	121	1707–1847
Bedford Bunyan Meeting Baptist	93	1846–1850
Bedford Congregational	61	1785–1836
Bedford Howard Church	147	1790–1837
Bedford Moravian	508	1746–1850
Bedford Primitive Episcopalian	62	1834–1845
Bedford Protestant Dissenters	87	1837–1850
Biggleswade Baptist	3	1786, 1829
Biggleswade Methodist	26	1835–1850
Biggleswade Protestant Dissenters	2	1727, 1786
Blunham Baptist	99	1739–1849
Cranfield Baptist	97	1794–1837
Hockliffe Congregational	1	1817
Houghton Regis Baptist	17	1806–1837
Leighton Buzzard Baptist	41	1771–1841
Leighton Buzzard Quaker	44	1826–1850
Little Staughton Baptist	22	1786–1806
Luton Baptist	617	1785–1850
Luton Quaker	115	1776–1850
Maulden Independent	32	1785–1834
Ridgmont Baptist	133	1705–1850
Southill Baptist	9	1802–1820
Stevington Baptist	78	1705–1850
Turvey Congegational	6	1848–1850
Woburn Congegational	81	1790–1837
Woburn Sands Quaker	66	1704–1849
Total	2,595	

Source: Bedfordshire Family History Society Burial Database.

parish register period, although they were concentrated in the second half of the eighteenth and first half of the nineteenth century, as evidenced by Table 8.

Table 8 shows that there were no important changes in the proportion of reported nonconformist burials, but that there was considerable long-term growth in these burials between the middle of the eighteenth and nineteenth centuries. By the 1840s, between approximately a fifth and a quarter of all burials took place in Bedford and Luton nonconformist burial grounds, partly accounting for the deterioration in the quality of Anglican burial registration in this period (see Table 5).

What are the overall conclusions to emerge from the comparison of probate with burial register data? Although there is some variation over time, and between different parishes and occupational/status groups, the differences are not sufficiently clear to establish precise relationships. There are few other data to compare with the probate/burial material, but one other source of information is that derived from same-name analysis for

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Table 8 Proportion of nonconformist burials in Bedford and Luton, 1740–1849

Period	Bedford			Luton		
	Nonconformist burials	Total burials	% of nonconformist burials	Nonconformist burials	Total burials	% of nonconformist burials
1740–49	11	422	2.6	–	–	–
1750–59	49	420	11.7	–	–	–
1760–69	63	444	14.2	–	–	–
1770–79	41	388	10.6	5	661	0.8
1780–89	81	497	16.3	60	847	7.1
1790–99	75	432	17.4	71	780	9.1
1800–09	99	527	18.8	24	639	3.8
1810–19	79	541	14.6	63	658	9.6
1820–29	83	655	12.7	44	745	5.9
1830–39	134	801	16.7	131	1,094	12.0
1840–49	225	863	26.1	293	1,558	18.8

Source: Bedfordshire Family History Society Burial Database.

Table 9 Unmatched Bedfordshire probate cases compared to untraced same-name cases in nine reconstitution parishes.

Period	% of unmatched Bedfordshire probate cases	Period	% of same-name children not traced in burial registers: nine reconstitution parishes
1543–99	26.0	1538–99	34.1
1600–49	20.8	1600–49	31.0
1650–99	25.8	1650–99	27.1
1700–49	24.0	1700–49	22.3
1750–99	23.1	1750–99	27.0
1800–49	28.9	1800–37	23.1

Source: For the probate/burial data see Table 7; for the same-name material see Razzell, *Population and disease*, 15.

nine reconstitution parishes. The two sources are not directly comparable, as they employ different methodologies and are not for the same geographical areas, as well as involving different populations—adults with some wealth on the one hand and children from the general population on the other. Generally, we would expect people leaving wills to have burials registered more efficiently than those not leaving wills. Nevertheless, given the paucity of empirical research on registration reliability, it is of interest to compare the results of the two studies (see Table 9).

Table 9 shows similar temporal fluctuations, and the proportions of untraced burials vary within the fairly narrow band of one fifth to one third of the total number of cases, a range of variation not dissimilar to that found in previous research from the comparison of census and baptism records.⁴³

⁴³ See Razzell, *Essays in English population history*, 95.

Table 10 Husbands and wives listed in the 1782 Cardington census and traced in Bedfordshire baptismal registers

Period of estimated birth	Born in Cardington			Born elsewhere in Bedfordshire			Total born in Cardington and elsewhere in Bedfordshire		
	Total cases	No. un-traced	% un-traced	Total cases	No. un-traced	% un-traced	Total cases	No. un-traced	% un-traced
1710–32	21	4	19.0	40	13	32.5	61	17	27.9
1733–42	21	6	28.6	37	11	29.7	58	17	29.3
1743–52	9	3	33.3	42	6	14.3	51	9	17.6
1753–62	12	1	8.3	24	8	33.3	36	9	25.0
Total	63	14	22.2	143	38	27.0	206	52	25.2

Source: David Baker ed., *The inhabitants of Cardington in 1782* (Bedfordshire Historical Record Society, 52, 1973); Bedfordshire Family History Society Burial Database.

Table 11 Comparison of census/baptism register data for males listed as born in Cardington in the 1851 census

Period of estimated birth	Total no. of cases	No. untraced	% untraced
1770–1809	56	17	30.4
1810–29	54	17	31.5
1830–39	66	29	43.9
1840–49	67	32	47.8

Source: 1851 Census for Cardington; Cardington baptism register in the Bedfordshire Record Office.

Although the prime focus of this paper is on the evaluation of burial registration reliability, it is possible to carry out a similar comparison for Bedfordshire births/baptisms in the eighteenth century by using information from the published 1782 listing of Cardington.⁴⁴ The original listing gives the ages and birthplaces of household heads and their spouses (giving details of maiden names for married women) and David Baker, the editor of the published version, and his fellow researchers attempted to trace the baptisms of everyone with this information by searching both the published and manuscript versions of all the relevant baptism registers for the whole of Bedfordshire. Their researches are summarised in Table 10.

The overall figure of untraced Bedfordshire baptisms in the period 1710–62, at 25.2 per cent, is very similar to the proportion of untraced probate/burial cases in approximately the same period (1700–49), which stood at 23.4 per cent.⁴⁵ As with untraced probate cases, there is no clear trend of change over time, a conclusion partially confirmed by a comparison of census/baptism register data for native males listed in the 1851 Cardington census.

⁴⁴ David Baker ed., *The inhabitants of Cardington in 1782* (Bedfordshire Historical Record Society, 52, 1973).

⁴⁵ No attempt was made by Baker and colleagues to trace baptisms in parishes other than the parish of stated birth, and this and other problems mean that the census/baptism figures are not strictly comparable to the probate/burial ones.

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The figures in Tables 10 and 11 are not strictly comparable as the former refer to men and women born in all parts of Bedfordshire, whereas the latter are just for males—mainly children—born in Cardington. Nevertheless, the tables suggest that baptism under-registration did not vary greatly in the eighteenth and early nineteenth centuries, fluctuating between about 20 to 30 per cent, before deteriorating in the 1830s and 1840s, possibly as a result of the growth of religious nonconformity in Cardington.⁴⁶

The above findings on burial and baptism under-registration suggest that they did not vary either over time or by parish or occupational status, indicating that they were essentially random, probably largely due to clerical negligence in the registration of both burials and baptisms.⁴⁷

Comparison of Anglican burials with civil registered deaths

In order to further evaluate the quality of Anglican parish registration, a comparison was made of the number of burials and civil registered deaths in individual registration districts. The parishes included in the comparison were those listed by the Registrar General for a particular district, although it is not entirely clear whether the boundaries of the parishes coincided exactly with those of the registration district. Table 12 compares burials with deaths in a number of registration sub-districts (RSDs), and aggregated RSDs where overlap is known.

There is considerable variation in the ratios of burials to deaths in different RSDs. Some had very high burial/death ratios—for example, Barford 99.7 per cent, Cranfield 92.9 per cent and Woburn 93.6 per cent—suggesting that by the 1840s Anglican burial registration was capturing the majority of deaths in these rural areas. Generally, however, the more urban RSDs, especially Luton and Bedford, have substantially lower burial/death ratios than elsewhere, reflecting the findings on the analysis of the probate records and parish register events, with higher proportions of untraced burials in these two urban areas. However, these were also the districts with the largest number of non-Anglican burials in the 1840s (see Table 13), partly accounting for their low burial/death ratios.

The overall ratio of burials to deaths for all registration districts covered by Table 13 (77.2 per cent) suggests that 22.8 per cent of deaths were unregistered by Anglican burial registers, somewhat lower than the 28.6 per cent found from the comparison of probate records and burial registers in the 1840s. However, it would be misleading to conclude that burial/death ratios are measures of Anglican under-registration. There is clear evidence that civil registration was defective in the period leading up to 1874, when the law was revised on procedures of registration, making it mandatory on parents and others to register both births and deaths.⁴⁸

46 No such deterioration was found by Razzell in an analysis of 45 parishes from various parts of England. See Razzell, *Essays*, 95.

47 Razzell, *Essays*, 35–8.

48 *35th Annual report of the Registrar General* (1874), xxxi–xxxiii.

Table 12 Comparison of the number of Bedfordshire Anglican burials with civil register returns of deaths by registration sub-district, 1841–1850

Registration sub-district(s)	Anglican burials	Civil register deaths	Burials divided by deaths (%)
Luton	1,865	2,997	62.2
Harrold	531	679	78.2
Toddington	860	989	87.0
Riseley	402	620	64.8
Bedford and Cardington and Bedford and Kempston	3,403	4,897	71.1
Cranfield	733	789	92.9
Biggleswade	2,330	2,830	82.3
Sharnbrook	487	560	87.0
Woburn	1,303	1,392	93.6
Amphill and Shillington	2,250	2,744	82.0
Turvey	446	503	88.7
Barford	599	601	99.7
Total	15,209	19,601	77.2

Source: Bedfordshire Family History Society Burial Database; *13th Annual Report of the Registrar-General* (London, 1854), 246–49.

Note: To accommodate the practice of 'splitting' parishes across Registration Sub-Districts some have been combined in this table. The registration sub-districts of Dunstable, Edlesborough, Ivinghoe, Leighton Buzzard, Pottton and Wing are not included because they included parishes in adjoining counties.

Although the Registrar General attempted to make an estimate of the scale of under-registration, this was largely based on guesswork. It is however possible to make more precise estimates of civil under-registration by comparing Anglican and civil register data. In the Bedfordshire research, cases with a single surname entry were selected for the period 1838–1849 from parish burial registers in registration districts with the same name as the parish in question. A total of 129 cases were chosen for the parishes of Amphill, Bedford, Biggleswade, Leighton Buzzard, Luton and Woburn. Of these 129 cases, 12 (9.3 per cent) could not be traced in the civil register death index, suggesting a degree of death under-registration.

Comparing the 1841 and 1851 censuses and burial records for 13 Bedfordshire parishes

Previous research on Bedfordshire adult mortality involved tracing married couples enumerated in the 1841 census in the subsequent 1851 census, and linking these data with information in the BFHS burial database.⁴⁹ Thirteen parishes were selected for this analysis: Barton in the Clay, Bedford, Chalgrave, Dunstable, Henlow, Houghton Regis, Husborn Crawley, Maulden, Milton Bryant, Sandy, Shitlington, Toddington and Woburn.⁵⁰

When one of the married couple was enumerated as a widow or widower in the 1851 census, a search was then made in the burial register for the burial of the partner of the

⁴⁹ Razzell, 'Life and death in Bedfordshire'.

⁵⁰ With respect to Bedford, it was originally intended to work just with Bedford St Mary, but the nature of the indexing made it necessary to select a sample from the whole town of Bedford. The first 498 married individuals were selected from all parishes in the town, the equivalent number of married couples in the parish of Bedford St Mary.

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Table 13 Number of burials of individuals enumerated in the 1841 census whose partners were listed as widows and widowers in the 1851 census, by occupational group, 13 Bedfordshire parishes

Occupational group	No. burials traced	No. burials untraced	Total	% untraced
Labourers and servants	115	40	155	25.8
Tradesmen and artisans	75	40	115	34.8
Farmers	15	5	20	25.0
Total	205	85	290	29.3

Source: 1841 and 1851 censuses for Barton in the Clay, Bedford, Chalgrave, Dunstable, Henlow, Houghton Regis, Husborne Crawley, Maulden, Milton Bryant, Sandy, Shillington, Toddington, Woburn.

Table 14 Number of burials of individuals enumerated in the 1841 census whose partners were listed as widows and widowers in the 1851 census by parish

Parish	Traced	Untraced	Total	% traced
Barton in the Clay	17	10	27	63.0
Bedford	13	8	21	61.9
Chalgrave	14	0	14	100.0
Dunstable	24	13	37	64.9
Henlow	10	2	12	83.3
Houghton Regis	20	1	21	95.2
Husborne Crawley	3	5	8	37.5
Maulden	16	5	21	76.2
Milton Bryant	7	0	7	100.0
Sandy	19	7	26	73.1
Shillington	21	8	29	72.4
Toddington	31	17	48	64.6
Woburn	10	9	19	52.6
Total	205	85	290	70.7

Source: See Table 13.

widow or widower. Information on deaths was thus derived from two sources: the marital status of surviving partners (widows or widowers) and entries in local burial registers. This in effect corrects for burial under-registration, as the majority of deaths were established independently through the tracking of married individuals becoming widows and widowers. This independent evidence allows for the calculation of burial under-registration by occupational group.

The proportion of untraced burials was higher amongst tradesmen and artisans than labourers, and this may be partly the result of more of the former living in large towns where registration was more defective. There was some variation in the proportion of burials traced in different parishes, although the samples are too small to come to firm conclusions.

There were some small rural parishes—such as Chalgrave, Houghton Regis and Milton Bryant—where burial registration was nearly perfect, but there were others—Barton in the Clay, Husborne Crawley, Toddington and Woburn—where it does not appear to have been so reliable. Although the sample sizes are very different, the overall percentage

of untraced burials, at 29.3 per cent, is very similar to that found in the comparison of probate with burial registration data in the 1840s, at 28.6 per cent.

Conclusions

A number of conclusions arise from this study. First, the BFHS transcripts of burials for 1538–1851 and baptisms for 1813–51 are of a very high quality, with virtually no entries in the original registers missing from the digital transcript and few or no misspellings of names or other register items. Second, there are major differences between the number of entries in the BFHS database and Rickman's published returns of burials for four Bedfordshire hundreds in the eighteenth century, particularly for burials in the first half of that century. If repeated in other areas, this could affect conclusions about Britain's population history based on Rickman's data. Third, the Cambridge Group's returns of burials for 20 Bedfordshire parishes matches well with BFHS data, although it is slightly less reliable than the latter source. Fourth, the comparison of probate with burial register data indicates that there was little long-term change over time in burial under-registration, with between 21 and 27 per cent of burials missing in the registers. There was also little variation between parishes of different population sizes, suggesting that burial under-registration was predominantly a random process linked to clerical negligence. However, there was a statistically significant association between occupational grouping and burial registration reliability which poses additional questions relating to the influence of occupations. Fifth, the comparison of civil registration returns and BFHS burials for 14 registration sub-districts indicates that there were 22.8 per cent fewer BFHS Anglican burials than civil registration births and deaths in the 1840s. Sixth, the comparison of 1841 and 1851 census data, linked to the BFHS burial database for the 1840s, yielded a number of findings: in particular, the proportion of missing burials amongst married couples was 29.3 per cent, similar to that found in the probate/burial register comparison in the 1840s.

These conclusions raise major questions about the nature of England's population history. Wrigley and Schofield in their *Population history of England* assumed that, except for periods when registration broke down completely, burial registration was complete between 1539 and 1640 and only deteriorated very sharply at the beginning of the nineteenth century.⁵¹ Likewise, with birth registration, they assumed that it was perfect in the 1540s and only worsened at the end of the eighteenth century.⁵² Contrary to these assumptions, the present research has found that between 20 and 30 per cent of burials went unregistered in Bedfordshire for the whole period between 1543 and 1850. Earlier research by Razzell, which compared the 1851 census with baptism registers for 45 parishes from various areas of England, indicated that between one quarter and one third of all births were not registered by the Anglican Church in the period 1760–1834.⁵³ In the

51 Wrigley and Schofield, *Population history of England*, 545-52.

52 *Ibid.*, 537-44.

53 Razzell, *Essays*, 82-149.

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Table 15 The matching of probate and burial records in 28 Cambridge Group aggregative parishes by half-century, 1543–1849

Period of probate	No. unmatched	No. matched	Total	% unmatched
1543–99	73	151	224	32.59
1600–49	243	928	1,171	20.75
1650–99	400	1,099	1,499	26.68
1700–49	410	1,409	1,819	22.53
1750–99	237	912	1,149	20.62
1800–49	219	743	962	22.76
Total	1,582	5,242	6,824	23.18

Source: Stuart and P. Wells eds, Alan F. Cirket comp., *Index of Bedfordshire probate records, 1484–1858* (London, 1993–1994), British Record Society, vols. 104 and 105; Bedfordshire Family History Society Burial Database.

current research, we have found similar levels of birth under-registration in Bedfordshire from the 1710s onwards, suggesting that the adequacy of birth registration did not change in any noteworthy fashion during the eighteenth and early nineteenth centuries.

Twenty-eight Bedfordshire parishes were included in the Cambridge Group's aggregative sample,⁵⁴ and analysis of probate and burial records in these parishes reveals the pattern shown in Table 15. The overall proportion of unmatched cases in the 28 parishes, at 23.2 per cent, is slightly lower than that found for in all Bedfordshire parishes in the period 1543–1849, which stood at 23.9 per cent. The highest proportions of unmatched cases in the 28 parishes were in the sixteenth and second half of the seventeenth century, but this was probably largely due to the sample size in the former and the disruptive effect of the Civil War in the latter. Overall, this evidence suggests that there were minimal changes in burial registration reliability in the Cambridge Group's 28 Bedfordshire parishes in the period 1543–1849, and this was particularly the case in the eighteenth and early nineteenth centuries.

The Cambridge Group's aggregative data for England indicates a fall in the crude burial rate from 27.7 per 1,000 in 1701–40 to 20.6 in 1780–1820,⁵⁵ and if we inflate these rates by 25 per cent—the minimum estimated omission rate—the adjusted figures suggest a fall in the death rate from 36.9 per 1,000 in 1701–40 to 27.5 per 1,000 in 1780–1820. The overall death rate in England during the 1840s when civil registration data becomes available was 22.5 per 1,000, indicating a continuing fall in mortality during the late eighteenth and early nineteenth century.⁵⁶

⁵⁴ The parishes are Ampthill, Blunham, Bolnhurst, Campton, Chalgrave, Clophill, Cranfield, Felpersham, Flitwick, Harlington, Kempston, Maulden, Millbrook, Milton Ernest, Northill, Pavenham, Pulloxhill, Riseley, Sandy, Souldrop, Southill, Stevington, Studham, Thurleigh, Tingrith, Toddington, Woburn, Wootton.

⁵⁵ Razzell, *Population and disease*, 47.

⁵⁶ B.R. Mitchell and P. Deane, *Abstract of British historical statistics* (Cambridge, 1962), 36.

The evidence suggests that there were little or no important change in the adequacy of baptism registration in Bedfordshire in the eighteenth and early nineteenth centuries, confirming research on a number of other parishes for different parts of England.⁵⁷ According to the Cambridge Group's aggregative data, the crude baptism rate in England was constant between 1701 and 1820, and it was only because the number of baptisms were inflated at the end of the eighteenth century that it was concluded that there was an overall rise in fertility.⁵⁸

None of these figures should be taken too literally, as there is uncertainty about the exact extent of baptism and burial under-registration in England as a whole during the parish register period. Also, changes in the age structure of the population and other demographic factors are important in assessing England's population history at this time. None of these problems can be entirely solved by mathematical models, as the latter are very sensitive to even slight changes of assumption.⁵⁹ In this situation, only careful local studies which include an assessment of parish register quality are likely to advance a reliable understanding of England's population history during the parish register period.

57 Razzell, *Essays*, 95.

58 Razzell, *Population and disease*, 47.

59 Razzell, *Essays*, 178.