1. Introduction.

This thesis is the result of one year's research into the structure of infant mortality in two civil registration sub-districts in South Shropshire. In this introductory chapter I shall describe the reason for this project being undertaken by me, and begin to explain the nature of the problems involved in ascribing reasons for the levels of infant mortality which were experienced by communities in England and Wales during the late nineteenth century.

The research which I have carried out concerns the South Shropshire sub-districts of Norbury and Lydbury North, and was undertaken as part of a nation-wide project, organised by Prof. Michael Drake and Dr. Peter Razzell of the Open University. During the last one hundred years infant mortality in England & Wales fell from 156 per 1000 live births (Smith, F.B., 1979, p 65) to less than 20 per 1000 in 1971 (Lee, C.H., 1991, p.61). Such a dramatic improvement demands an explanation, and the aim of our project, which, it is hoped, will last several years, is to offer answers to some of the questions on this subject, which have been posed by scholars over the past one hundred years. The project is entitled *The Decline in Infant Mortality in England and Wales 1871-1948: A Medical Conundrum*. Its scope ends at the year 1948 because it is believed that most of the improvement in Infant Mortality Rates (IMRs) had occurred by that year. I have participated in the first year of this project, and through my work have sought to identify the structure of infant mortality in the late nineteenth century. It is hoped that future researchers will be able to" take up the baton" from me and my colleagues by looking at developments in the field of infant mortality in the first half of the twentieth century, and so provide answers to the conundrum.

The subject of my research was suggested to me by the Project Directors, as they sought volunteers to participate in their enterprise. As will be seen in chapter 2, scholars have exchanged views on the reasons for the decline in infant mortality over the past century, but particularly in the last forty years, in a vigorously conducted debate. Explanations, broadly, fall into two main areas. McKeown and his associates attributed the decline to improvements in standards of living - most notably nutritional improvements (McKeown, T., Record, R.G., & Turner, R.D., 1975, p. 422). However, in Chapter 2 I shall show that this view is opposed by other academics, who attribute the reduction in the level of infant mortality to public health interventions.

As you will see from my literature review, most of the previous research into infant mortality has been carried out at macro level. Our project seeks to make a significant contribution to this controversy by pooling the results of micro-level research into the subject by myself and some 21other researchers; this thesis is my contribution to this work.

The Project Directors planned this research around the use of a novel primary source. As far as I am aware the Registers of Births and Infant Deaths which were kept by Vaccination Officers have not been used previously on a large scale in this type of research. I shall provide a critique of this source in chapter 3. For now it is enough to state that these registers are fundamental to the project, providing as they do much detailed information on the subject under research. The Registration Sub-Districts of Lydbury North and Norbury were chosen for my enquiry because this source is available for these areas. They are also held sufficiently near to my home to enable me to use them as necessary.

One of the strengths of my research lies in the low level at which I have been operating. Most previous studies of infant mortality have been founded mainly on published statistics,

treating the subject at Registration District level or above. This approach does not facilitate local analysis of the problem, and therefore fails to provide insights into the considerable local variations that were subsumed into the national statistics. As I shall show in chapter 2, this has resulted in calls from some scholars for more detailed, local research to be carried out. The Vaccination Registers have enabled me to study our subject at much lower levels than those considered by previous researchers. As the reader will appreciate from what follows in this thesis, my work has operated at Registration Sub-District level and lower - even to the point of studying the incidences of infant mortality in specific families! It will be seen that by operating at this level, I am able to provide some new perspectives on the problem of infant mortality.

As will be seen in Chapter 4, in adopting this novel approach to my research I have encountered a problem of statistical significance. I am treating a number of small, rural communities in South Shropshire, which, as I shall show in Chapter 4, were experiencing declining populations in the 1890s. As the numbers of people with which I am dealing are small, it is inevitable that the numbers on which my conclusions are based are also small, and, in some cases, statistically insignificant. This makes it dangerous to draw general conclusions from some aspects of my research - in particular, my work in treating individual families falls into this category. However, I believe that the new insights provided by my research at this low level counterbalance any concerns the reader may have about statistical significance. In particular, I believe that my identification of considerable variations between the IMRs in two adjoining sub-districts, and in parishes within the sub-districts, is of great importance.

As will be seen in chapter 3, in addition to the Vaccination Officers' Registers I have used a range of other sources. In fact, the precise nature, method and scope of my work were decided only after a thorough review of local sources available to me. An example of this

is the time span of my research. The period allocated to me for research was 1871-1910; however, it has not been possible for me to treat this time span in full, as the Vaccination Registers for Norbury & Lydbury North cover a shorter period of time. In order to consider both sub-districts over the same period, my research is limited to the period July 1891-December 1902. This short time span dictated that I could not treat the process of change over time in the period 1871-1910. Rather, I have sought to provide a "snapshot" view of infant mortality over a shorter period of time.

Similarly, my choices of primary sources, and my adoption of a research strategy, have both been tailored to make the best use of the sources at my disposal. On reviewing the material available I noted that although there is a considerable amount that is of use in a study of infant mortality, the chronology and content of most sources is such that they do not fit together in quite the way I would have wished. A prime consideration in my selection of sources was the need to overcome the disadvantage of not having access to the Vaccination Officers' Register of Infant Deaths (see Chapter 3).

Realising that the smallness of the community that I am treating offers the opportunity for a detailed, in-depth study, I saw an opportunity to adopt a hypothesis-testing strategy, employing the technique of nominal record linkage. Nominal record linkage is a means of research that involves the linkage of a series of separate contemporary nominal records regarding individuals, in order to arrive at a multi-faceted view of the community or individuals under study. As will be seen in Chapter 3, I have used several sources to complement the Vaccination Registers, in pursuit of a broader view of infant mortality in rural South Shropshire in the 1890s. Most of this data comes from the 1891 Census Enumerators' Books and the Parish Registers. This detailed use of parish registers is only possible in small communities with low population densities, such as those on which I am working. To attempt such a study in a large town or city would almost certainly be too time

consuming, as one would have to search more, larger, parishes in order to trace the necessary information.

I have found that the coverage given by the parish registers, as compared to the information contained in the Vaccination Registers, is good, as table 1 (page 6) shows.

The good quality of the information in the parish registers which I have used is further confirmed by the close correlation between the total number of infant deaths which I traced, and those in the statistics of the Registrar General (see Table 2, page 35).

The hypothesis that I am testing is as follows: -

"Infant mortality in the registration sub-districts of Norbury and Lydbury North during the period July 1891 - December 1902 occurred mainly in large families, most of whom were poor."

It has been my intention, through this research, to treat several issues which, as will be seen in chapter 2, have arisen from the written works of other people who have studied the subject of infant mortality in the late nineteenth century. Chief among these are: (a) the age of mothers whose children died in infancy (b) the number of children in the families which experienced infant mortality (c) the social status of families in which infant mortality

Table 1.
Comparison of infant deaths traced in Vaccination Registers to infant deaths traced in Parish Registers.
Norbury & Lydbury North, July 1891 - December 1902

Norbury Sub-District

No. Deaths in Vac. Reg.	No. Deaths Traced Par. Reg.	No. Deaths Not Traced Par. Reg.	Adjust for No. Deaths Not traceable Par. Reg.	No. Deaths Not traceable Par. Reg. (Adjusted)	% Deaths Not Traced Par. Reg.
16	13	3	1	2	13

Lydbury North Sub-District

No. Deaths in Vac. Reg.	No. Deaths Traced Par. Reg.	No. Deaths Not Traced Par. Reg.	Adjust for No. Deaths Not traceable Par. Reg.	No. Deaths Not traceable Par. Reg. (Adjusted)	% Deaths Not Traced Par. Reg.
43	30	13	6	7	16

Consolidated Totals - Norbury & Lydbury North

No. Deaths in Vac. Reg.	No. Deaths Traced Par. Reg.	No. Deaths Not Traced Par. Reg.	Adjust for No. Deaths Not traceable Par. Reg.	No. Deaths Not traceable Par. Reg. (Adjusted)	% Deaths Not Traced Par. Reg.
59	43	16	7	9	15

Note: Deaths not traceable = Deaths recorded in Vaccination Register which occurred at dates which fell outside the time span of the parish registers covering the stated place of residence. I assume that the burials of these infants were probably recorded in these missing parish registers, and thus that it was not possible for me to trace them.

occurred. Additionally, I have sought to identify instances where a family experienced infant mortality more than once.

The results of my research show that the differences in IMRs between the two sub-districts that I identified could, to a large extent, be accounted for by the remarkably different social structures of the population in these two adjoining areas. Analysis in terms of social classification and family size suggests that there may be some substance to the view expressed in my hypothesis, although allowance should be made for the above-mentioned caveat regarding statistical significance.

In summary, my efforts have been directed towards providing a micro-level view of the structure of infant mortality in rural England in the late nineteenth century which is interesting to the reader, and which makes a meaningful contribution to our knowledge of the conundrum being considered by the project. I hope that my reader will find that I have succeeded in these aims.

2. Infant Mortality 1871-1910: the debate to date.

Infant mortality has long been seen as a problem in the society of England and Wales. In the early years of the twentieth century researchers such as Newman and Newsholme produced very comprehensive works on the subject, and offered their prescriptions for the reduction of this facet of everyday life (Woods, Watterson & Woodward, 1989, pp.113-121). Since their time, the subject of infant mortality has been the focus of much scholarly work, and that attention is still being given to this subject today.

One may ask why so much effort has been directed to attempts to discover the reasons for the increase in IMRs during the late nineteenth century, to as many as 156 per 1000 live births (Smith, F.B., 1979, p 65). The answer to this question lies in the fact that from the middle of the nineteenth century onwards, approximately 25% of all deaths recorded were infant deaths (i.e. deaths of infants under one year old). If one wishes to understand the reasons for the rise and fall of total mortality rates in the period 1871-1948, an understanding of an aspect of the problem that constituted such a large proportion of the total is essential. To a great extent, the rate of infant mortality can be seen as a cipher for the state of health of the population in general (Lee, C.H., 1991, p.55).

As preparation for my work on the research project - *The Decline of Infant Mortality in England and Wales 1871-1948: A Medical Conundrum* I have read a number of works on the subject, and I now summarise the writings which I find most pertinent to my research. After outlining the content and significance of each of these writings I shall relate these texts to the sources which are available to me, and to the work which I am undertaking.

Although he did not devote much of his attention to the subject of infant mortality specifically, the work of Thomas McKeown has proved to be of great significance over the

past twenty years. He, and his associates, argued against the widely held thesis that medical advance and social reform were the main reasons for the decline in infant mortality in our period (McKeown, T., Record, R.G., & Turner, R.D., 1975, pp. 391 – 422). The information that he used was obtained from the Annual Reports of the Registrars General, combining information, taken from census data, concerning the age and sex of the members of the population alive at a given time. He also incorporated returns of causes of death, classified by age, into his work.

McKeown analysed the contribution of medical advances to the control of diseases, which he classified into several groups. In deducing that medical advances played only a small part in the conquest of mortality, he attributed the reduction in mortality rates to improvements in the standards of living of the population of England and Wales (McKeown, T., Record, R.G., & Turner, R.D., 1975, p. 422.) This view seems to suggest that poverty was a major cause of mortality, and this theory was also advanced in Thompson's work on infant mortality in nineteenth century Bradford (Thompson, B., 1984, pp. 120-147). As its title implies, Thompson's work was locally based, treating a major industrial town. Like McKeown, she employed national statistics, such as those found in the Annual Reports of the Registrars General, but she also made use of local material, such as Medical Officer of Health Reports, local newspapers, and local council minutes. By using these sources, Thompson was able to provide a detailed view of the factors contributing to infant mortality in Bradford. Whereas McKeown treated national trends, Thompson was able to consider different areas of her subject town, giving a more in-depth study. Although her conclusion, that poverty was a very significant factor in late nineteenth century infant mortality (Thompson, B., 1984, p. 133), had some similarity to McKeown's implied conclusion (see above) there was no other similarity in the findings of these two researchers. Thompson saw factors such as the adulteration of food, poor hygiene, housing and sanitary conditions, and pollution as of great significance to her findings. She

catalogued some of the problems which local legislators had in enacting laws to improve these factors, and gave great credit to human agencies, in the form of local and central government, in overcoming these problems.

Szreter (1988, pp.1-37) wrote the most strident response to McKeown's work that I have read. He treats his subject on a mainly macro level, using similar sources to McKeown, but supplementing them with references to the findings of other researchers. He dissects McKeown's methods, and criticises many aspects of them. Among the points which he raises were McKeown's problematic classifications of disease types, which did not allow for differences between mortality rates for diseases encompassed under one heading (e.g. bronchitis and TB in the airborne diseases category) (Szreter, S., 1988, p.15). He also criticises what he sees as the inaccuracy of McKeown's classifications of causes of infant mortality, and his tendency to generalise. An example of this last tendency was McKeown's statement that hospitals were not effective until the late nineteenth century (Szreter, S., 1988, pp. 9). Surely, some of them must have had some effect before this date?

In response to McKeown's expressed belief in the effect of rising living standards on mortality, Szreter relates how this theory falls down when one considers the experience of higher paid industrial workers, compared to their lower paid agricultural counterparts. The benefits of higher disposable income, such as the ability which that gave industrial workers to buy better quality everyday necessities, were counterbalanced by the effects on the health of the urban population which were brought about by over-crowding and pollution (Szreter, S., 1988, p.19).

Szreter points to the "wide geographical experience" in mortality rates (Szreter, S., 1988, p.19). Rural areas experienced slow but steady improvement in our period, but urban

populations endured worsening mortality rates This phenomenon was confirmed by the Medical Officer of Health for Shropshire in his Annual Report of 1899. He referred to the higher level of infant mortality in the urban areas of the county during that year, in contrast to the rates noted in the rural areas. He attributed this to "improper feeding and general carelessness in the management of infants" (p.4). I am prepared to believe that what may be called poor living conditions were a large factor in the high rates of infant mortality which were experienced in England and Wales during the late nineteenth century. However, the implied assumption that an inability to care for infants was more evident in urban than in rural areas seems to me of dubious validity. I wonder what grounds he had for this assertion. I suspect that it reflects the bias of the Medical Officer of Health. That said, I note that, like Thompson, Szreter sees the main cause of infant mortality in "the fundamentally unhygienic conditions and associated practices of the working class home" (Szreter, S., 1988, p.31). He cites other research to show that legislation (a) to improve food quality and (b) to introduce health visitor schemes was of great significance in improving IMRs. It intuitively seems likely that "unhygienic conditions" were a significant factor in the causes of infant mortality in our period, but I wonder whether the management of infants was any worse in the towns than in the rural areas.

Szreter (1988, pp. 36) acknowledges the need for local studies of infant mortality in order to understand better the relationship between improved mortality rates in our period, and the preventative measures which were enacted locally to achieve this effect.

In their paper “The causes of rapid infant mortality decline in England and Wales, 1861-1921”, (Woods, R.I., Watterson, P.A., & Woodward, J.H., 1988, pp. 343-366, & 1989, pp. 113-132) the authors used evidence derived from the Annual Reports of the Registrar General. This was supplemented by information from the Fertility Report of the 1911 census, which provides data such as the age of women on marriage, the duration of

marriages, the number of children born to couples, the enumeration place, and the husband's occupation. This material was used to calculate IMRs by class, by occupation, or by geographical location, and thus provide a new perspective on an old problem. Medical Officer of Health Reports were also used, to add local information to the work.

Woods, Watterson and Woodward criticised McKeown's work for most of the reasons mentioned above in my treatment of Szreter, but they made the point, additionally, that the cause-specific nature of McKeown's work ignored the opportunity to explore place-specific causes (Woods, R.I., Watterson, P.A., & Woodward, J.H., 1988, p. 345). I find this criticism of McKeown's work valid; McKeown's argument is essentially a generalised one, and he presumably did not see a need to engage in local studies to make his case. There seems little doubt, however, that a research strategy which encompasses the possibility of geographical variations in IMRs can add greater understanding of the subject than that achieved by McKeown, by avoiding what may be seen as over-generalisations.

Adopting a demographic approach, Woods, Watterson, & Woodward showed that as neo-natal infant mortality remained high throughout our period, changes in IMRs reflected post-neonatal infant mortality trends (Woods, R.I., Watterson, P.A., & Woodward, J.H., 1988, p.352). This finding links to the work of Newman, (1906, p.257) who noted the high incidence of infant mortality in the first days after birth, attributing this to "the physical conditions of the mother, leading to prematurity and debility of the infant."

If one assumes that the "physical conditions" of working class mothers were likely to be inferior to those of middle and upper class mothers, one can see that in making this statement, Newman was alluding to a class dimension to infant mortality. However, unlike the views expressed by the Shropshire Medical Officer of Health in 1899, referred to above, Newman supported his view with evidence obtained during his work as Medical

Officer of Health in Finsbury, Middlesex, and as a lecturer on Public Health at St.Bartholomew's Hospital, London.

A further interesting finding by Woods, Watterson, & Woodward was the existence of variations in IMRs within urban areas. For example, West London tended to have a lower IMR than east London, and inner cities tended to have a higher IMR than the suburbs of the same cities (Woods, R.I., Watterson, P.A., & Woodward, J.H., 1988, p.358). Whilst acknowledging the difficulty in ascribing causes to these findings, the writers point to evidence suggesting that the urban IMR in the 1890s was inflated by the effect of several long, hot summers. These, combined with poor urban sanitary conditions, resulted in many infant deaths due to diarrhoea. The writers suggest a search for cause of death information, which could be linked to age data and geographical locations. However, such data is not easily obtained in a reliable form, as (a) it is difficult to acquire information about causes of deaths, and (b) such information is often quite unreliable, especially before 1874.

Another researcher who used a demographic approach to his research into infant mortality was C.H. Lee (1991, pp. 55-65). He used statistics from the Annual Reports of the Registrar General to argue against the view which had been expressed by Woods & Woodward that the pattern of infant mortality between urban and rural areas was "remarkably consistent" from one location to another (Lee, C.H., 1991, p.56). His table of regional IMRs for the period 1861-1971 (Lee, C.H., 1991, pp. 57-58), using counties as its regional criterion, shows that the patterns of infant mortality were divergent, there being no uniformity of trends.

Like Woods, Watterson, & Woodward, Lee noted the difficulty in identifying reasons for infant mortality in the absence of cause of death information. As an alternative means of

identifying reasons for infant mortality, he adopted an econometric approach to his research on infant mortality, which was based on employment structure. He used Board of Trade information to analyse infant mortality in the context of the father's occupation, treating the various sectors of industry (e.g. mining, agriculture etc.) separately. He found that the rise in IMRs in the areas of Scotland (Lee, C.H., 1991, p.64) which he treated coincided with the growth of the heavy industries and mining industry. Factors such as population size and density, population per house, and the number of families per house, were all positively related to the IMR, and all appeared significant in this regard.

Lee used IMRs as an indicator of the health of the community, which seems a reasonable line to adopt. However, I do not think that his results disproved Woods & Woodward's view of infant mortality, as his use of counties as regions precluded the kind of comparison which Woods had made between rural and urban areas. After all, nineteenth century counties were not exclusively "urban" or "rural".

Lee saw his use of geographical data in researching infant mortality as being more viable than research via wealth inequalities, because precise data on aspects such as class is difficult to obtain. My experience during my research supports this view. As the reader will see later in this thesis, treatment of issues such as poverty as factors in infant mortality led me to consider my findings in the context of class, but I soon realised that this approach is fraught with difficulties. How does one decide which social grouping an individual fits into? Do we use occupation, or income, or housing criteria? The most commonly available material relates to occupation, but classification of occupations is less than straightforward, as will be seen in my treatment of farmers (pp. 49-50).

Williams and Galley (1995, pp. 401-420) have no doubts about the relevance of the difference between urban and rural IMRs in the nineteenth century. Their paper had as its

source the Annual and Quarterly Returns of Births and Deaths, and they examined the phenomenon in the light of the findings of Woods and Woodward and Lee. Having noted the IMRs in several areas of different types, i.e. towns, semi-rural areas, and rural areas, they plotted the IMRs over the period 1850-1910 in all these places. They showed that although the rates fell generally over the period in all these places, the rates of decline were different in each location. London was more stable in its IMR than were the other places (Williams, N. & Galley, C., 1995, p. 412). These results tend to support the findings of Lee (1991, pp. 55-65). How to explain the differences in IMRs? Williams and Galley referred to work carried out in 1892 by Ogle in producing the Annual Report of the Registrar General in their attempt to deal with this problem.

Ogle's report linked 1891 IMRs to the causes of deaths, and enabled Williams and Galley to carry out cause-specific research into the reasons for infant mortality in that year. They found that premature birth was a large factor in the IMR, although it was worse in industrial towns than in rural areas (Williams, N. & Galley, C., 1995, p. 413). They also confirmed the findings of Newman as regards the high incidence of deaths in the first few days after birth in all areas (Williams, N. & Galley, C., 1995, p. 414).

The authors of the paper concluded that infant mortality declined in some places before the improvements in welfare that Szreter had claimed were the cause of the reduction (Williams, N. & Galley, C., 1995, p. 419). They suggested that it might be worthwhile to explore the idea that the fall in infant mortality was accompanied by a fall in fertility (Williams, N. & Galley, C., 1995, p. 419). They noted that declines in IMRs occurred later in industrial towns than in rural areas, and attributed this to factors such as poor environmental conditions and high incidence of disease (Williams, N. & Galley, C., 1995, p. 420) a finding which is very much in line with that of Thompson**.**

In spite of the wide range of the work undertaken by the above-mentioned researchers, it will be appreciated that, in the main, the sources they have used have been national statistics, prepared by government officials. The Annual and Quarterly Reports of the Registrars General are a key source for our subject in any period, their comprehensive coverage being one of their prime assets. However, they can, by their nature, give only a broad view of the state of affairs at a given time, and this fact limits the potential of the research for which they are used. The authors of the works to which I have referred are all aware of this problem; they have taken steps to overcome it, and to make best possible use of their sources. An example of this can be seen in the methods adopted by Lee, whose analysis of IMRs in 55 counties over a period of 110 years yields a great deal of detailed information over a lengthy period, and seems a good vehicle for analysis. However, I have already mentioned the inability of users of this method to discriminate between urban and rural areas as a weakness in this method, and there are other problems, also. For example, county boundaries change over time, and therefore comparisons of the same county over a long period of time may not be valid.

I think that the conclusions of Thompson, in her work on Bradford, are especially valid for being the result of an in-depth study of conditions in nineteenth century Bradford, with all that entails in terms of source material. Her use of Medical Officer of Health Reports enriches her work because it provides local information about matters such as living and working conditions. This local content is enhanced by the inclusion of information taken from local authority minutes, detailing the efforts which the town councils were making to try to improve matters, and the local opposition that they encountered in so doing (Thompson, G., 1984, p. 126). I believe that my work on infant mortality in Lydbury North and Norbury will be improved in its depth and local nature by the inclusion of such qualitative material as that used by Thompson. As will be seen in chapter 3, I have available several Medical Officer of Health Reports which contain information relating to

Clun Rural Sanitary District, dating from the 1890s, and give considerable qualitative information about conditions in the area of the sanitary authority. I also have access to some of the minutes of the Sanitary and Rivers Pollution Committee of Shropshire County Council, which contain some references to local initiatives to improve living conditions.

As mentioned above (p.2), the key source in my research is the Vaccination Register of Births which was kept by the Vaccination Officer in the Registration Districts of Norbury and Lydbury North. This source is essentially local in character, but was not used by any of the writers named above. If it has been completed correctly it should replicate the Civil Registration Register of Births for the area, giving details such as the father's name and occupation, the place of residence, and date of birth. Additionally, it includes the date of vaccination. If the child died before vaccination, the date of death should have been entered. When one considers the wish, expressed by several of the above-mentioned writers, for more detailed, local studies of infant mortality in our period, one can appreciate the value of this source. By linking the information in this source to other sources, such as church registers of baptisms, marriages, and deaths, and to the census enumerators' books some of the issues raised by scholars can be treated on a local basis. I have in mind matters such as Thompson's view that poverty was a significant cause of infant mortality, which is linked to Lee's finding that possibly the level of infant mortality was linked to employment structure (see my comments on the work of Lee, above). I also consider Newman's findings about the high incidence of neonatal mortality, which were confirmed by Woods, Watterson & Woodward.

The problem regarding the absence of cause of death data for use in infant mortality research, mentioned above in my reference to the work of Woods, Watterson & Woodward, has proved insurmountable in my research. Although several Annual Reports of the Medical Officer of Health have been available, they have not helped me in this

regard; although they included a section on the categorisation of causes of death, which the official completed, the majority of infant deaths were listed in the "other" column. Having stated this, I am of the opinion that even if I had managed to trace cause of death information, I would have needed to treat it with circumspection, as I would not have felt confident in the accuracy of the diagnoses. I have found no other sources that I can use to obtain cause of death data, so I have, with regret, been obliged to leave this aspect of my work.

As indicated above, there is a common acceptance among researchers of the existence of an Urban/Rural differential in IMRs in our period. My research concerns a rural area of Shropshire, and I am not able to make a detailed comparison of infant mortality in Norbury and Lydbury North with an urban area. An extensive examination of these issues will, no doubt, form part of the overall project, using material culled from my fellow researchers around the country. The advantage of our overall research project is the ability to investigate matters of particular interest at a very localised level - even down to household level, in some cases, or at national level.

The writings on infant mortality to which I have referred are only a small selection from the many works that have been written on this subject. They encompass a variety of approaches to the problem, from the deductive reasoning of McKeown to the demographic work of Woods, Watterson & Woodward, and the more locally based work of Thompson. I hope the reader will agree that my work, on a micro scale, gives a fresh perspective on this old conundrum, and adds some detailed local "colour" to the largely macro-scale research which I have mentioned above.

3. Primary Sources

In this chapter I describe the primary sources which I have used in my research. This treatment is intended to be detailed, providing an assessment of the extent, strengths and weaknesses, of the sources. I shall also demonstrate the suitability of these sources to my research.

As I mentioned in chapters 1 and 2, the core sources for the project are the **Vaccination Registers of births and infant deaths** (hereinafter referred to as Vaccination Registers) which were kept by Vaccination Officers from 1871 onwards. The keeping of these records was instigated by the British Government in 1871, as part of the machinery which was designed to enforce newly-enacted legislation to compel vaccination against Smallpox of all infants. The sort of universally available protection which this legislation was intended to bring about had not been available previously in England and Wales, and thus there were some areas of the country where smallpox vaccination had been neglected, with adverse effects on mortality rates (Drake, M. & Razzell, P, 1997, p.18).

The Vaccination Registers are an official source. They were kept by Vaccination Officers in the localities, to strict instructions issued by the Local Government Board (Drake, M. & Razzell, P., 1997, pp.20/21). As such, they conform to a standard format, and the scope of the information contained in them should be consistent.

Appendix 1 shows the information that should have been entered in the Vaccination Registers. The registers were cross-referred to the Civil Register of Births by recording a serial number in respect of each entry. This number was common to both records. As the

geographical area covered by the Vaccination Register of Births is the registration sub-district, and all births in the area are supposed to have been recorded in it, it follows that this register should be a copy of the civil register for the registration sub-district. This being so, the numbers in the Civil Register of Births cited in this register should run consecutively.

It will be appreciated that this source enables us to discover a great deal of information about the children recorded in their pages, and their parents. This is why this source is so important to the research project to which I am contributing; I am able to look beyond national or Sub-District statistics, and research in detail the structure of infant mortality at a micro level. It is even possible to research the subject by studying individuals or small family groups.

The entries in both of the Vaccination Registers that I am using are numbered in a sequence running from 1 to 500, with five entries per page. When entry number 500 is reached, the sequence re-commences at number 1. This means that there is duplication of numbers, which could lead to confusion, especially if the researcher is using a computer to record and sort his or her records. To overcome this problem it would be necessary to record the date of the event being considered, as well as the number, or to allocate a research log reference to each entry.

The detail in the Vaccination Registers is clearly recorded, on the whole. Occupations are easily read and the terms used are not of a type to defy understanding.

The area of my research covers two registration sub-districts in South Shropshire – Norbury and Lydbury North. These districts are adjacent to one another, and are small, rural areas. The Vaccination Registers are available for limited periods only: Those

relating to Lydbury North cover the period 1888-1911, whilst the records for Norbury cover the years 1891-1903. As the time periods recorded in the registers for the two sub-districts are not precisely the same, and in order to carry out a meaningful comparison of infant mortality in the two sub-districts, I have limited the period of my research to the period July 1891 to December 1902.

In spite of the great usefulness of Vaccination Registers, these records have some weaknesses as a source for my research, and I now consider, briefly, three of these.

The first point to make is that although there is uniformity in the fields of information that should be included in this source, it cannot be regarded as wholly consistent. This is because its accuracy and completeness must be dependent on the thoroughness (or awareness) of the Vaccination Officer who completed it. Having stated this, I believe that the registers that I am using are very reliable. I base this opinion on the fact that, taking the Norbury register as an example, of all children recorded as having been born, 90% of them are recorded either as having been vaccinated or as having been exempted from vaccination, with relevant dates included. Of unvaccinated persons, all but one was accounted for either as having died, or as having left the sub-district.

I find that the Lydbury North Registers were better maintained than those for Norbury; whilst the Lydbury North Vaccination Registers contain only one deletion and one case in which a page was missed, the records for Norbury are quite different. I found three cases in which entries had been deleted and re-entered on the next page, twenty seven cases in which a number of lines had been left blank before starting a new page, and seven cases in which pages had been left blank. Apart from one case when a page had been left blank, apparently to mark the point at which a new Vaccination Officer took over the care of the register (between entries nos. 204-205, during 1892), I can see no logical reason why these

anomalies should exist. It seems that the Norbury register was maintained in a different way from that of Lydbury North, and a need was seen to start a new page at certain points in the records. However, I have not been able to work out why this was done, as the records at these points do not seem especially significant. Essentially, however, I am satisfied that both these registers were well kept. They both encompass a complete numbering sequence, and both registers contain full information on the cases that are entered therein.

The register contains some entries in which names or locations are difficult to decipher, but cross-reference to other sources helps me to overcome this problem.

A further weakness of the Vaccination Register as regards my research lies in the fact that not all the infant deaths in the sub-district were noted therein. As well as the Births register, government legislation also required Vaccination Officers to maintain registers of the deaths of infants under the age of one year. These records did not state the cause of death, but they were correlated to the Civil Register of Deaths, and included information such as the child's name and age, the date and place of death, the name and occupation of the child's father, and a note of whether or not the child had been vaccinated. Entries in these records were cross-referred to the relevant entry in the Civil Register of Births in the sub-district, making it easy to relate this material to the information in the Vaccinators' Register of Births. Alas, the Register of Infant Deaths is not available in either of the sub-districts which I am treating, so I have to rely on the infant deaths which were recorded in the Vaccination Register of Births which is available to me. I have compared the number of infant deaths which I have identified from this source to the number of infant deaths in my areas of study which were shown in the annual and quarterly returns of the Registrar General. It is apparent that not all the infant deaths in Norbury and Lydbury North in my period were recorded in the Vaccination Officers' Birth Registers. This being so, I have had

to record infant burials at the various churches in the sub-districts which I am studying, in order to try to trace the missing entries.

Burial registers contain the date of burial, and the name, age and abode of the deceased (Appendix 1). My search for information relating to infant deaths in Norbury and Lydbury North would possibly be enhanced by a search of the records of cemeteries in the locality. However, the close correlation of the results of my research to the statistics of the Registrar General, to which I alluded in Chapter 1 (see Table 2, p. 35), suggests that I have succeeded in tracing most, if not all, of the infant deaths in my area of study during the years under consideration.

A third weakness in the Vaccination Registers of Births stems from evidence, which I found, that not all births were recorded therein. In the burial register for Norbury I traced the death of a child aged fifteen hours. This child was not included in the Vaccination Register of Births, and as the reference numbers which are included in this source, and which cross-refer to the Civil Register, run consecutively, I assume that this child was not recorded in official statistics. Presumably his birth was not recorded officially by his parents. I can understand that a stillborn child would not feature in a Register of Births, but would think that a child who was born alive should be included; I have, therefore, included this birth and death in my research data.

The Parish Registers of the Church of England are an important source in my research. I have already mentioned my use of Burials Registers in my attempt to compensate for missing data in my main source. Additionally, parish registers of baptisms and marriages have been of vital importance to the success of my research strategy .

Registers of Baptisms contain the information detailed in Appendix 1. The date of the baptism is stated, and sometimes the date of birth of the child is also included.

A weakness in this source lies in the fact that, according to Drake (Drake & Finnegan with Eustace, 1994, p.74) in 1800 about 30% of children born were not entered in the Baptism Registers of the Church of England. With the growth of other religions (especially Methodism) during the nineteenth century, this figure could be understated by the late nineteenth. As some children were baptised in other religious denominations, it is necessary to include the records for as many of these churches as possible in my research if I am to attempt to obtain comprehensive coverage. Even this may not fill the gap in our knowledge completely, however: some people were not baptised at all, whilst others may have been baptised away from their home or in a neighbouring parish.

It should be noted that the fact that a person was baptised in a church of a certain denomination does not necessarily mean that the person was of that particular religious denomination. As the Church of England is the state church, many persons of non-conformist religions were baptised in that church, and therefore such information about a person's religious persuasion must be treated with circumspection. The reader will see that, in my research, I have used baptisms to decipher the religion of the people who I am treating, but I do so bearing in mind this caveat, and do not believe necessarily that my assumptions on this matter are correct.

Marriage Registers contain information about the names, ages, occupations (although female occupations are rarely stated), condition (bachelor/spinster), and father's name and occupation in respect of the persons being married. This information is as stated by the parties to the ceremony, so it may not be regarded as totally reliable, but its potential value in a nominal record linkage exercise such as that which I am engaged in is apparent.

I had hoped to trace the marriages of a large number of the couples who had an infant death in their family through my searches of the parish registers of marriages. However, I regret to report that I was only successful in tracing five such marriages, so this aspect of my research was of little value to me. It seems that the majority of the couples who experienced the death of an infant in my period were married outside the sub-districts that I am treating, or were not married in their local Anglican church; this may well be an interesting piece of information for a study of migration, but it falls outside the scope of my research. The constraints of time have prevented me from further pursuing this aspect of my work.

Both Registers of Baptisms and Registers of Marriages are useful in building up family groups to ascertain the size of families, or kinship networks within a community. I have used them to cross-refer information to that contained in the Vaccination Register of Births, to reconcile any queries, or to check its coverage. The occupational information included in these has also been compared to that in the Vaccination Register of Baptisms to check for consistency. This has been done to check, for instance, that a person who was recorded as a farmer in one record was not recorded as an Agricultural Labourer in the other!

As I stated in considering Registers of Baptisms, Church of England Parish Registers do not cover the whole population, and it is necessary to look for registers relating to other religious denominations if we hope to obtain information regarding all marriages in the sub-district. Additionally, some marriages occurred in civil ceremonies, and these will not be traced without much time-consuming work, spent searching the civil registers. As Civil Registers are recorded in alphabetical order by name, it is not feasible to carry out this research, and thus this lies beyond the scope of my work.

Even if these ceremonies could be traced, the Civil Registration indexes contain very sparse information, and it would be necessary to purchase copies of Marriage Certificates to obtain similar information to that which is contained in the parish registers. The costs involved in purchasing marriage certificates in England and Wales (currently £6.00 per certificate) would preclude research of this type.

The list of primary sources accompanying this thesis shows the Church of England and other registers that I have used in my research (p.71). The Church of England registers have all been kept in an apparently thorough manner, but there are some instances in which the handwriting of the cleric was very hard to read, which posed some problems. As I mentioned above, cross-referral between sources helps to resolve such matters. As regards the records contained in the Methodist Registers that have been available to me, these appear to have been kept in notebooks and copied into the register retrospectively. They are not in a consistent chronological order, and there is a strong possibility that some baptisms have been omitted from the records.

One useful by-product of my use of the burial registers of the Church of England was that I was able to trace cases of multiple infant deaths involving families who form part of my study. As will be seen in chapter 4 (p. 58), I have been able to identify some cases where a family who experienced the death of infant(s) in my period had already had similar experiences before the period covered by my work. I judge such cases to be very relevant to my research, as the fact that a family had more than one case of infant death in it may indicate that these events were more than random in their occurrence.

An important nominal record used in my research is the **Census Enumerators' Book for the 1891 census (CEB)**. This source is available for both of the registration sub-districts I am treating, and includes the information shown in Appendix 1.

Each entry in a CEB should show whether the person was employed or not, or an employer or employee. However, in the records I have been using, the boxes that indicate the employment status of the individuals have been completed only rarely, making this information of little or no value to me. This has made it more difficult to deduce the precise social grouping of the people in my survey than I had hoped it would be. An example of the way in which this omission has hindered my work can be seen in my treatment of farmers (chapter 4, p. 49). In seeking to allocate these people to the appropriate social grouping it would have been of great value to me if the enumerator had indicated the employment status of these individuals. I have had to use other means to compensate for this omission, and describe the methods that I used to do this in chapter 4 (p.49).

As regards the place of residence, the CEBs show the number of rooms occupied by the household, if less than five, which may lead us to some evaluation of living conditions. By painstakingly working my way through each entry in the 1891 CEBs for Norbury and Lydbury North, I have been able use this information, combined with data derived from the same source showing the number of persons per house, to produce Appendix 2, which is discussed in chapter 4 (pp.43-44). CEBs also provide an outline description of the extent of the area, which can be useful in locating the precise position of the households on a map.

The value of this source in building up family groups for analysis will be clear to the reader. When used in conjunction with the other sources mentioned above, CEBs facilitate detailed, local study of the communities of Lydbury North and Norbury, which is of great value to my study of the nature of infant mortality.

CEBs are a standard source, compiled by officials on behalf of the government, and as such, they are generally consistent and reliable. However, they do have some weaknesses as a primary source, and I shall now mention some of these. Firstly, the information contained therein is only as reliable as the informant. Failings of memory, or a propensity to imagination could lead to us obtaining a misleading view of a household. For example, ages could be incorrectly stated, which would reduce the accuracy of aspects of my research that encompassed consideration of the mothers' ages. Occupations could be misrepresented, skewing a class-related survey of infant mortality. If a number of informants misled the enumerator about cases in which the household head and his partner were unmarried, this could reduce the value of aspects of my research which treat infant mortality in cases of illegitimacy.

A further problem lies in the accuracy of the enumerator in recording the information given to him, insofar as errors could arise from mistakes in transcription, or from misunderstandings. Respondents could fail to comprehend the questions asked in the census, but also, much information was given to the enumerator verbally, and was easily misunderstood.

Legibility is often a serious problem in treating CEBs. Cross-referral of information such as ages or occupations with similar information in other sources can help to overcome this problem, but often this is not possible, with the resultant danger of the information in a CEB being misinterpreted.

The view of a household that is given by a CEB entry cannot necessarily be taken as being typical, as it only shows the situation on a particular night. Thus, it is possible to misunderstand the groupings in which people lived their lives, and the locations in which they lived. The household may have been staying at their stated abode for only one day, or

may have resided at the address shown for a considerable time. In relating the incidence of infant mortality to issues such as overcrowding this must be borne in mind, and reference to residential information included in the other sources mentioned above may help to clarify such matters.

In order to obtain evidence of the social standing of people, I have used the **Rate Book for Lydbury North (1896)** and **the Valuation List for Hopesay (11th February 1898)**. These sources list all persons required to pay rate charges to the local authority, and as such they do not include all members of a community. They should, however, list all owners and occupants of property in the area, showing the information listed in Appendix 1 in respect of each property. These records have been of great value to me in ascertaining the social status of farmers, an issue that, as I mentioned above, presented me with a problem during my research.

The **Annual and Quarterly Returns of the Registrar General** are available for the period covered by my research, and are based on the data contained in the civil registers of births, marriages and deaths. The accuracy of this information is dependent on the quality of the information given to the local registrars on registration, and I have shown above that it can contain inaccuracies. In addition to the inaccuracies which I have identified, we should bear in mind that the data from which these returns were compiled was copied several times before the reports were issued, and therefore there must be a probability of errors in their production. These statistics have been the basis of most research into infant mortality, but they are of limited use in treating the subject at a very localised level, as the smallest area for which statistics are available is the sub-district.

In comparing the statistics which result from my research with those published by the Registrar General, we must allow for the limitations placed on our statistics by the time

frame of our research. By way of explanation of this point, I refer to an infant death that I traced in the Norbury burial register. The child in question died at the age of ten months, and his death will be recorded in the civil registers for 1891. However, his birth took place before the period of the Vaccination Register of Births for Norbury, and cannot, therefore, feature in my statistics. Factors such as this can create apparent discrepancies between the official statistics and those arrived at by me in my research.

Annual Medical Officer of Health (MOH) Reports add a qualitative dimension to my research. These reports, which were hand-written or typed, fall into two categories. The reports for Clun Sanitary Authority, which administered the Clun Rural Sanitary District, are available for the years 1889, 1890, 1892 and 1896. The first two of these years fall outside my stipulated period of research, but may be used, nevertheless, to appraise me of the views of the MOH at that time, for the purposes of setting the scene, and for comparative purposes. The content of these reports varies from year to year, but typically one may expect to find information regarding the birth and death rates in the area, and infant mortality statistics, analysed to show causes of death. Aggregated statistics of deaths were analysed to show the ages and causes of deaths. In addition to this, a written account is given of the incidence and nature of sickness in the area, including comment on causes of illness and possible remedies. This account makes up a large proportion of the report, and is very important potentially because the Medical Officer of Health highlighted matters that he judged to be of prime importance in his pursuit of the improvement of the situation in his area, and often makes recommendations in this regard. The comments that he made reflected the ideas and prejudices of the MOH, as I mentioned in Chapter 2 (p.11), and this needs to be taken into account in using this source. In spite of this, however, this source provides good quality information about the health problems in the area, and the steps that the MOH recommended to deal with them. It also informs about topics such as housing

and sanitation, and can, thus, be used in conjunction with nominal sources to arrive at an informed view of living conditions in the sub-districts that I am treating.

The second category of **Medical Officer of Health (MOH) Reports** which I am using have as their subject the county of Shropshire, rather than the sanitary district. They contain information similar to that described above in relation to the MOH Reports for Clun Sanitary Authority, but at the level of the County. Additionally, county statistics relating to mortality are often evaluated against a national background. They have the advantages and disadvantages of the reports described above, but do not contain as much local detail as those described above. In spite of this they are very useful in my work, as they usually contain a brief treatment of my area, which has been extracted from the report for the Clun Sanitary Authority. The information which they contain can be taken to relate to my area in general terms, and the statistics which are given at County level can be used for comparison with those resulting from my research.

In my use of these reports, I have encountered two significant problems. Firstly, although the data includes a cause-specific analysis of deaths occurring at various ages in a given year, as far as infant mortality is concerned this is of no use, as all the infant deaths were classified under "Other" causes. From this we may deduce that the cause of infant mortality was not one of the infectious diseases or diarrhoea, but we do not learn anything positive about the nature of infant mortality.

The second problem which I encountered in using MOH Reports lies in the fact that, apart from the reports for 1889, 1890 & 1892, the statistics of births and infant deaths for Norbury and Lydbury North were not shown separately. This is because statistics were given for the Rural Sanitary District of Clun only. This means that it has not been possible

for me to compare the statistics arrived at in my research to those of the Medical Officer of Health.

I have used ***Dr.Reginald Farrar's report to the Local Government Board on the sanitary circumstances and administrations of the Clun Rural District, Salop*** (1905) to obtain information about matters such as sanitary arrangements and housing at the beginning of the twentieth century. The date of this report falls just outside the time frame on which I have worked, but it is unlikely that there will have been a significant change in these matters in the three years between the end of my period and the date of the report. Additionally, it seems likely that the field research for the report was largely carried out in the years leading up to its publication. As such, its contents are of great interest to me.

As a Government Report this source should be relatively unbiased, and I believe the information therein to be generally accurate. However, it seems fair to note that the inspectors who compiled such reports were charged with the duty of bringing about an improvement in the situation as regards sanitation and housing, and they approached their work critically. They would, therefore, be unlikely to be satisfied with the status quo.

This report does not name specific buildings or people, but comments on findings obtained in small villages and hamlets, so its content is of great value to my research.

These, then, are the sources that I have used in my research. I explained in chapter 1 (p. 4) the considerations that I had in mind when I decided to use these materials. I hope that the reader will find that the primary sources which I have used have proved suited to the research that I have carried out, and that, used together, they provide a rounded view of my research subject.

4. Norbury and Lydbury North

In this chapter I summarise the main findings of my research, relating them to some of the issues arising from academic writings, mentioned in chapter 2, on the subject of infant mortality. I begin by considering briefly some general matters relevant to my study of Infant Mortality in the period 1891-1902. I shall then deal with some more detailed data arising from my work.

As I mentioned in Chapter 1, in reading the following, allowance should be made for the relatively small numbers with which I am dealing. The geographical area of my research - South Shropshire in the 1890s - was a low population region, and it is inevitable that this is reflected in my work. Some of my results may be regarded as statistically insignificant, but there seems no remedy for this if we are to carry out the sort of micro-scale research which scholars have called for (e.g.. Williams & Galley, 1995, p.420) .

The Local Geography.

The two Registration Sub-Districts that are the subject of my research were essentially rural in character, and situated in South Shropshire. The villages and hamlets that comprise Norbury Sub-District lie generally on high ground in the South Shropshire hills (Appendix 6). The colour coding on this map illustrates, in general terms, the height in feet above sea of these parishes. It will be seen that the parishes that make up Norbury Sub-District were generally on higher ground than those in Lydbury North Sub-District.

In his *Report to the Local Government Board on the Sanitary Circumstances and Administration of the Clun Rural District, Salop* (1905), Dr. Reginald Farrar provides a brief topographical and geological description of the area. He describes the ground in the area as being mainly sandstone and shale, although on the higher ground there are "outcrops of igneous rocks"(p.1). Farrar comments that due to the hilly nature of the

ground, “grazing land bears a higher proportion to arable than is usual in agricultural districts”(p.2).

Farrar noted (p.3) the area should not have experienced difficulties regarding water supplies, as the high hills provided “good gathering grounds and yield copious springs at their bases”. However, there were very few cases in which water supplies were laid to houses or schools, such facilities being arranged by the enterprise of private owners. As we shall see later, water supplies were considered by Farrar to be problematic.

Coverage of Sources

As I mentioned in chapter 3, I have related the data obtained from parish registers of burials within Norbury and Lydbury North Sub-Districts to the statistics obtained from the Annual Returns of the Registrar General. I believe that I have succeeded in identifying almost all the cases of infant mortality within the period of my research, as one can appreciate by looking at Table 2, which compares the statistics obtained from my work with the official statistics.

Table 2.

Comparison between the infant mortality statistics resulting from my research and the Annual figures of the Registrar General, Norbury & Lydbury North, July 1891 – Dec 1902.

Registrar General's Quarterly Returns

Norbury	Q 1	Q 2	Q 3	Q 4	Total
July-Dec 1891			0	4	**4**
1892	1	0	0	1	**2**
1893	0	2	0	1	**3**
1894	0	1	0	0	**1**
1895	2	0	0	0	**2**
1896	0	0	0	0	**0**
1897	0	0	1	0	**1**
1898	0	0	0	0	**0**
1899	0	0	0	0	**0**
1900	0	1	1	0	**2**
1901	1	0	0	0	**1**
1902	0	1	1	0	**2**
1903	1	0	0	0	**1**
Total	**4**	**5**	**3**	**6**	**18**

Lydbury North	Q 1	Q 2	Q 3	Q 4	Total
July-Dec 1891			1	1	**2**
1892	0	2	3	1	**6**
1893	3	2	0	2	**7**
1894	1	1	0	0	**2**
1895	1	1	0	0	**2**
1896	0	2	0	1	**3**
1897	1	0	0	0	**1**
1898	2	1	1	1	**5**
1899	1	0	0	0	**1**
1900	3	1	2	0	**6**
1901	0	1	2	0	**3**
1902	1	3	1	0	**5**
1903	0	0	0	0	**0**
Total	**13**	**14**	**10**	**6**	**43**

IMP Data - sources Vaccination Officers' Births Register & Parish Records of Burials

Norbury	Q 1	Q 2	Q 3	Q 4	Total
July-Dec 1891			0	3	**3**
1892	1	0	0	1	**2**
1893	0	2	0	1	**3**
1894	0	1	0	0	**1**
1895	0	0	0	0	**0**
1896	0	0	0	0	**0**
1897	0	0	1	0	**1**
1898	0	0	0	0	**0**
1899	0	0	0	0	**0**
1900	0	1	1	0	**2**
1901	1	0	0	0	**1**
1902	0	1	1	0	**2**
*1903	0	1	0	0	**1**
Total	**2**	**6**	**3**	**5**	**16**

Lydbury North	Q 1	Q 2	Q 3	Q 4	Total
July-Dec 1891			0	0	**0**
1892	0	2	3	1	**6**
1893	2	2	0	2	**6**
1894	1	1	0	0	**2**
1895	1	1	0	0	**2**
1896	0	2	0	1	**3**
1897	0	0	0	1	**1**
1898	2	2	1	1	**6**
1899	1	0	0	0	**1**
1900	3	1	2	0	**6**
1901	0	1	2	0	**3**
1902	1	4	0	2	**7**
1903	0	0	0	0	**0**
Total	**11**	**16**	**8**	**8**	**43**

** Note: 1903 data = one infant death which occurred during 1903, involving a child born during 1902*

The reader will note that I have included in my results the death of an infant born within the period of my research, who died in 1903. This is because I am treating infant mortality in respect of infants born in the period July 1891 to December 1902. I have searched the indexes to the civil registers of deaths, to see whether any of the other infants born in Norbury and Lydbury North during 1902 died in infancy, but I was not able to find any more such cases. In order to ensure consistency, I have excluded from my results any infant deaths occurring during my period of research in respect of children born before July 1891.

In looking at Table 2, there are factors that need to be borne in mind if one is to explain the differences between the two sets of data. I mention two of these factors here: -

1. Differences in timing between the date of death, as recorded by me, using the Vaccination Registers and the Parish Burial Registers. A death occurring at the end of a three-month period may have been reported to the registrar after the end of that quarter, and would appear in the official statistics for the period in which it was reported.
2. Differences in the geographical location in which the death was recorded by the registrar. I came across a case in which a death that occurred in Lydbury North in 1898 was registered in Atcham Registration District, which is near Shrewsbury.

Having noted factors such as these, I calculated a series of Infant Mortality Rates (IMRs) for the area and period of my research (Table 3).

Infant Mortality – Local Variations and National Context.

It will be noted that in both of the sub-districts, the IMR over the period of that I am treating was lower than the national rate of 152 deaths per 1,000 births. However, the

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Table 3

Annual Infant Mortality Rates – Norbury, Lydbury North

And England & Wales, July 1891-December 1902.

Norbury Sub-District

	Infant Mortality Project		
	No. Births	No. Deaths	IMR
*1891	18	3	N/A
1892	33	2	61
1893	31	3	97
1894	28	1	36
1895	26	0	0
1896	33	0	0
1897	22	1	45
1898	21	0	0
1899	38	0	0
1900	17	2	118
1901	26	1	38
1902	24	2	83
1903	N/A	1	N/A
Total	**317**	**16**	**50**

Lydbury North Sub-District

	Infant Mortality Project		
	No. Births	No. Deaths	IMR
*1891	22	0	N/A
1892	47	6	128
1893	46	6	130
1894	37	2	54
1895	43	2	47
1896	49	3	61
1897	33	1	30
1898	36	6	167
1899	42	1	24
1900	40	6	150
1901	29	3	103
1902	41	7	171
1903	N/A	0	N/A
Total	**465**	**43**	**92**

Norbury & Lydbury North Sub-Districts Combined

	Infant Mortality Project		
	No. Births	No. Deaths	IMR
*1891	40	3	N/A
1892	80	8	100
1893	77	9	117
1894	65	3	46
1895	69	2	29
1896	82	3	37
1897	55	2	36
1898	57	6	105
1899	80	1	13
1900	57	8	140
1901	55	4	73
1902	65	9	138
1903	N/A	1	N/A
Total	**782**	**59**	**75**

England & Wales

	No. Births	No. Deaths	IMR
*1891	445,058	67,842	N/A
1892	897,270	132,603	148
1893	914,182	145,297	159
1894	889,239	121,918	137
1895	921,860	148,305	161
1896	917,201	135,487	148
1897	921,104	143,814	156
1898	922,873	148,249	161
1899	928,640	151,218	163
1900	926,154	142,943	154
1901	929,270	140,711	151
1902	877,400	116,638	133
1903	N/A	N/A	N/A
Total	**10,490,251**	**1,595,025**	**152**

Source: Derived from the Quarterly Returns of Births & Infant Deaths of the Registrar General, 1891-1902.

** = 1st July to 31st December only*

consistent fact emerging from the data (Table 3), is that the inhabitants of Lydbury North Sub-District experienced higher rates of infant mortality than inhabitants of Norbury Sub-District. The rate for Lydbury North was 84% higher than that for Norbury, and this very large difference in rates between two adjoining, rural sub-districts is worthy of note; the chi-square test shows that this difference is statistically significant.

A further interesting point to be gleaned (Table 3) lies in the year by year comparison between the IMRs in the two sub-districts and in England and Wales as a whole. I observed that although the IMRs in Norbury were consistently lower than that for England and Wales, this was not the case in Lydbury North, where there were two years – 1898 and 1902 – when the rates that I calculated exceeded the national rate. Bearing in mind the common view that Urban IMRs were generally higher than Rural IMRs (Chapter 2, p.18) and also the view expressed by Woods, Watterson & Woodward (1988, p.357) that the national IMRs were heavily influenced by the Urban rates of infant mortality, this finding seems of significance. It indicates that the IMR in Lydbury North in those years was higher than the IMRs in urban areas of England and Wales during those years.

I have not been able to explain why the inhabitants of Lydbury North experienced such high incidence of infant mortality in these years, not least because the MOH Reports for the County of Shropshire for the years in question make no mention of this. In treating Clun R.S.D. the Report for 1898 stated that “The death returns are below the average and compare favourably with those for England and Wales”(p.23). There is no doubt that the IMR in Lydbury North in that year was higher than the IMR in other locations in Clun R.S.D. This can be appreciated when one considers that of the fourteen infant deaths stated by the MOH to have occurred in the R.S.D., six of them occurred in the sub-district of Lydbury North (Table 2). In the County MOH Report for 1902 it was stated (p.9) that the

County IMR was 102.7, and the rural rate was 92.7 – well below the rate for England and Wales (133). In this context, the rate that I have calculated for Lydbury North – 171 – was extremely high.

Within the overall IMR statistics, Table 4 shows the considerable differences that I found in the rates for individual parishes. These ranged from a rate of 130 infant deaths per 1000 births in Edgton (Lydbury North Sub-District) to 16 infant deaths per 1000 live births in More (Norbury Sub-District). The presence of such large variations in the experience of infant mortality, even in such small communities, bears out the relevance of Lee's thesis.

Table 4.

Infant Mortality Project – Births & Deaths Statistics, analysed by location.

Norbury & Lydbury North, July 1891 – December 1902.

	Births	**Infant Deaths**	**Infant Mortality Rate**
Norbury	76	5	66
Wentnor	115	9	78
Ratlinghope	59	1	17
More	62	1	16
Myndtown	5	0	0
Total: Norbury Sub-District	**317**	**16**	50
Lydbury North	230	19	83
Edgton	54	7	130
Hopesay	181	17	94
Total: Lydbury North Sub-District	**465**	**43**	92
Norbury & Lydbury North Sub-Districts Combined			
Norbury Sub-District	317	16	50
Lydbury North Sub-District	465	43	92
Total	**782**	**59**	75

Note: Infant Mortality Rates, 1902 (Source: MOH Report, Shropshire, 1902):-

England and Wales	133
Shropshire	103

Notes: (a) Infant Mortality Rate = Infant Deaths per 1,000 births.
(b) Locations shown as recorded in Vaccination Registers.

His view that the decline in infant mortality from c1900 was not consistent in all geographical areas, but occurred at different rates in different places (Lee, C.H. (1991), pp. 56/57), seems valid in considering the structure of infant mortality in the 1890s. Comparison of the IMRs for individual parishes in the two sub-districts to the national IMR shows that only one location - Edgton - had an IMR that equalled the rate of 133 per 1000 births which England and Wales experienced in 1902. The other locations in my area of study had IMRs that were well below these figures, and all were lower than the IMR for the county of Shropshire in 1902.

Infant Mortality - Quarterly Analysis

In an effort to discover whether infant mortality in the area under study was more frequent at a particular time of the year, I analysed my results for the whole period of my research in this context (Table 5). This analysis has been carried out at Registration Sub-district level, showing the IMR for each quarter of the year. My results show that in Norbury the quarterly variation is not particularly pronounced, but the pattern revealed shows that IMRs were generally higher during the second and fourth quarters, which each had a IMR of 56 deaths per 1000 births. In Lydbury North it is clear that there was a considerably higher IMR in the first and second quarters than in the rest of the year. The rate during the second quarter was 130 infant deaths per 1000 births, which is very significantly higher than that in the other quarters. Clearly, the infants in both Norbury and Lydbury North were at increased risk of death during the second quarter of the year, but that risk was considerably greater in Lydbury North.

The pattern revealed by quarterly analysis of infant mortality in England and Wales is significantly different from my results for Norbury and Lydbury North (Table 5). The statistics of the Registrar General reveal that IMRs in England and Wales during the 1890s peaked in the third quarter of the year. This trend has been ascribed to a series of unusually

hot summers, resulting in a high incidence of cases of diarrhoea (Woods, R.I., Watterson, P.A., & Woodward, J.H., 1988, p. 360). It could be that the pattern I have discovered in my study was not particularly unusual, bearing in mind that the national statistics of infant mortality were significantly affected by urban trends. If hot summers coupled with poor quality water supplies were causing increased infant deaths through diarrhoea,

Table 5.

Births & Infant Deaths by quarter.

Norbury & Lydbury North, July 1891 – December 1902.

Totals - Norbury	Births Number	Births % of Total	Deaths Number	Deaths % of Total	Infant Mortality Rate
First Quarter	64	20	2	13	31
Second Quarter	90	28	5	33	56
Third Quarter	74	23	3	20	41
Fourth Quarter	89	28	5	33	56
Total	**317**	**100**	**15**	**100**	**47**

Note: a further infant death, included in the project totals, occurred during the first quarter of 1903.

Totals - Lydbury North	Births Number	Births % of Total	Deaths Number	Deaths % of Total	Infant Mortality Rate
First Quarter	109	23	11	26	101
Second Quarter	123	26	16	37	130
Third Quarter	108	23	8	19	74
Fourth Quarter	125	27	8	19	64
Total	**465**	**100**	**43**	**100**	**92**

Consolidated Totals	Births Number	Births % of Total	Deaths Number	Deaths % of Total	Infant Mortality Rate
First Quarter	173	22	13	22	75
Second Quarter	213	27	21	36	99
Third Quarter	182	23	11	19	60
Fourth Quarter	214	27	13	22	61
Total	**782**	**100**	**58**	**100**	**74**

Source: Vaccination Registers for Norbury & Lydbury North, Shropshire.

Total - England & Wales	Births Number	Births % of Total	Deaths Number	Deaths % of Total	Infant Mortality Rate
First Quarter	2,531,211	24	366,905	23	145
Second Quarter	2,539,051	24	316,196	20	125
Third Quarter	2,747,787	26	514,273	32	187
Fourth Quarter	2,672,202	25	397,651	25	149
Total	**10,490,251**	**100**	**1,595,025**	**100**	**152**

Source: Derived from the Registrar General's Quarterly Returns of Births & Infant Deaths.

Note: Infant Mortality Rate = Number of infant deaths per 1,000 births.

one would expect this to be a worse problem in urban areas, where the population densities were much greater. None of the MOH Reports that I have read mentioned seasonal or quarterly variations in IMRs, so it appears that the MOH did not regard this as a problem

It would be interesting to develop this aspect of my research; one could analyse infant mortality data relating to other sub-districts in Clun Registration District, and see whether a similar trend to that observed in Norbury and Lydbury North occurred in these places. One could also seek the reasons behind this variation in IMRs, but it would be necessary to obtain cause of death information to do this, and I have mentioned elsewhere in this thesis the difficulties posed by such research (see p.13).

Population Density & Overcrowding as factors in Infant Mortality

Barbara Thompson, (1984, pp.123-124) pointed to conditions of high population density, with consequent overcrowding, as being a significant factor in the incidence of high IMRs. If such conditions existed in the area of my research, it would appear highly relevant to the view expressed in my hypothesis, as we may expect that over-crowding would occur most often in conditions of poverty. I obtained the data in Appendix 2 from Census Enumerators Books. It enables me to look at this aspect of infant mortality in the individual villages and hamlets in the sub-districts of Lydbury North and Norbury in the 1890s.

My area of study was a region of low population density, and declining population. In the ten years covered by my research, the combined population in these districts fell by approximately 10%, from 3,054 to 2,660. By comparison, during the same period the population in England & Wales increased by approximately 12%. As the number of houses in the area of my research declined by approximately 10%, there was little overall change in the number of persons per house between 1891 and 1901. According to the MOH Report

for Shropshire (1902) the average persons per house in the rural areas of Shropshire in 1902 was 4.6, which is only slightly above the figure for Norbury and Lydbury North combined in 1901. The comparable statistic for England & Wales in 1901 was 5.2 persons per house, which was very similar to the figure for 1891..

Looking at the figures for the hamlets and villages of Norbury and Lydbury North in 1891 (Appendix 2), we see marked differences in the populations per house between the various locations. Overall, the average for Norbury was slightly higher than that for Lydbury North, and so this statistic seems inversely related to the respective IMRs.

It should be noted that a higher population per house does not necessarily indicate over-crowding, as it may well be that the larger households were living in larger houses. Unfortunately, although the 1891 CEBs show the number of rooms for households living in less than five rooms, they do not show similar data in respect of households living in higher numbers of rooms. This makes it impossible to calculate population density statistics at this level.

Appendix 2 shows that although in both sub-districts there were villages or hamlets where most or all of the homes contained less than five rooms, (e.g. Knowle and Ritton in Norbury and Brunslow, Perry Gutter and Old Field in Lydbury North) overall, the majority of houses in the two sub-districts were of five rooms or more. In Norbury Sub-District generally, these houses appear to have been fairly large buildings, possibly a large number of them were old farm houses; With an average population per house of just under five in both sub-districts, it appears that over-crowding was not a common problem in these two Registration Sub-Districts.

I have included (Appendix 2), data showing the number of households who were living in less than five rooms, and shown these as a percentage of the total number of households. This information shows that in Lydbury North, 50% of households were occupying less than five rooms; the comparable figure for Norbury was 45%.

In order to relate population density data to my research, I have sought to record, in respect of all the families I traced who experienced infant deaths, the number of rooms they were living in. This data is mainly derived from the 1891 CEBs. In one case I have deduced the information from information in a Rate Book, whilst in another case I have traced the house, but not the family on the 1891 CEB. I realise that the building could have been altered in the period between the date of the census and the occupation of the family included in my work, but I think it reasonable to assume that no such alteration was made.

It will be seen (Appendix 3) that I was not able to trace the required information in a number of cases. In Norbury I was successful in 52% of cases of infant mortality. 70% of cases in which I was able to find this data were living in households occupying five rooms or more. In Lydbury North, this exercise was less productive. I was able to trace this material in 42% of cases; 61% of cases in which I was able to find this data were living in households occupying five rooms or more.

Whilst I have little doubt that there were cases in which overcrowding contributed to infant mortality, it will be appreciated from the above that, in general terms, conditions of high population density did not exist to a significant extent in the area of my research. It seems likely that this fact was partly responsible for the relatively low IMRs that I have identified.

Infant Mortality Variations within the area – an Environmental Examination.

I find it difficult to account for the variations in IMRs within the sub-districts, as the sources at my disposal do not appear to deal with this. This suggests that, given the comparatively low overall IMRs in Clun Rural Sanitary District and in the County of Shropshire (see Table 4) Medical Officers of Health, and other influential persons, did not see infant mortality as a problem.

If we consider the situation in the parish of Wentnor, in Norbury sub-district, we note that there were lead mines in the area. By the 1890s these mines had closed, but we may deduce that their poisonous residues may well have polluted the water supplies in the area, with consequent effect on the health of the local population. Additionally, if some of the parents of children born in the area in my period had lived there from childhood, their health may have been adversely affected by exposure to pollution caused by the lead mines. If this were so, it could have caused their children to be born less healthy than would otherwise have been the case, and thus contributed to infant mortality in my period. I have found no mention of such pollution in the Annual Reports of the Medical Officer of Health. I note from the Minutes of the Sanitary & Rivers Pollution Committee of Shropshire County Council that on 25th February 1899 (p.183) it was recorded that there was a need to improve water storage at Clody Well, in Wentnor. I have no way of knowing whether any of the infant deaths in this parish were due to contaminated water.

The minutes of the Sanitary and Rivers Pollution Committee of Shropshire County Council (p.228) record how, in 1900, the local people of Wentnor had responded to a demand from the council for improved water supplies to Wentnor by stating that they were not in favour of incurring expense in this cause. The problem of local opposition to proposed improvement to water supplies had been referred to by the Medical Officer of Health in his Annual Report for Shropshire, 1889 (p.6), when he commented that public complaints

about the lack of accessible and wholesome supplies of drinking water were difficult to deal with, due to "legal problems". It seems that the problem of local opposition to such improvements had not changed appreciably during the 1890s.

The evidence cited above gives an indication of the opposition that the local authorities encountered in seeking to improve living conditions in my period, but such opposition does not appear to have been unusual. Barbara Thompson relates how similar opposition was mounted against proposed improvements to housing and water supplies etc. in Bradford in the nineteenth century (Thompson, B., 1984, p.146).

When I compare IMRs in Lydbury North sub-district those in Norbury sub-district, I encounter further difficulty in ascribing causes for the higher figures. If we look at the situation as regards sanitary arrangements, the state of affairs in Clun Rural Sanitary District left much to be desired. The Medical Officer of Health, in his report for 1898 (p.23) described these arrangements as "fragmentary and unsatisfactory". The Report of the Local Government Board's Inspector (1905) described the sanitary conditions in Lydbury North in graphic terms, relating how "sewage (finds) its way into watercourses and roadside gutters" (p.4). The same source highlighted the poor state of housing in the sub-district, pointing to many cases of damp. In some cases this was caused by a lack of maintenance, but other cases exemplified ignorance of either (a) the unsuitability of certain building sites, or (b) certain unhygienic everyday practices. One example of the latter was a case in which a heap of manure was piled against a house, causing “percolation of offensive matter into the building”(p.2).

The water supply in Lydbury North was, reportedly, improving by the 1900s. The County MOH Report of 1902 (p.47) stated that at that time one third of Lydbury North had "a private gravitation supply of good upland spring water" - but what, we may ask, of the

other two thirds? The Report of the Local Government Board's Inspector (1905) pointed to the poor quality of the water supply (pp.3-4).

It seems reasonable to deduce that factors such as those mentioned above contributed to the problem of infant mortality during my period. However, the absence of detailed information about causes of death makes it impossible to ascribe reasons for the statistics detailed above. In pursuit of detailed information on the structure of infant mortality in Lydbury North and Norbury sub-districts, I now move to more minute consideration of local data resulting from my research.

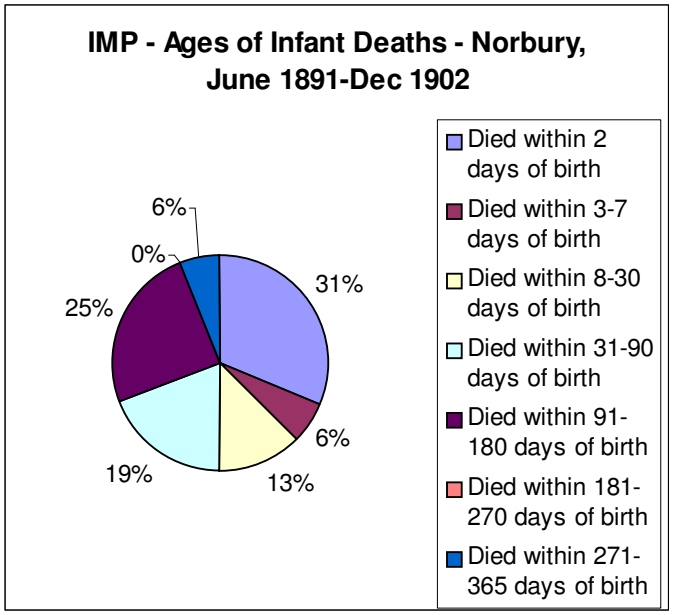
The fruits of Nominal Record Linkage

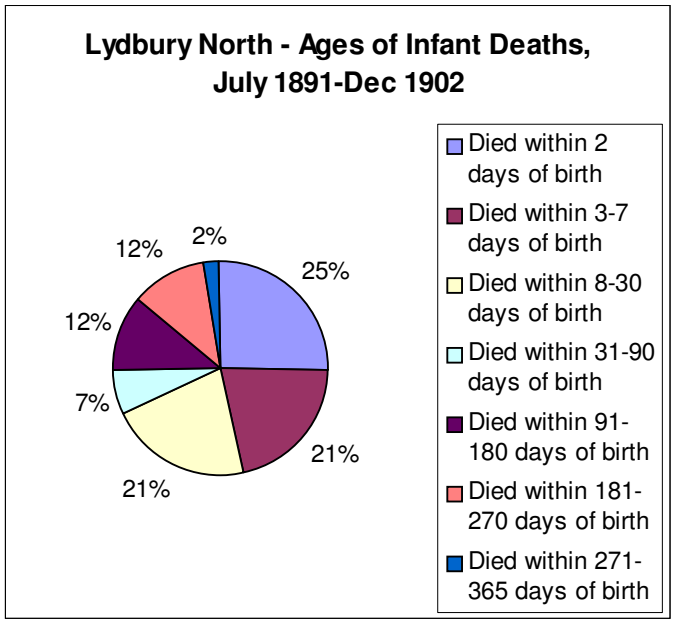
I mentioned, in chapter 1 (p. 4), that I have employed the technique known as Nominal Record Linkage, using parish registers of births, marriages, and deaths for the parishes situated in my area of research. I have also utilised the 1891 Census Enumerators' Books and the core source for this project - the Vaccination Registers of Births. By combining the data from these sources I have sought to develop a multi-faceted view of infant mortality in the area and time frame of my research, in order to test the hypothesis stated on page 5 above.

(a) Neo-Natal Mortality

Consideration of Table 6 reveals that in both Lydbury North and Norbury in my period, there was a high incidence of neo-natal mortality. There were differences in the percentages of total infant deaths in each sub-district that occurred in the first few days after birth, but in both locations a very significant proportion of infant deaths fell into this category. In Norbury, 37% of infant deaths occurred within seven days of birth, and 50% of infant deaths occurred before the age of thirty days. In Lydbury North 46% of infant

Table 6.


IMP - Ages of Infant Deaths - Norbury, June 1891-Dec 1902
6%
0%
31%
25%
6%
19%
13%
Died within 2 days of birth
Died within 3-7 days of birth
Died within 8-30 days of birth
Died within 31-90 days of birth
Died within 91-180 days of birth
Died within 181-270 days of birth
Died within 271-365 days of birth


Lydbury North - Ages of Infant Deaths, July 1891-Dec 1902
12%
2%
25%
12%
7%
21%
21%
Died within 2 days of birth
Died within 3-7 days of birth
Died within 8-30 days of birth
Died within 31-90 days of birth
Died within 91-180 days of birth
Died within 181-270 days of birth
Died within 271-365 days of birth

deaths occurred within seven days of birth, and 67% of infant deaths occurred before the age of thirty days. This finding confirms the observation made by Newman nearly 100 years ago (1906, p.40), that much infant mortality occurred within a few days of birth. I have attempted to analyse the information that I have collected in relation to neo-natal mortality by occupation, in order to ascertain the extent to which this phenomenon was influenced by poverty. Part of this exercise has been the classification of households in which infant deaths occurred by reference to the occupation of the father. In carrying out this work I have used the system of social classification designed by Armstrong (see Appendix 5 and Drake, M. & Finnegan, R., with Eustace, J., 1994, pp. 48-49).

I mentioned above the difficulty that I encountered when dealing with occupational data concerning farmers. I wanted to establish whether each of these farmers should be placed in Armstrong's social classification 2, or in his social classification number 3, and this was not possible from the bare occupational information in the Vaccination Registers. I adopted several complementary methods in dealing with this problem. In the case of farmers traced on the 1891 Census Enumerators' Books, I have noted how many employees they had, and whether they had household servants. I have utilised Mills's method of classification (Mills, D. R. & Mills, J., 1989, pp.67/68) by linking the information on these persons in *Kelly's Directory* (1900) to that in CEBs. Mills's theory is that farmers listed in the Directories are likely to have been of a higher social status than those who were not so listed.

In order to confirm the social status of farmers in my survey, I have used the 1881 CEBs for Norbury and Lydbury North, and the Rate Books and Valuation Lists for Lydbury North (these last named sources are not available for Norbury). The 1881 CEBs contained information giving the acreages of farms, and as acreage was used by Armstrong in deciding the social classification of Farmers (Drake, M. & Finnegan, R., with Eustace, J.,

1994, p. 48), this information, where traceable, has enabled me to allocate the appropriate classifications (Appendix 3). There are problems with this strategy, however. If, on either the 1881 CEB or the 1891 CEB, the name of the farm concerned was not stated, this can lead to a problem in identifying the size of a particular farm with certainty. An example of this occurred in Edgton, a parish in the sub-district of Lydbury North. In seeking to identify the size of an unnamed farm that was occupied by a particular person in 1891 I found two farms recorded in the 1881 CEB for Edgton. One of these farms was very large, whilst the other was very small. Which was "my" farm? I was able to resolve this situation by checking the information that I had against that in the Rate Books and Valuation Lists. All the farmers who suffered infant deaths in their families during the period of my research were found to belong to Armstrong Classification 2.

Table 7(a) links data about the ages at which infants died in the period and area of my research to the occupation of the parents. Table 7(b) presents the same information, analysed using the Armstrong Social Classifications (Appendix 5). Out of the six infant deaths in Norbury which occurred within seven days of birth between June 1891 and December 1902, four of the children were the offspring of farmers; the other two were the offspring of labourers. This finding is somewhat unusual, as it has often been held that infant mortality was more likely to occur in poorer families (Woods, R.I., Watterson, P.A., & Woodward, J.H., 1988, p. 363). Given the high proportion of infant deaths that occurred in the first few days after birth, one would expect this finding to apply to neo-natal mortality. I have not been able to explain the local deviation from the norm, save for my comments above.

Three of the farmers whose infants died under seven days old were resident in Wentnor; the other case occurred in the village of More. Two of the cases in Wentnor occurred in families where the mother was aged over 30. In one case the mother was aged 34, and is

known to have had at least 5 previous children. In the other case the mother was aged 37, and had given birth on at least 7 previous occasions. In the case that occurred in More, the mother was aged 29 years, and I do not know of her having given birth previously.

Table 7(a)

Age of infant deaths analysed by occupation.

Norbury & Lydbury North, July 1891 – December 1902

	Age 0-2 Days	Age 3-7 Days	Age 8-30 Days	Age 31-90 Days	Age 91-180 Days	Age 181-270 Days	Age 271-365 Days	Total
Norbury R.S.D.								
Farmer	3	1	0	3	2	0	0	**9**
Labourer	2	0	1	0	0	0	1	**4**
Shoemaker	0	0	0	0	1	0	0	**1**
Gen. Servant (F) (Illeg)	0	0	1	0	0	0	0	**1**
Occupation Unknown (Illeg)					1			**1**
Total R.S.D.	**5**	**1**	**2**	**3**	**4**	**0**	**1**	**16**
Lydbury North R.S.D.								
Farmer	1	2	1	0	0	0	0	**4**
Labourer	7	4	5	3	4	2	1	**26**
Postman	1	0	0	0	0	1	0	**2**
Occupation Unknown (Illeg)	0	1	0	0	0	0	0	**1**
Domestic Servant	1	0	0	0	0	0	0	**1**
Wheelwright/Carpenter	0	2	0	0	0	2	0	**4**
Platelayer (Ry.)	1	0	2	0	0	0	0	**3**
Gamekeeper	0	0	1	0	0	0	0	**1**
Signalman (Ry)	0	0	0	0	1	0	0	**1**
Total R.S.D.	**11**	**9**	**9**	**3**	**5**	**5**	**1**	**43**
Consolidation								
Farmer	4	3	1	3	2	0	0	**13**
Labourer	9	4	6	3	4	2	2	**30**
Postman	1	0	0	0	0	1	0	**2**
Occupation Unknown (Illeg)	0	1	0	0	1	0	0	2
Gen. Servant (F) (Illeg)	1	0	1	0	0	0	0	**2**
Wheelwright/Carpenter	0	2	0	0	0	2	0	**4**
Platelayer (Ry.)	1	0	2	0	0	0	0	**3**
Gamekeeper	0	0	1	0	0	0	0	**1**
Signalman (Ry)	0	0	0	0	1	0	0	**1**
Shoemaker	0	0	0	0	1	0	0	**1**
Consolidated Total	**16**	**10**	**11**	**6**	**9**	**5**	**2**	**59**

Table 7(b)

Age of infant deaths analysed by Armstrong Social Classification

Norbury & Lydbury North, July 1891 – December 1902

Armstrong Category	Age 0-2 Days	Age 3-7 Days	Age 8-30 Days	Age 31-90 Days	Age 91-180 Days	Age 181-270 Days	Age 271-365 Days	Total
Norbury R.S.D.								
2	3	1	0	3	2	0	0	**9**
3	0	0	0	0	1	0	0	**1**
4	0	0	1	0	0	0	0	**1**
5	2	0	1	0	0	0	1	**4**
N/k	0	0	0	0	1	0	0	**1**
Total R.S.D.	**5**	**1**	**2**	**3**	**4**	**0**	**1**	**16**
Lydbury North R.S.D.								
2	1	2	1	0	0	0	0	**4**
3	0	2	0	0	1	2	0	**5**
4	3	0	3	0	0	1	0	**7**
5	7	4	5	3	4	2	1	**26**
N/k	0	1	0	0	0	0	0	**1**
Total R.S.D.	**11**	**9**	**9**	**3**	**5**	**5**	**1**	**43**
Consolidated total								
2	4	3	1	3	2	0	0	**13**
3	0	2	0	0	2	2	0	**6**
4	3	0	4	0	0	1	0	**8**
5	9	4	6	3	4	2	2	**30**
N/k	0	1	0	0	1	0	0	**2**
Total	**16**	**10**	**11**	**6**	**9**	**5**	**2**	**59**

In considering the data in Table 7(a) in respect of Lydbury North, the reader will note that the pattern of high incidence of infant deaths under seven days old in farmers' families which occurred in Norbury was repeated in that sub-district, although the numbers involved were smaller. Of the four infant deaths in families of farmers in Lydbury North, three of them occurred within the first seven days. This suggests that the result found at Norbury may not be a freak. The high proportion of deaths to the children of labourers is more in keeping with the pattern that one may expect to find, bearing in mind my above comments in relation to class, and supports my hypothesis.

Taking Lydbury North and Norbury together, we see that the occupational group with the highest percentage of infant mortality over the 10.1/2-year period was labourers. However, we are left with the problem of how to account for the difference between the results of this research in the two sub-districts.

(b) Parish-Level Analysis of Infant Mortality

One of the advantages of my micro-level study is that I am able to analyse my data at parish, rather than sub-district level. Out of sixteen cases of infant mortality in Norbury sub-district, ten occurred in Wentnor (40% within seven days of birth - see Table 8 below). In Lydbury North sub-district, out of 43 cases of infant mortality, seventeen occurred in Hopesay (59% of these cases died within seven days of birth). The parish of Lydbury North had a similar IMR to that of Hopesay, but had only six cases of death within the first seven days.

Table 8

Age of infant deaths, analysed by location.

Norbury & Lydbury North, July 1891 – December 1902

	Age 0-2 Days	Age 3-7 Days	Age 8-30 Days	Age 31-90 Days	Age 91-180 Days	Age 181-270 Days	Age 271-365 Days	Age Total
Norbury R.S.D.								
Parish								
More	1	0	0	0	0	0	0	1
Norbury	0	0	1	1	1	0	1	4
Ratlinghope	1	0	0	0	0	0	0	1
Wentnor	3	1	1	2	3	0	0	10
Total R.S.D.	**5**	**1**	**2**	**3**	**4**	**0**	**1**	**16**
Lydbury North R.S.D.								
Parish								
Edgton	3	1	2	0	0	1	0	7
Hopesay	6	4	3	1	2	1	0	17
Lydbury North	2	4	4	2	4	2	1	19
Total R.S.D.	**11**	**9**	**9**	**3**	**6**	**4**	**1**	**43**
Consolidated total	**16**	**10**	**11**	**6**	**10**	**4**	**2**	**59**

(c) Family-Level Analysis of Infant Mortality

Appendix 3 shows the linkages that I have made between sources, to build a picture of the families that experienced infant mortality. There are limitations to the effectiveness of this work. I mentioned in chapter 3 (p. 25) that my recording of the marriages in the Anglican parish registers in my area of research was of little value to my research. I was only able to link this information to other data in five cases - two in Norbury and three in Lydbury North. I mentioned above that this may suggest that a large number of the people involved in these events had migrated to Norbury or Lydbury North, but in some cases it may be that the people involved were Catholics or Protestant non-conformists. I have identified one Catholic family, - the family of Thomas Everall of Eyton, Lydbury North - using monumental inscriptions recorded at Plowden Catholic Burial Ground, and one Primitive Methodist family- the family of Thomas Powell Davies - using the register of baptisms for the Clun circuit of that denomination.

A further problem occurs in using this method, insofar as the Census Enumerators' Books are concerned. The records of the 1891 census were very useful in identifying parents who had infant deaths in their family in the period 1891-C1894. However, in the later years of my period this source was of less value. Presumably some people were untraceable because they had changed their place of residence since 1891, moving either into or within the sub-districts. Others may have married and set up their household between the 1891 census and the date of the infant death. If the 1901 CEBs were available to me I am confident that I would be able to add considerably to my nominal record linkage exercise. However, this source will not be available until the end of the one hundred years closure, in the year 2002 - too late for my research!

It will be noted that I was unable to link people to the CEBs with certainty in seven cases in Norbury sub-district, and in twenty-eight cases in Lydbury North. The failure to link

people to CEBs does not mean that I have found no useful material in those cases. In many cases I have traced baptisms of other children in the family, and this has enabled me to build up data on family sizes. Clearly, if my work is to encompass consideration of the mother's age at the time of birth, access to either the CEBs or a marriage record is required. I realise that the value of my work is weakened by the absence of these pieces of information. However, I have limited sources at my disposal, and such problems are difficult to overcome, particularly in the short time frame that I am researching.

At this point, a few words of explanation regarding Appendix 3 may be of help to the reader. The purpose of this appendix is to display all the information that I found regarding each of the infant deaths that I traced, to better facilitate the linkage of this information. Appendix 3(a) relates to infant deaths in Norbury Sub-District, and Appendix 3(b) relates to Lydbury North Sub-District. The data spreads over several sheets, which need to be placed alongside one another in page number order, with page 1 on the far left. The reference number allocated to the child in the Vaccination Register is shown in the far-left column of each page, in order to enable the reader to link easily the information on each page. The surname and forenames of each child are shown in the second and third columns on the first page. The other columns of this listing show, in respect of each infant death, all the information that I have traced about the child, his or her parents, and the residence of the family. I now consider this information in more detail, dealing first with Lydbury North sub-district.

Table 9 shows the information I have traced regarding the relationship between the age of mothers and infant mortality. It will be seen that of the sixteen instances of infant mortality in Lydbury North for which I have identified the ages of the mother at time of

Table 9.

Age of mothers giving birth to infants who died in infancy, analysed by parish of residence.

Norbury & Lydbury North, July 1891 – December 1902

	Age of Mother							
	<20	**20-25**	**26-30**	**31-35**	**36-40**	**41-45**	**Unknown**	**Total**
Norbury R.S.D.								
Parish								
More	0	0	1	0	0	0	0	1
Norbury	0	0	0	0	0	0	4	4
Ratlinghope	1	0	0	0	0	0	0	1
Wentnor	0	2	1	1	3	0	3	10
Total R.S.D.	**1**	**2**	**2**	**1**	**3**	**0**	**7**	**16**
Lydbury North R.S.D.								
Parish								
Edgton	0	0	0	1	1	1	4	7
Hopesay	0	1	0	1	3	0	12	17
Lydbury North	0	1	1	4	1	1	11	19
Total R.S.D.	**0**	**2**	**1**	**6**	**5**	**2**	**27**	**43**
Consolidated total	**1**	**4**	**3**	**7**	**8**	**2**	**34**	**59**

birth, 80% of them occurred in cases where the mother was aged 31 or above. In eleven of these cases the mother was aged 34 or above. This may suggest that the age of the mother was a significant factor in the structure of infant mortality in the 1890s.

Table 10 displays the data that I have collected regarding the relationship between the number of children born to a mother and infant mortality. It will be noted that, taking the two sub-districts combined, I was unable to collect this data in 21 cases out of a possible 59, and that there is, therefore, scope for this aspect of my work to be extended.

Another point to note is the difficulty of ascertaining precise data concerning parents who had not produced any children before the case under study. If the parents were married within a few months of the birth, I infer that the child in question was probably their firstborn. However, in cases in which the parents had been married for a longer period of

Table 10

Age of mothers giving birth to infants who died in infancy, analysed by number of previous known births

Norbury & Lydbury North, July 1891 – December 1902.

No. Previous Known Births to Same Mother	Age of Mother							
	<20	20-25	26-30	31-35	36-40	41-45	Unknown	Total
Norbury R.S.D.								
1	1	1	0	0	0	0	1	3
2	0	0	0	0	0	0	2	2
3	0	0	0	0	0	0	0	0
4	0	0	1	0	1	0	0	2
5	0	0	0	1	1	0	0	2
6	0	0	0	0	0	0	0	0
7	0	0	0	0	1	0	0	1
8	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0
Unknown	0	1	1	0	0	0	4	6
Total R.S.D.	**1**	**2**	**2**	**1**	**3**	**0**	**7**	**16**
Lydbury North R.S.D.								
0	0	0	1	0	0	0	0	1
1	0	1	0	1	0	0	6	8
2	0	1	0	2	0	0	4	7
3	0	0	0	1	1	0	0	2
4	0	0	0	0	1	0	0	1
5	0	0	0	0	0	0	0	0
6	0	0	0	2	1	0	0	3
7	0	0	0	0	0	1	0	1
8	0	0	0	0	1	1	0	2
9	0	0	0	0	1	0	0	1
Unknown	0	0	0	0	0	0	17	17
Total R.S.D.	**0**	**2**	**1**	**6**	**5**	**2**	**27**	**43**
Consolidated total	**1**	**4**	**3**	**7**	**8**	**2**	**34**	**59**

time, the fact that I may not have traced the birth of a previous child does not necessarily mean that such a birth did not take place. They may have had other children who were baptised or registered elsewhere.

In Lydbury North (Table 10), of 26 cases in which I have been able to establish family sizes, 7 of them involved families in which the mother had given birth to 6 or more previous children (30%). In fact, these seven cases occurred in two families. The data for Lydbury North contains no known instance of infant mortality where the mother was less than 23 years of age. It should be noted that I have failed to ascertain the ages of the mothers in the two cases of illegitimacy.

Appendix 4 details the seven cases that I have identified in which more than one infant death occurred in the same family. The layout of this appendix is similar to Appendix 3. but this table shows only the families in Lydbury North who experienced more than one infant death in my period. Cases of infant mortality in these families, which occurred outside the period of my research, are shown in Italics. As I mentioned in Chapter 3, this research has been enhanced greatly by my use of church burial records, which have enabled me to trace information outside the time-frame of my research; in some cases this is essential if one is to trace families which experienced multiple infant deaths.

The Green family, of Edgton, is of particular interest. This family experienced four cases of infant mortality, two within the period of my study and two before 1891. The Greens had at least five other children, who appear to have survived infancy. The infant deaths occurred in two short periods; two consecutive infants, born in 1880 and 1882, both died. The family then produced three babies who survived infancy, only to encounter the two cases of infant mortality that fell into my research period, in 1892 and 1896. None of the

Green infants whose deaths I have traced survived beyond thirteen days; two of them died on the day of their nativity, and one died on the fourth day.

The father of these children was an agricultural labourer. On the 1891 census the family is shown to be living in a house with only three rooms. It seems apparent that this was a poor family, but before we decide that this was a case of poverty-induced infant mortality we need to consider other factors. Possibly the infant deaths experienced by this family were due to genetic factors?

My data contains one case of the death of a pair of twins - the Corfields - in 1893. The mother of these children was aged 31, and had given birth to at least six previous children over an eleven-year period. All these children were alive at the time of the 1891 census. The father was a labourer.

The birth of twins appears to have been a particularly hazardous experience for mother and children in 1893, especially as skilled care does not seem to have been available for the persons involved. The 1895 MOH Report for Shropshire includes reference to an initiative to train six female midwives, due to a fall in the number of midwives available at that time. A comment was made (p.10) to the effect that a high percentage of deaths had occurred from "accidents of childbirth" in rural districts, as opposed to Urban districts. It is apparent that the authorities were trying to address the problem of lack of skilled care for mothers and infants, but I think that six midwives to cover all the rural areas of Shropshire cannot have provided anything like adequate cover.

In addition to the risks that were involved in giving birth to twins, it should be noted that the Corfields were a large family; it seems likely that they were poor. The same appears to have been true of the Morris family, who had the misfortune to suffer two cases of infant

mortality within two years. This family suffered from a number of seemingly inauspicious factors. The mother was aged 38 years when the first known infant death occurred in 1892, and the family already had eight children at that date. Given the fact that the father of this brood was an Agricultural Labourer, I conclude that this family was living in poverty.

I have traced two cases in which a mother and child both died shortly after birth.
John Thomas Anslow and his mother both died in July 1900, being buried at Edgton. The child was eleven days old; his father was a certain Thomas Anslow, who was a Platelayer on the Railway.

May Davies and her mother died in June 1893 and May 1893 respectively. May was a twin, and her mother died within 13 days of the births. May died aged 28 days. Both mother and child were buried at Lydbury North. This case adds weight to the evidence, mentioned above in relation to the Corfield family, of the danger of giving birth to twins in the 1890s.

I assume that Thomas Anslow, mentioned above, must have re-married, because in 1902 he fathered another child. This female child died aged one day, not having been named. It seems uncommonly bad luck for a man to have two children by two different women within two years, only for both of them to die shortly after birth. Possibly this may indicate a genetic cause of infant death - the gene being passed on by the father? Alternatively, this could have been caused by poor living conditions. We should note that Platelayers featured lowly in the occupational hierarchy - I have placed them in Armstrong Category 4.

The final case of multiple infant deaths in the same family that I traced occurred in the family of James Arthur Edwards, a Farmer at Broome, Hopesay. Evidence from the Valuation List for Hopesay (1900) shows that the James Edwards occupied property that

extended to 400 acres. As such, he was a very substantial Farmer, and should, I judge, be regarded as a prosperous man. I have placed him in Armstrong Social Classification 2. One wonders why a family such as this should experience two cases of infant mortality within the period 1900-1902? The experience of this family shows that my hypothesis cannot be entirely correct.

The data for Norbury (Appendix 3(a)) contains no cases of multiple infant mortality in the same family. I have already mentioned the high proportion of infant deaths that occurred in the families of Farmers, and this is the most striking aspect of this material. Norbury had only one known case of infant mortality in families with six or more previous children and only two identified cases of infant mortality where the mother was aged 34 or over. This different pattern of infant mortality in Norbury, compared to Lydbury North, may be due to a difference between the two sub-districts in the respective number of births to wives of Farmers and Labourers.

(d) Occupational Analysis of Infant Mortality – Variations between Sub-Districts

In treating the occupational make-up of the population in the areas under consideration, I decided not to obtain my data by calculating the sum of the persons living in the area who were employed in the various occupations. I made this decision because I am interested in studying people of child-bearing age, and data obtained in such a way would include people of all ages, many of whom would seem unlikely to be producing children. Additionally, any such information would only relate to 1891, the year of the CEBs available to me. In order to obtain relevant information I decided to calculate the proportion of births in the period July 1891 - December 1902 that related to each employment category. I accept that this method does not provide me with data relating to people who did not produce children during my period, but believe that the information

will be more relevant to my project because (a) it relates to child-producing men, and (b) it covers the whole of the period.

The result of this exercise insofar as it relates to Farmers and Labourers is that in Lydbury North 256 births out of a total of 463 were the children of Labourers (55%), whilst 60 infants were born to the wives of Farmers (13%). In comparison, in Norbury, out of a total of 318 births, 114 were the children of Farmers (36%), whilst 67 were the children of Labourers (21%). These findings suggest that the social structures of the two sub-districts were different, at least in respect of people of childbearing age. Although, as I previously mentioned, the IMR for Farmers in Norbury seems to have been unusually high, we need to bear in mind that the overall IMR in Norbury, with its high proportion of resident Farmers, was considerably lower than that for the neighbouring sub-district of Lydbury North, with its high proportion of resident Labourers. This tends to support my hypothesis.

(e) Neo-Natal Mortality related to Social Structure.

The reader will have noted my above findings regarding the differing social structures of the communities of Lydbury and Norbury sub-districts in the 1890s. I think it reasonable to suggest that this may account for the differences in IMRs between the two sub-districts (See Table 3, p.37). This lends support to my hypothesis, as it indicates that neonatal infant mortality was higher in areas that were less prosperous economically

The high incidence of infant mortality in the first days after birth suggests to me that poor nutrition of mothers and/or children may have been a significant factor, and this point was treated by Newman (1906, pp. 88-89). I have no information regarding the incidence of premature births in my area and period, but wonder whether this may have been a common occurrence, related to poor nutrition and hard working life which many of the mothers may well have had to cope with. One may assume that the wives of labourers had a heavy work

load, but this may have been equally true of the wives of farmers, many of whom probably worked on their farms.

I mentioned above (pp. 46-47) the comments of the Local Government Board Inspector (1905), which suggest that there must have been a poor standard of cleanliness in the facilities for water supply and sanitation, and it seems likely that these factors would have contributed to neo-natal mortality. I have shown (page 45) that MOH reports inform us that attempts were being made to address such issues, but progress was slower than the local authorities wished, partly due to local opposition.

The attraction of explanations such as these is that they can account for the existence of infant mortality in communities that appear to have differed substantially in their social make-up. A contaminated water supply may be expected to have affected all people whose supplies originate from the source in question. The disadvantage of these explanations is that it is impossible to prove that they are correct; thus the debate about the nature of late nineteenth century infant mortality, outlined in chapter 2, continues!

5. Conclusions

In this final chapter I shall consider briefly the main points of interest, which arise from my research. I shall comment on their significance to (a) the continuing academic debate on the reasons for the decline of infant mortality and (b) the value of my findings in the context of the project to which I am contributing.

We cannot learn about the reasons for the decline in infant mortality that occurred over the period 1871-1948 without first ascertaining the causes of the problem of late nineteenth century infant mortality. My work has been aimed at providing a detailed, localised view of the problem as it existed in South Shropshire one hundred years ago.

As far as I am aware, the research that I have carried out is unique. I have already pointed out the novelty of the core source for my work, and the calls that have been made by various academics for micro-level research into a subject that has been mainly treated on a macro level. My work is aimed at filling a gap in our knowledge on the subject of infant mortality particularly as it deals with a small, rural area, rather than a major town. I hope that it will provide meaningful material for use in the overall project in which I am participating, and also stand on its own as a significant contribution to knowledge on this subject.

I mentioned in Chapter 1 (pp. 5-7) the issues which I have concentrated on in my work, and I shall now consider each of these briefly. In doing this, I shall arrive at an evaluation of the hypothesis that has been the basis of my work.

If my hypothesis is correct in its explanation of the causes of infant mortality, one would expect to find that many of the mothers giving birth to children who died as infants were in the older child-bearing years. This is because it is based on an assumption that infant mortality occurred in large families, and it seems reasonable to assume that the more children a woman had produced, the older she was likely to be. For the purposes of this exercise I have assumed that women aged 34 or above may be considered to be rather old for the rigours of childbirth in the 1890s, but I realise that the this assumption may be contentious. Anderson states that, in general, people tended to marry later in the 1890s than they do today (Drake, M. (ed.), 1994, p.79) and it could therefore be argued that 34 was not particularly old for childbirth at the dates under consideration. I would counter this by suggesting that the fact that later marriage was more common one hundred years ago than now does not necessarily mean that women over 34 were not at greater risk in giving birth than younger women.

In spite of the fact that the numbers with which I have dealt have been small, making it less than safe to generalise from my results, my study has enabled me to look at this issue at a very low level. In so doing, I have been able to make some tentative suggestions regarding the effect on infant mortality of the age of mothers. In Norbury I found that just under 50% of the children who died in infancy, and for whom I was able to discover the mother's age, had mothers of the age of 34 or over. In Lydbury North the comparable percentage was 66%. These figures suggest that there may be some validity in the theory that older mothers were more likely to produce children who died in infancy in the late nineteenth century.

I have taken great pains to collect information that would enable me to consider, in depth, the issue of family size in cases of infant mortality. As Appendices 3(a) & 3(b) show, I was able to gather information showing the size of families in which infant deaths occurred

in Norbury in eleven cases (68% of the total number of cases). In Lydbury North I obtained similar information in 26 cases (60% of the total number of cases). I have shown that in Lydbury North 30% of these cases occurred in families of six children or more. In Norbury I only found one such case (9%).

Whilst the data for Norbury would suggest that this aspect of my hypothesis is of doubtful validity, the material for Lydbury North suggests that this may not be so. It will be necessary for this aspect of my work to be further explored by other researchers in other geographical areas in order to arrive at a more certain conclusion.

The issue of the social status of the families I encountered who experienced infant mortality has proved interesting. I have shown (Table 7(b), p.52) that in Norbury the highest proportion of infant deaths occurred in Armstrong Classification 2, whilst in Lydbury North, the counterpart to this was Armstrong Classification 5. This seems to reflect the difference in social make-up of the two sub-districts.

I have shown that this aspect of my findings in the case of Norbury is very unusual, and contradicts not only my hypothesis, but also the conventional wisdom, which is that infant mortality was most common among the lower classes. The data for Lydbury North, however, shows the opposite result, and supports my hypothesis. Which of these findings, if either, is correct?

I think that it is reasonable to take a cumulative set of data from both sub-districts to arrive at an overall view, which, we may hope, will help to resolve the dichotomy in my findings. Table 7(b) shows the results of this exercise, and demonstrates that 51% of cases of infant mortality in the two sub-districts occurred in Armstrong Classification 5. If we take this a stage further, and combine Armstrong Categories 4 and 5, we find that 64% of cases of

infant mortality in the two sub-districts occurred in families in which the father was a member of one of these groups. I regard this as strong evidence in support of my hypothesis.

I think that this last finding is crucial to my research, as it underpins my other conclusions. As I showed in Chapter 2, several of the academics, who have written on the subject from different viewpoints, have expressed the view that poverty was a significant factor of infant mortality in the late nineteenth and early twentieth century. I have in mind McKeown (p.9 above), Thompson (p.9 above), Szreter (p.11 above), & Newman (p.12 above). If my finding that social class was a significant factor in infant mortality in the late nineteenth century is correct, it lends support to the view that poverty was a meaningful element in the problem. In such circumstances I would expect that the mothers would not be in prime physical condition, resulting in the children being born in a weakened state. This would be likely to result in the high rates of neo-natal infant mortality that other researchers and I have identified. Whilst my results have not **proved** that large families were a major factor in infant mortality, they have indicated that this may be the case. Additionally, I have shown that only one of the cases of multiple infant deaths that I found occurred in an Armstrong social classification higher than 4 (Appendix 4). The larger the family, the harder the mother would have had to work, and, in a poor family, the more likely it was that she would not enjoy good health; thus, I suggest, the cycle of events often continued.

I think it likely that other aspects of the problem of infant mortality that I have mentioned, such as poor housing, and insanitary conditions, played their part in some or all of the cases of infant mortality that I have treated. However, I have not been able to find sufficient evidence regarding these aspects of the problem to enable me to reach valid conclusions.

Perhaps the most significant result of my research is my discovery of the variance between the experience of infant mortality in Norbury and Lydbury North sub-districts in the last years of the nineteenth century. These two areas are adjacent to one another and their geographical situation and features are such that, apart from administrative reasons, there seems no reason for them to be treated separately. However, by my use of the Vaccination Registers and a series of sources that are essentially local in nature, I have discovered significant differences between the experiences of infant mortality in the two sub-districts. These differences encompass not only the rates of infant mortality, but also the social classification of families who endured the loss of infants, the social make-up of the populations of child bearing age in the two sub-districts, and the sizes of the families in which infant deaths occurred. These differences do not only apply between the two sub-districts. I have shown (Table 4, p.39) that there were variances in the experience of infant mortality between parishes within each sub-district, and this analysis could be extended further, to treat individual hamlets and villages within the sub-districts. These differences could not have been identified by the use of the type of macro-level sources used by most previous researchers into my subject, and justify the calls made by Williams and Galley and others for more micro-level studies in this field (1995, p.420).

The type of local differences that I have identified in Norbury and Lydbury North sub-districts justify the decision, taken by the Project Directors, to seek to widen our knowledge by finding micro-scale evidence of the causes of infant mortality in the late nineteenth century. Differences such as those that I discovered must, I believe, exist in other areas. One's ability to carry out the type of micro-level work which I have described is limited to the availability of sources, but there must be many other locations, besides those being covered by my fellow researchers who are participating in the overall project, which can be researched in detail. If the potential to carry out this type of research could be

realised, I believe that the results obtained would be a very significant addition to our of knowledge of the structure of infant mortality in England and Wales in the late nineteenth century. Hopefully, we could then attempt a resolution of the conundrum that is the subject of the project organised by Prof. M. Drake and Dr. P. Razzell.

Appendices

Primary Sources.

Note: Locations of Sources are indicated by the number in brackets after the description.

1. Vaccination Registers of Births, July 1891-December 1902: -

Norbury Sub-District - Source Ref. PL6/252. (1)

Lydbury North Sub-District, - Source Ref. PL6/250 & PL6/251. (1)

2. Parish Registers of Baptisms, Marriages & Burials for the following Church of England parishes: -

More (1), Norbury (1), Ratlinghope (1), Myndtown (2), Wentnor (3) (all in Norbury Sub-District).

Edgton (4), Hopesay (1), Lydbury North (4) (all in Lydbury North Sub-District).

3. Baptism Registers of Clun Circuit Primitive Methodists & Wesleyan Methodists, transcribed and held by Dr. M.E.Wilson.

4. Census Enumerators' Books (1891): -

Norbury, Ref. RG12/25087. (1)

Lydbury North, Ref. RG12/2088. (1)

5. Annual Reports of the Medical Officer of Health, Clun Sanitary District: -

1889, ref. SC 1/1C 2/8. (5)

1890, ref. SC 1/1C 2/40. (5)

1892, ref. SC1/1C 2/74. (5)

1896, ref. SC 1/1C 2/98. (5)

6. Annual Reports of the Medical Officer of Health, Shropshire County: -

1895, ref. SC1/1C 1/1. (5)

1898, ref. SC1/1C 1/2. (5)

1899, ref. SC1/1C 1/3. (5)

1902, ref. SC1/1C 1/6. (5)

7. Minutes of the Sanitary & Rivers Pollution Committee of Shropshire County Council, 1889-1901, ref. SC5/1A. (5)

8. *Dr. Reginald Farrar's report to the Local Government Board on the sanitary circumstances and administrations of the Clun Rural District, Salop* (1905), H.M.S.O.

9. Kelly's Directory of Shropshire (1): -

1891 & 1900.

10. Rate Book, Lydbury North, 1896, Ref. P177/L/3/80. (1)

11. Valuation List for the Parish of Hopesay, 11th February 1898, Ref. PL6/278. (1)

12. Annual and Quarterly Returns of Births and Deaths of the Registrar General, 1891-1902.

Key to Locations of Sources:-

(1) Shropshire Records & Research Centre, Castle Gates, Shrewsbury, Shropshire.

(2) Held in the church at Myndtown, Shropshire. Access was made available to me by Mr.M.Corfield, Churchwarden.

(3) Held at the church at Wentnor. Access was made available to me by Rev. R.T.France.

(4) Held at the Church at Lydbury North. Access was made available to me by Rev. A.F.Denyer.

(5) Shropshire County Council, Records Management Service, Shirehall, Shrewsbury, Shropshire.

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