

The Social Impact of the Influenza Pandemic of 1918-19: with Special  
Reference to the East Midlands

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## ABSTRACT

The purpose of this study was to explore the social impact of the 1918-1919 influenza pandemic, known as 'Spanish influenza', on the lives of the people of the East Midlands (defined as Leicestershire, Nottinghamshire and Derbyshire). A range of primary and secondary literature revealing the global impact of the event was examined, together with literature focusing on Britain and the East Midlands region to enable appropriate comparisons to be made and the East Midlands's experience to be contextualised.

The event has been examined in six chapters. These consider theories relating to the origins and spread of the pandemic, together with morbidity and mortality levels in military and civilian populations, including patterns relating to age and gender, the susceptibility of particular communities and differences associated with socio-economic status and rurality. Provision of care for the sick in hospital and in the home and arrangements made for the burial of the dead have been discussed as have preventive and curative methods adopted by doctors, public health authorities and people themselves and the effects of the pandemic on everyday life, at work, at school and in leisure activities.

The influenza pandemic is regarded as having struck in three waves, the first between March and August 1918, the second between September and December, 1918 and the third between January and May 1919. However, the onset and duration of these waves differed from place to place and many countries, particularly outside Europe, did not experience all three waves. Furthermore, not all places within the same country experienced the pandemic in the same way, some areas suffering severely while others suffered much less. This study, therefore, attempts to show how the East Midlands, an extensively urbanised and industrialised region in the centre of England, experienced the influenza pandemic and seek to explain this.

### Acknowledgements

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### **List of Abbreviations**

AEF	American Expeditionary Force
BEF	British Expeditionary Force
IWM	Imperial War Museum
LGB	Local Government Board
MOH	Medical Officer of Health
MRC	Medical Research Committee
RAMC	Royal Army Medical Corps
RG	Registrar-General
TNA	The National Archives
USA	United States of America
VAD	Voluntary Aid Detachment
WWI	World War I
WWII	World War II

## INTRODUCTION

The history of epidemic disease is a topic which has inspired many writers and researchers over the years. Bubonic plague, smallpox, cholera, typhoid and many other infections, their effects on society and the lives they claimed, have been the subject of numerous volumes in Britain and countries across Europe, America and elsewhere.

However, one epidemic disease which, until relatively recently, had not received such attention, was influenza, a common enough infection which tends to appear annually without arousing undue concern. Until, that is, twentieth century historians began to write about what may have been the worst influenza pandemic ever recorded and for which data exists showing the number of victims, many of whom died. This prompted a new interest in influenza which became the focus for an increasing level of serious research, producing books, articles, theses and television documentaries.<sup>1</sup> Influenza vaccinations are now a yearly event for many people and reports of influenza outbreaks are treated with the greatest seriousness. In the early twentieth century, however, this was not the case.

The aim of this study, therefore, is to further contribute to an understanding of the social history of this particular illness in 1918-19 by looking at its impact on a specific British regional population, that of the East Midlands. In order to do this, a brief survey of the history of the disease, including theories about its origins, its various appearances through time in countries across Europe and beyond, its symptoms and effects and how it was understood and treated is first explored. This is followed by an examination of what is known today about the disease and the virus that causes it; the result of modern research after the scientific and technological developments of the 20<sup>th</sup> century made it possible to isolate the infective agent. Finally, this study will go on to explore the emergence of the 1918-19 influenza pandemic towards the end of WWI, its appearance in three distinct waves in the summer and autumn of 1918 and the winter of 1918-1919 and the sickness, death and disruption it caused within military and civilian populations around the world, but particularly in Britain and in the East Midlands' region.

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<sup>1</sup> Documentaries include: The Domesday Flu (1998), The History Channel; The Case of the Killer Flu (1999), BBC Television; In Search of Spanish Flu (2009), BBC Television.

## A brief history of influenza

The origins of influenza are unknown although a number of authors from a variety of disciplines have attempted to chronicle its appearances and effects on human populations throughout history. In the *Cambridge World History of Human Disease*, K. F. Kiple links its appearance to the advent of agriculture and settled populations of people and domestic animals which occurred after the Paleolithic period. However, he goes on to point out that, although it may have existed in animals much earlier, there is little evidence of its spread amongst humans in Europe before the middle ages.<sup>2</sup> Journalist and historian, Tom Quinn agrees with this hypothesis, placing the appearance of influenza in the medieval period to coincide with an increase in the practice of waterfowl and poultry keeping; birds, as we know today, being natural hosts of the various influenza viruses.<sup>3</sup> Despite its uncertain origins, there is evidence of diseases causing similar symptoms to influenza in writings from different countries covering many centuries and Quinn, Charles Creighton and Mark Honigsbaum in their respective books give detailed accounts of these early manifestations.

They point out that historical records have many examples of highly contagious, acute respiratory illnesses. Livy and Hippocrates both describe such an illness sweeping through northern Greece in 412 BC.<sup>4</sup> However, the first references to influenza by name occurred in Italy following an outbreak in 1504 which was attributed to the influence (influentia) of the stars.<sup>5</sup>

Elsewhere In the 15<sup>th</sup> century a name for this type of illness was 'mure' or 'murre,' meaning a highly infectious disease. The obituary of the monks of Canterbury Abbey has two deaths from 'empemata, id est, tussis et le murra.' (tussis meaning cough). In 1411 the French applied the name 'tac' to an epidemic featuring a dry, hacking cough, chills and extreme lethargy.<sup>6</sup>

The sudor Anglicus or 'English sweat,' first recorded in England in 1485 may have been influenza but Quinn argues that it could also have been hanta virus, a

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<sup>2</sup> K. F. Kiple, *The Cambridge World History of Human Disease* (Cambridge, 1993), p. 808.

<sup>3</sup> T. Quinn, *Flu: A Social History of Influenza* (London, 2008), p. 41.

<sup>4</sup> M. Honigsbaum, *Living with Enza: The Forgotten Story of Britain and the Great Flu Pandemic of 1918* (Basingstoke, 2009), p. 5.

<sup>5</sup> W. I. B. Beveridge, *Influenza: The last great plague* (London, 1977), p. 24.

<sup>6</sup> Honigsbaum, *Living with Enza*, p5; C. Creighton, *A History of Epidemics in Britain* (2<sup>nd</sup> edn. vol. 2 London, 1965), p. 305.

respiratory disease contracted from rodents but descriptions are too vague to be sure.<sup>7</sup> However, shortly after the Battle of Bosworth in 1485 the army was apparently afflicted with 'the English Sweat,' although it was described at the time as an unknown disease. Symptoms were sweating, coughing, weakness, painful joints, thirst, headaches, high fever and vomiting. The disease spread quickly and Henry Tudor had to delay his coronation until October. It was thought to have been brought over from France by Henry's foreign mercenary archers. Several other outbreaks of the sweats were recorded in 1508, 1517, 1528 and finally 1551. The scholar, Erasmus (1466-1536), described the disease in a letter to his friend Juan Luis Vives in 1513, commenting not only on the symptoms, but also on the filthy living conditions which he was convinced were the root cause of the affliction.<sup>8</sup>

In 1510, a severe pulmonary disease swept across Europe from Africa. Called 'coqueluche' by the French, its symptoms were headache, chills and severe cough. It was described by Dr Thomas Short in 1749 and he wrote an account of similar outbreaks in 1557 and 1580, describing the former as 'coming with the first cold winds of autumn and winter'. A letter from the Scottish court in 1562 written by Lord Randolph to William Cecil also indicated a similar sickness termed the 'Newe Acquayntance' was afflicting Edinburgh.<sup>9</sup>

According to Honigsbaum, the 1580 outbreak, which swept northwards from the Mediterranean to the Baltic, may possibly have been the first true influenza pandemic. Every country in Europe was affected within 6 weeks and in Rome 9,000 victims died. Contemporary accounts from Asia and Africa suggest that it affected every continent at about the same time and its effects decimated the English army in Ireland.<sup>10</sup>

In the 17<sup>th</sup> century there were several possible outbreaks. In 1610 influenza is said to have prevailed throughout Europe inflicting high morbidity but little mortality and in 1658 a serious outbreak at the end of April was recorded by Dr Willis.<sup>11</sup> The influenza of 1675 was recorded by Dr Thomas Sydenham who recalled that it went through whole families at once and spared hardly anyone.<sup>12</sup> In an outbreak in 1688, England,

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<sup>7</sup> Quinn, *Flu: A Social History of Influenza*, p. 41; Honigsbaum, *Living with Enza*, pp. 5-6.

<sup>8</sup> Quinn *Flu: A Social History of Influenza*, p. 41-46; Honigsbaum, *Living with Enza*, p. 6.

<sup>9</sup> Honigsbaum, *Living with Enza*, p. 6-7.

<sup>10</sup> *ibid*, p. 7.

<sup>11</sup> Quinn, *Flu: A Social History of Influenza*, p. 52.

<sup>12</sup> *ibid*, p. 55.

Ireland and Virginia were affected, and in another in 1693 people across the whole of Europe were afflicted.<sup>13</sup>

The 18<sup>th</sup> century brought better pandemic records incorporating more scientific language. There was an explosion of scientific societies with an enthusiasm for discovery and knowledge. This was the Age of Enlightenment. Human trade and travel became easier and more frequent and influenza spread accordingly and increased in virulence. There were three major influenza pandemics and two large epidemics. The influenza of 1712 was known in Germany as the 'Galanterie – Krankheit' or the 'Mode – Krankheit' and in France the term La Grippe came into use to describe the illness. It was also referred to in an essay by John Turner entitled *Febris Britannica Anni 1712*.<sup>14</sup>

John Huxham of Plymouth wrote an account of the 1729-30 pandemic in 'Observations on the Air and Epidemical Diseases' in 1758. John Arbuthnott of London wrote about the pandemics of 1728 and 1732-33 in his 'An Essay Concerning the Effects of Air on Human Bodies,' in 1751 while Sir John Pringle wrote a personal reflection on his experience of the 1733 outbreak. In 1743 the term 'influenza' was applied specifically to the epidemic raging in Italy at the time. As it spread over Europe the word influenza became generally used and was recorded in the *Gentleman's Magazine* in May 1743. By February 1743, 80,000 citizens were affected in Rome and 500 were buried in one day. In Spain it depopulated whole villages. In London it trebled the death rate in one week. Horace Walpole, describing its effects in a letter dated 25 March 1743 stated '.....not a family in London has scaped under five or six ill; many people have been forced to hire new labourers. Guernier, the apothecary, took two new apprentices, and yet could not drug all his patients.'<sup>15</sup>

Quinn states that the pandemic of 1781-2 was one of the worst outbreaks in history. Edward Gray wrote about it in 'An Account of the Epidemic Catarrh of 1782' at the request of the Society for Promoting Medical Knowledge. The suggestion was it started in China, travelled to Russia and then went on to affect many other countries including the East Indies, Britain, France, Italy, Denmark, Spain, Portugal and America. The *London Medical Journal* records that following the landing of two ships

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<sup>13</sup> Honigsbaum, *Living with Enza*, pp. 7-8; Creighton, *A History of Epidemics in Britain*, pp. 327-328.

<sup>14</sup> Quinn, *Flu: A Social History of Influenza*, p. 59; Creighton, *A History of Epidemics in Britain*, pp. 339-340.

<sup>15</sup> Quinn, *Flu: A Social History of Influenza*, pp. 39 & 59-69; Honigsbaum, *Living with Enza*, p. 8; Creighton, *A History of Epidemics in Britain*, pp. 349-350.

from the West Indies at Gravesend – the Convert and the Lizard – the crews of both ships had succumbed to influenza within hours.<sup>16</sup>

Medics were coming to realise that contagion was spread through human contact and not the result of foul airs and mists. The term 'influenza' was now formally adopted by the College of Physicians with perhaps the first appearance of the name in Britain occurring in the London periodical, *The Political State of Great Britain*, in an account of the epidemic in Italy in 1729. There was now a clear distinction between epidemic agues and influenzas.<sup>17</sup>

In the 19<sup>th</sup> century, the first influenza epidemic, appearing first in Paris and then covering much of Britain and Ireland, occurred in 1803, by which time some doctors were investigating the process of transmission by social contact and the possible benefits of isolation or quarantine.<sup>18</sup> In 1831 a lethal strain of influenza swept across Europe. Again referred to as la grippe in France, pneumonia was a common complication. It occurred in three waves, the second wave appearing in 1833 and the third wave in 1837. The final wave was the deadliest, claiming 3,000 lives in Dublin alone. A London Doctor described it as one of the 'more direful scourges' he'd ever experienced.<sup>19</sup> It spread through the Royal Navy, the most widely dispersed navy in the world at that time, and travelled with it. Dr McWilliams, who treated the men on HMS Canopus, described the effects of the 'flu on the crew of 650, two thirds of which were struck down in a single day and, 'were in an hour or two prostrate in mind and body, as if by some sudden blow'.<sup>20</sup>

Elsewhere, Barcelona was especially badly hit and ships avoided Spanish ports. In France and Spain people were collapsing at a rate of 3 or 4 an hour while in Berlin, deaths from influenza exceeded births. An attempt at analysis was made by Dr Streeten of the Council of the Provincial Medical Association. He issued a list of questions in a circular to council members after the final wave asking for information on the origin, progress and duration of the epidemic, its symptoms and treatment.<sup>21</sup>

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<sup>16</sup> *ibid*, pp. 71-74.

<sup>17</sup> Quinn, *Flu: A Social History of Influenza*, pp. 71-79; Creighton, *A History of Epidemics in Britain*, p. 362.

<sup>18</sup> Quinn, *Flu: A Social History of Influenza*, pp. 86-94.

<sup>19</sup> Honigsbaum, *Living with Enza*, p. 8.

<sup>20</sup> Quinn, *Flu: A Social History of Influenza*, p. 118.

<sup>21</sup> *ibid*, pp. 114-119.

In 1847-48 there was another influenza pandemic which claimed an additional 5,000 lives in London over and above a normal influenza season and was compared to cholera. Over a period of six weeks it spread across Britain. Many died of pneumonia, bronchitis, asthma and similar ailments associated with influenza.<sup>22</sup>

The Influenza pandemic of 1889-91 was said to have arrived in Europe via Russia. It probably came from southern China but was called Russian 'flu. It also reached the USA at the same time, which was attributed to the mass migration of poor Europeans to the New World by steam ship. A quarter of a million people died in America. From there it spread to Japan, Latin America and Asia. Dr Parsons wrote that it arrived in Scotland on 17 December 1889 when the crew of the Riga landed at Leith. It made a total of four visitations between 1889 and 1894, by which time approximately 100,000 Britons had died.<sup>23</sup> After 1894, however, there appear to have been no further widespread outbreaks of influenza until the event of 1918 which is the focus of this study.

#### Characteristics and behaviour of the virus

The cause of this devastation down the centuries and the characteristics which enable it to behave in such a way have generated many different theories. In past times a variety of causes for the sickness were assumed including volcanic activity, meteorites, the weather, miasmas or foul air, dust and dirt and even retribution for sin. The actual cause, however, is a virus, the physical characteristics of which can be seen in Figure I below.<sup>24</sup>

The diagram shows an influenza viron (virus particle), the size of which is so incredibly small that '...an ordinary pinhead can accommodate a billion and to photograph them an electron microscope has to magnify their image at least 200,000 times'.<sup>25</sup> This fact meant that, despite the great advances in medical science following the 'bacteriological revolution' of the nineteenth-century and although scientists realised that there were microbes smaller than bacteria that could cause illnesses,

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<sup>22</sup> Honigsbaum, *Living with Enza*, p. 8; Creighton, *A History of Epidemics in Britain*, pp. 390-391.

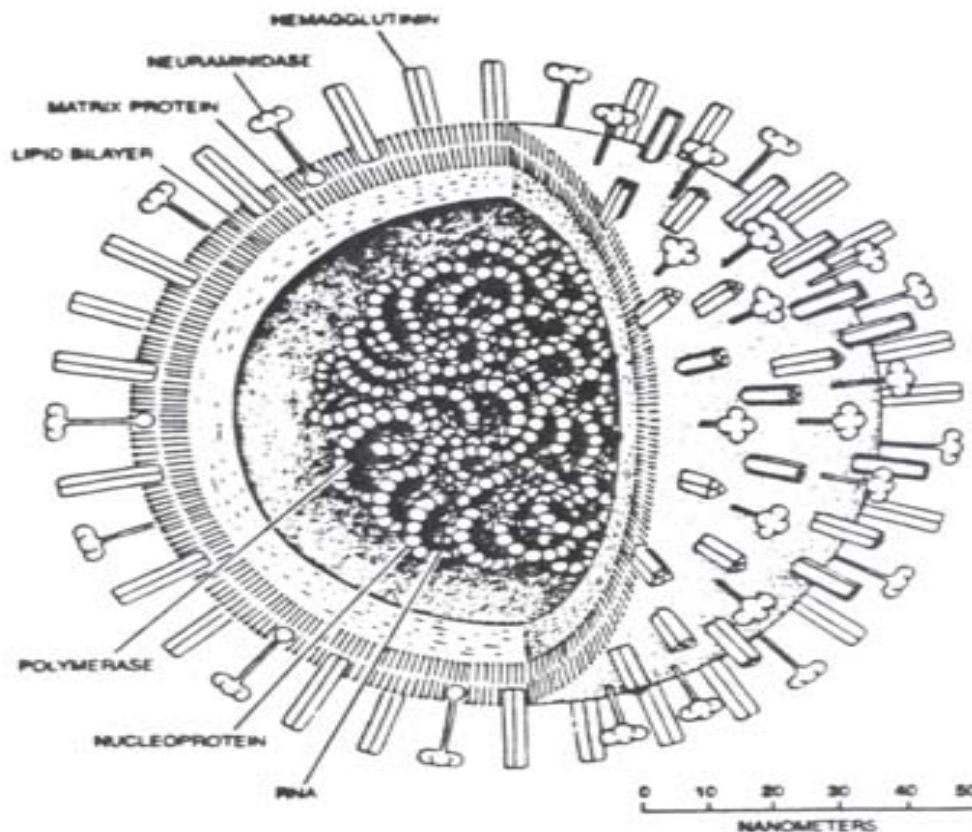
<sup>23</sup> Quinn, *Flu: A Social History of Influenza*, p. 120; Creighton, *A History of Epidemics in Britain*, pp. 393-395; Honigsbaum, *Living with Enza*, p. 15.

<sup>24</sup> *Scientific American* (1977) cited in G. W. Rice, *Black November: The 1918 Influenza Pandemic in New Zealand* (Christchurch, 2005), p. 22.

<sup>25</sup> Rice, *Black November*, p. 22.

referred to as filter-passers, the agent which caused influenza could not actually be seen until the invention of the electron microscope in 1933.<sup>26</sup>

Figure I. Diagram of the structure of an influenza viron.



Source: Rice, *Black November*, p. 22.

The viron is normally spherical in shape but can become elongated and its surface is covered with spiky projections which are antigenic glycoproteins. There are two different types of glycoproteins, haemagglutinin (abbreviated to H or HA) which is triangular in cross section, and neuraminidase (abbreviated to N or NA) which looks similar to a mushroom on a thin stalk. During the infection of a host, the haemagglutinin spikes bind the virus to the host's red blood cells, thereby establishing infection. The neuraminidase spikes then cleave sialic acid residues from glycan

<sup>26</sup> Beveridge, *Influenza*, pp. 2-3.

structures on the surface of infected cells promoting the release of progeny viruses which spread the infection into surrounding, uninfected cells. In this way the host quickly succumbs to the disease.

Although the host naturally produces antibodies to combat the infection and prevent re-infection, the influenza virus is extremely adaptable. At the core of the viron are eight single strands of ribonucleic acid (RNA), each containing separate genetic information. This gives the virus an infinite range of reproductive possibilities into types and sub-types and allows for the recombination of genetic information in ways which can make combating the disease, at times, almost impossible.<sup>27</sup>

The influenza virus tends to change its structure at regular intervals. These changes are normally quite small and referred to as antigenic drift. In such cases the antibodies produced in a host's body can still recognise the virus from the last time it was infected and it is thus able to defend itself against the new infection. A significant problem arises, however, when the virus goes into antigenic shift. In this instance the structure of the virus changes so completely that no antibodies from any previous outbreak can recognise it. It is at these times that epidemics and pandemics occur.

Of the three types of influenza virus currently identified by medical science, A, B and C, it is type A which has the ability to transform itself into a variety of subtypes, thus giving it the power to cause epidemics and global pandemics. The different subtypes are identified by the configuration of their surface proteins and are signified using numbers together with the letters H and N referred to above. To date, fifteen forms of haemagglutinin and nine forms of neuraminidase have been identified, but only three of the former and two of the latter are connected to human infection. These are H1, H2 and H3 and N1 and N2.<sup>28</sup> The Influenza A subtype which is thought to have been responsible for the 1918 pandemic is H1N1.

The genetic shift in the type A virus required to generate a pandemic normally only occurs at intervals of several years as can be seen from the historical description above. When it does occur, however, with no immunity in the target population to combat it, the effects can be catastrophic. An added danger with the type A virus is

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<sup>27</sup> Rice, *Black November*, p. 22; N. Johnson, *Britain and the 1918-19 Influenza Pandemic: A dark epilogue* (Oxford, 2006), pp. 10-11 & 25-26; Honigsbaum, *Living with Enza*, pp. 10-11.

<sup>28</sup> Johnson, *Britain and the 1918-19 Influenza Pandemic*, pp. 11-12; Beveridge, *Influenza*, pp. 68-75.

its apparent ability to 'jump species'. Type A influenza is common not only to humans but also to horses, pigs and birds including chickens, ducks and geese. The regular close proximity of these creatures to humans in both living and working environments together with the ability of the virus to re-assort its genetic code by exchanging genes with a different version of the virus – part human strain plus an avian or swine strain - make for a dangerous combination where infection is concerned, leading to the possible creation of entirely new strains of the type A virus to which humans have no immunity.

### Symptoms

The symptoms of the disease are, for the most part, very similar to the common cold. Initially the patient will usually experience headache, dizziness, shivering, aching limbs, fever and a cough. There may also be nasal discharge and difficulty in sleeping. Symptoms may persist for several days with full recovery taking up to ten days or longer depending on its severity and the victim's resistance.<sup>29</sup>

As a rule, Influenza occurs in two or three waves. The first wave tends to be mild but will then be followed by a more severe second wave and sometimes by a slightly less severe third and final wave. It usually attacks the very young, the very old and those with weakened or impaired cardiovascular or respiratory systems. As a regular seasonal ailment occurring generally in the autumn and winter months, its familiarity has led people to think that influenza is not particularly serious. However, as described above, it has a long history of inflicting mass infection, hospitalisation and even death. As an acute respiratory infection, common complications associated with influenza include pneumonia and bronchitis. The heart and nervous systems can also be seriously affected.<sup>30</sup>

### Influenza in 1918-19

In 1918, as WWI was moving towards its conclusion, what is believed to have been the world's worst pandemic of influenza until that time, broke out. Erroneously named the Spanish Flu, because it was through the uncensored press of neutral Spain that the world first became aware of it, countries around the globe were affected at about the same time, a situation never satisfactorily explained, although thought by

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<sup>29</sup> Johnson, *Britain and the 1918-19 Influenza Pandemic*, p. 3; Beveridge, *Influenza*, pp. 75-76; Rice, *Black November*, pp. 21-23.

<sup>30</sup> Johnson, *Britain and the 1918-19 Influenza Pandemic*, pp. 3-4.

many to have been caused by the constant mass movements of men and equipment necessitated by war, often in cramped, over-crowded, unsanitary conditions on board ships, a perfect environment for the spread of infection.

It is this outbreak and its effects on the East Midlands, specifically Leicestershire, Nottinghamshire, Derbyshire, with which this study is concerned. The reason for the selection of these counties as the study area was because they were the main industrial centres for the region at that time, with extensive coalfields and other extractive industries as well as manufacturing and engineering works. There was also substantial agricultural activity, particularly dairy farming, as well as market gardening in these areas so they offered a good cross-section of the kind of rural and urban economic activity and social conditions to be found both in highly populated urban centres and more sparsely populated rural settlements, thus allowing useful comparisons to be made in respect of the effects of the influenza pandemic on different communities.

Furthermore, as no other British regional studies are known to have been completed at this time, most research to date concentrating on individual towns and cities, reference is made not only to East Midlands' data, but also to data from other parts of Britain and countries around the world for the purposes of contrast and comparison, in order to assess the severity or otherwise of the East Midlands' experience of the 1918-19 influenza pandemic.<sup>31</sup>

#### Location of sources

As the events under discussion in this thesis occurred more than 95 years ago, they are on the verge of passing from living memory into history. Consequently, opportunities to speak to those who experienced them first hand and can still remember them with any clarity have all but disappeared. To accomplish the research objectives, therefore, it was necessary to undertake a thorough examination of the documentary evidence maintained in local and national archives, record offices and local studies libraries together with other primary and secondary publications and unpublished works held in museums and academic libraries, focusing on the influenza

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<sup>31</sup> Two PhD theses and a book have recently been produced examining the influenza pandemic in Ireland, all of which was still part of the United Kingdom at the time. These are included in the literature review and will be referred to as necessary in this thesis.

pandemic of 1918-19 as it had occurred in locations across Britain and around the world.

Primary sources were located in archives, record offices and libraries in London and in the East Midlands. Sources in London were found at The National Archives (TNA) in Kew, the Wellcome Trust library, the British Library's newspaper collection at Colindale<sup>32</sup> and the Imperial War Museum (IWM).

TNA houses a wide range of official documents and letters of the period, including those from the Ministry of Health, the Ministry of National Service, The War Office, The Board of Education and Cabinet Minutes and Papers. These detail many of the concerns of government departments at the time as they faced the double crisis of a continuing world war and the effects of the influenza pandemic

The Wellcome Trust library contains a considerable archive of medical and health related materials, treatises, lectures, photographs and reports dating from antiquity to the present day. Resources include materials relating to the influenza pandemic of 1918-19 as it affected countries overseas as well as Britain, and collections include documents from the Society of Medical Officers of Health, the Medical Research Committee and The Association of Health Visitors, all of whom are reported as having played an active part in dealing with the effects of the influenza pandemic.

The IWM houses eye witness testimony in a unique collection of correspondence sent to author Richard Collier who, in 1973, placed a number of advertisements in provincial newspapers, both in Britain and overseas, asking for anyone who had personal experience of the influenza pandemic of 1918-19 to write to him and tell him their story. It was from these letters that he wrote his book, *The Plague of the Spanish Lady*.

Outside of the national resource centres in London, a number of centres of local information in the East Midlands itself were used, in particular record offices, archives and local studies libraries. It was here that one of the most important primary sources for this study was accessed, that of provincial newspapers, and an extensive examination of this source was carried out to ascertain what was happening at local

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<sup>32</sup> I visited Colindale in 2010. Colindale is no longer open to the public. Newspapers are being transferred to a new facility in West Yorkshire.

level during the months of the influenza pandemic. The Leicestershire and Rutland Record Office in Wigston, Nottingham Central Library and the Local Studies Library in Derby all had collections of newspapers from the period preserved on microfilm and, as the British Library has not yet converted twentieth century newspapers to an electronic format, it was decided to use these resources as they were freely available locally.

In addition to local newspapers, the centres mentioned above, together with Nottinghamshire Archives and the Derbyshire Record Office in Matlock, provided other important primary sources, for example, Medical Officer of Health (MOH) reports, and local government documents such as the minutes of town council meetings and reports of committees such as the sanitary and watch committees, concerned with matters of public health and law and order respectively. These documents indicated levels of morbidity and mortality in specific areas, what local authorities were trying to do in the region to counter the spread of influenza and the advice and support they were providing for their respective communities. This information was also widely published in local newspapers.

As well as the primary sources held in London and those held in regional centres mentioned above, there was a significant amount of essential contemporaneous information to be found in the official documents of central government, many of which are now available on line. Of particular importance for this study were the House of Commons Parliamentary Papers, the Cabinet Papers and the parliamentary debates published through Hansard. These give information about all areas of policy making and legislation of the period and so reflect the most important issues of the day to which government was directing itself.

There are different types of Parliamentary Papers but the most relevant with regard to the 1918-19 influenza pandemic were the Command Papers, so called because they are presented to the House of Commons by command of the sovereign in order to bring to their attention essential information or decisions made by the government. Command papers include reports of committees and commissioners appointed to investigate issues of concern and, consequently, involve not only MPs but, in the latter case, experts in particular fields. A number of Command Papers from 1918 and 1919 dealt with the issue of public health and the effects of the influenza pandemic.

The Cabinet Papers is a collection of memoranda, reports and other reference material relating to the role of Cabinet. These provided evidence of the on-going discussions between various departments during the influenza pandemic, the questions being asked and the responses to them. In addition, House of Commons debates for the period again revealed the topics under discussion at national level.

Documents detailing the concerns of the medical profession in 1918-19 and their efforts to identify and control the infection and treat those afflicted were found in the *Lancet*, the *British Medical Journal*, the *Nursing Mirror and Midwives Journal* and the *Proceedings of the Royal Society of Medicine*.

Another valuable source available on line was *The Times* which reported on the influenza pandemic from around Britain, its colonies and many other countries worldwide.

For information on the effects of the influenza pandemic on East Midlands' soldiers, documents produced by the War Office and the Medical Research Committee (MRC) were studied. The War Office register of all soldiers who died in WWI, originally published in 80 separate parts, one for each regiment, has now been digitised and is available for study on CD ROM at TNA, through libraries and associations dedicated to the maintenance of war records or through private purchase. From this source, details of the deaths of East Midlands' soldiers from causes other than injuries sustained in battle were extracted from records of the Leicestershire Regiment and the Nottinghamshire and Derbyshire Regiment, known as the Sherwood Foresters. However, complete details would require the extraction of relevant records from all other regiments in the British Army as before 1916 regiments recruited widely and took volunteers from all areas, whilst after 1916 and the introduction of conscription, men were sent to any regiment in need of soldiers. Furthermore, due to the way soldiers' deaths were recorded, it was not possible to link these details specifically to influenza as a cause of death, but only to the possibility.

The MRC document, on the other hand, does detail the extent of the morbidity and mortality experienced by the British Army in France based on studies carried out in base hospitals and casualty clearing stations. Although it does not give details specific to East Midland regiments, it does indicate the severity of the infection amongst the fighting forces.

Some searches were made which were not fruitful. With the exception of the Collier letters, a significant gap in primary sources seems to exist with regard to eye witness accounts and writings of a more personal nature such as memoirs, diaries, biographies, letters to family members or similar records of events. Although there is a wealth of such material relating to the war, the influenza pandemic is rarely included except perhaps as a chance remark or passing reference. The view would seem to be that this was part of the suffering of war and not a discrete event.

Furthermore, few records were found recording the pandemic's effects on local businesses, schools and other public services. Hospital records and medical reports were also unavailable to view due to the hundred year rule which stipulates that such information is not open to public perusal until one hundred years after the event in order to protect those persons involved (if still living), or surviving family members. However, the eventual release of these records should reveal valuable information relating to the influenza pandemic with regard to the level of hospital admissions in the region, the treatments administered and the incidence of deaths, particularly within vulnerable groups such as pregnant women and infants.

Unfortunately, a great many WWI military medical records have been destroyed. In his PhD thesis, Niall Johnson records that 275 tons of such records were pulped in 1975, thereby eradicating a potentially valuable source of information for researchers in this field.<sup>33</sup>

Research into the effects of the pandemic on minority communities in the East Midlands or citizens of ethnic heritage would also provide an additional perspective to current understanding of the influenza pandemic and its effects on the region. Medical records together with 1921 census data may provide some insights into this aspect of the event when both are available. Records of the Commonwealth War Graves Commission may also provide additional information.

In addition to the primary sources mentioned, a variety of secondary sources in the form of books, articles, papers and theses on the findings of more modern research on the influenza pandemic of 1918-19 were located and studied in public and academic libraries in Leicester, Loughborough, Derby, Nottingham and Cambridge and also by

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<sup>33</sup> N. Johnson, *Aspects of the Historical Geography of the 1918-1919 Influenza Pandemic in Britain* (Cambridge University PhD thesis, 2001), p. 219.

means of electronic sites. A number of documentary programmes on the event were also viewed. These and other sources used are discussed in the literature review.

## Memory

Despite the growing body of secondary sources, one of the greatest difficulties which researchers in this field have encountered and often acknowledged in their writing is the lack of evidence of the influenza pandemic in contemporaneous sources - in popular culture, in writings of a personal nature such as autobiographies, and even in more official documents. In researching for his thesis, Johnson commented on this problem several times, expressing disappointment at the sparse volume of useful records he encountered at TNA and, with regard to the Wellcome Library's collection of medical archives he commented:

Unfortunately, most of the leads suggested by the finding guides petered out rather quickly once the archives were consulted. Once more it became apparent that the influenza had had remarkably little impression on much of the medical profession and had made the most negligible entry into their records and the compiled archives.<sup>34</sup>

Honigsbaum also bemoaned the dearth of information he encountered when preparing to write his book on the pandemic in Britain. Having found a number of global histories he was confused to discover that 'I could find very little that was specific to Britain or the experience of British victims and their families.'<sup>35</sup>

Similarly, writers have commented in the titles and contents of their books and articles on the fact that the influenza pandemic of 1918-1919 seems to have bypassed the memory of those who experienced it.<sup>36</sup> Indeed, in commenting on the few brief notes left on the event by the superintendent of a London Hospital, Johnson points out that they 'are among the very few memories and commentaries that we do have from

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<sup>34</sup> *ibid*, p. 221.

<sup>35</sup> Honigsbaum, *Living with Enza*, p. xv.

<sup>36</sup> A. W. Crosby, *America's Forgotten Pandemic: The Influenza of 1918* (2<sup>nd</sup> edn. New York, 2003), pp. 311-325; P. Davies, *Catching Cold: 1918's Forgotten Tragedy and the Scientific Hunt for the Virus that Caused it* (1999) ; Honigsbaum, *Living With Enza*, pp. xii-xvii; Johnson, *Britain and the 1918-19 Influenza Pandemic*, pp. 172-179; Phillips and Killingray, *The Spanish Influenza Pandemic of 1918-19*, pp. 230-238; S. M. Tomkins, *Britain and the Influenza Epidemic of 1918-1919* (Cambridge University PhD thesis, 1989), pp. 278-286.

Britain. This was a pandemic that infected most of the world's population, killed millions and yet left little trace in our collective memory.'<sup>37</sup>

The most often quoted reason for this is the fact that the need to carry on in war time was paramount and all other concerns were subordinate to that, making the one tragedy subsumed by the other.<sup>38</sup> However, in 1921, an editorial in *The Times* entitled 'The Great Death' opened with the comment: 'The influenza epidemic of 1918-1919 was the most fatal visitation in recorded history. So vast was the catastrophe and so ubiquitous its prevalence that our minds, surfeited with the horrors of war, refused to realise it.'<sup>39</sup>

That the tragedy was not forgotten but was just too great and too painful for those who lived through it to want to remember and record it has been suggested by some. For example, discussing how the influenza pandemic is remembered in Ireland, Caitriona Foley argues that it had a profound impact on the memory of survivors, especially the doctors and nurses who daily faced hundreds of desperate victims and their families, knowing that there was often little they could do to prevent the death of the sufferer. She states that 'For some, silence was the only response,' and goes on to quote American historian, W. H. McNeill who said of his parents that they found the pandemic experience 'so searing' that they 'never spoke of it afterwards.'<sup>40</sup> She adds that this lack of desire to speak of it meant that memories of it were not passed on to succeeding generations.<sup>41</sup>

Furthermore, Rice highlights the abundance of war memorials to honour the fallen, but an almost total lack of public monuments in memory of those who died during the influenza pandemic, contributing to the failure of the event to occupy a place in public consciousness. Even headstones, he states, 'rarely mention the cause of death.'<sup>42</sup> Certainly, these are very persuasive arguments particularly with regard to its absence from personal writing and popular culture. Its omission from documents of a more official nature however, may indeed have more to do with its timing and the fact that conducting a war was perceived to be a more pressing concern. Whatever the reason,

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<sup>37</sup> Johnson, *Britain and the 1918-19 Influenza Pandemic*, p. 162.

<sup>38</sup> Davies, *Catching Cold*, p. 86; Crosby, *America's Forgotten Pandemic*, p. 314.

<sup>39</sup> *The Times*, 2 February 1921, p. 11.

<sup>40</sup> C. Foley, *The Last Irish Plague: The Great Flu Epidemic in Ireland 1918-19* (Dublin, 2011), p. 137.

<sup>41</sup> *ibid*, p. 148.

<sup>42</sup> Rice, *Black November*, p. 259.

it has meant that research on the pandemic, not only with regard to Britain but many other countries as well, suffers from a very limited collection of contemporaneous sources of information, which naturally affects the quantity and quality of secondary sources available.

#### Relevance of local studies

This situation highlights the importance of undertaking local studies of the influenza pandemic which has been stressed by a number of historians. Sandra Tomkins, in her own PhD thesis on the pandemic in Britain, argues that local studies provide the most illuminating and scholarly work on the influenza pandemic of 1918-19 and make a valuable contribution to regional social histories.<sup>43</sup> Similarly, van Hertesveldt points to the importance of local studies, which, with the situation and response being different from place to place, combine to facilitate the construction of broader, more accurate national studies.<sup>44</sup> Rice also, in his study of the pandemic in Christchurch, New Zealand, asserts that it is at community rather than national level that the real impact of disasters such as the influenza pandemic is revealed and can be better understood.<sup>45</sup> Consequently, it is most probably at local level and in private rather than official collections that evidence of the impact of the influenza pandemic of 1918-19 on people's lives is likely to be discovered and individual memory succeed where collective memory seems to have failed.

It is hoped, therefore, that in examining the effects of the influenza pandemic on the East Midlands, a significant contribution might be made to a greater understanding of the social impact of the pandemic not only in that region but also, in combination with similar future local and regional studies, on Britain as a whole.

#### Structure

In attempting to determine the impact of the 1918-1919 influenza pandemic on the East Midlands, therefore, and following the study of the social, historical, political, medical, geographical and demographic information contained in the primary and secondary sources described, research questions were formulated based on the principal issues that emerged, specifically on the origins of the influenza pandemic and

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<sup>43</sup> Tomkins, *Britain and the Influenza Epidemic of 1918-1919*, p. 111.

<sup>44</sup> F. R. van Hertesveldt (ed.), *The 1918-1919 Pandemic of Influenza: The Urban Impact in the Western World* (New York, 1992) p. 9.

<sup>45</sup> G. W. Rice, 'Christchurch in the 1918 Influenza Epidemic', *New Zealand Journal of History*, 13/2 (1979), p. 130.

its global spread, levels and patterns of morbidity and mortality, the impact of rurality and socio-economic status on the effects of the disease, the treatment and care of so many sick and dead, the range of procedures and remedies being used in attempts to prevent or cure the disease and the effects of the pandemic on everyday life and these questions have been explored in the following chapters.

Chapter 1 looks at theories in connection to the possible origins of the outbreak, which has never been successfully established. These are viewed in relation to the known dates of infection of civilians and military personnel together with the methods of diffusion across the world and, more specifically, within Britain and the East Midlands region. The role of military pathologists in attempts to identify the infective agent and find a cure is also considered.

In chapter 2 the special characteristics of the 1918-19 influenza pandemic are explored and levels of morbidity and mortality are examined with special reference to the East Midlands using data from the official reports produced by the Ministry of Health and the Registrar-General (RG) for civilian deaths and a combination of data produced by the War Office and the MRC for those in military service. Again relevant comparisons with other parts of Britain and other countries are made where possible and patterns with regard to age, gender and the apparent susceptibility of specific communities are explored.

Issues surrounding the possible variations in impact of infectious diseases such as influenza on those living in urban and rural areas and on people of different socio-economic status are considered in chapter 3. Levels of contagion and mortality are discussed and notions of inherited and acquired immunity together with the effects of isolation, poverty, urbanisation and industrialisation as revealed in studies of a number of countries are compared with those of the East Midlands.

In chapter 4 measures for caring for the sick, both in hospital and in the community are explored. The availability of doctors and the efforts of nurses, and volunteers to alleviate suffering are considered as are arrangements for the dead and how ministers, undertakers, and associated trades coped with the great rise in the number of bodies requiring burial.

Chapter 5 looks at the efforts made by doctors and public health authorities to prevent the spread of infection and the range of treatments employed. It also considers what people did for themselves in an effort to prevent or cure influenza and the range of preparations that flooded the market and were available for them to buy.

Chapter 6 explores what effects the influenza pandemic had on the everyday activities of daily life. The effects of absenteeism on extractive and manufacturing industries, public services and businesses as well as on schools and colleges are considered in addition to how leisure activities such as public performances, sporting and social events and charitable activities were affected.

Based on the findings of these chapters conclusions will be drawn with regard to what this reveals about the experience of the East Midlands during the influenza pandemic of 1918-19 and how this work contributes not only to a fuller understanding of the impact of the event in a British region, but also how it adds to current knowledge of the pandemic's effects across Britain and beyond.

## LITERATURE REVIEW

### Primary sources

The source materials studied were helpful to varying degrees. Much of the primary material available on the influenza pandemic of 1918-19 focuses on medical and statistical information. Of the primary sources used, two documents in particular were vital to an understanding of the social impact of the influenza pandemic on Britain and many other parts of the world, and consequently, through the data presented, its impact on the East Midlands.

The first of these documents was a Command Paper, the *Supplement to the Eighty-First Report of the Registrar-General of Births, Deaths and Marriages in England and Wales: Report on the Mortality from Influenza in England and Wales during the Epidemic of 1918-19*.<sup>1</sup> This was the official investigation into and report on the effects of the influenza pandemic across the administrative areas of England and Wales and contains 119 pages of statistics and analysis of the event, including mortality figures and death rates, information on the spread of infection across the country during all three waves and its effects on specific groups according to age, sex, socio-economic status and location (the Registrar-General for Scotland produced a similar though less extensive report). These statistics relate to the civilian population only, although brief reference is made to a relatively small number of military deaths which occurred 'at home'.

The second document, The Ministry of Health Report, located in the Wellcome Trust Library, is a considerable document of nearly 600 pages, concentrating on issues such as the clinical and epidemiological aspects of influenza and on identifying particular patterns of infection. It is in three parts: part I charts the history of influenza outbreaks in Britain and a number of other countries between 1658 and 1911 before focusing on the 1918-19 influenza pandemic in Great Britain and Ireland; part II is on the pandemic in other (foreign) countries while part III is a series of 12 special inquiries reporting on the effects of the influenza pandemic on different communities in England and Wales, one of which is Leicester. Again, this concentrates on civilian populations and is a highly detailed report containing a plethora of graphs and tables and brings together statistical data from around the world.

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<sup>1</sup> P.P. 1920, x, Cmd. 700.

In this document the Ministry of Health sought to provide an overview of the event by exploring issues thought at the time to be associated with the influenza pandemic such as the possible link between meteorological conditions and respiratory diseases and the effects of domestic overcrowding, as well as matters of a more scientific nature including the epidemiology, bacteriology, natural immunity and prophylaxis associated with influenza. Consequently, in addition to a range of statistical data, it reveals the thinking of the day on the nature of the disease, its transmission and effects and how to treat it.

In the words of George Newman, Chief Medical Officer of the Ministry of Health, this report, together with that of the Registrar-General 'constitutes the official record which it is necessary to make concerning the outbreak'.<sup>2</sup> However, whilst being the most complete source of contemporaneous information available on the influenza pandemic as it affected much of Britain, the figures presented in both documents must be treated with some caution as these are by no means accurate or complete, facts acknowledged at the time by the writers.<sup>3</sup>

There are a number of reasons for this inaccuracy. Influenza was not a notifiable disease in 1918. A notifiable disease is one which by law must be reported to the local authority's Medical Officer of Health (MOH), so that appropriate steps can be taken to prevent an epidemic. Consequently, many cases would have been dealt with privately and not have come to the attention of a doctor. Moreover, the demands of war had drawn many trained doctors and nurses into military service, thus, many deaths occurred without a doctor in attendance to provide a death certificate. This placed responsibility on coroners to determine the cause of death and as the pandemic brought with it a range of complications, particularly pneumonia and other pulmonary and cardio-vascular afflictions, this posed some difficulties of identification for doctors and coroners alike and death was often attributed to other causes.

Furthermore, in the case of the Ministry of Health report, the amount of information amassed on the influenza pandemic meant that only a proportion of it could be included, some of which was itself very fragmentary. Consequently, these sources

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<sup>2</sup> Ministry of Health, *Public Health and Medical Subjects No. 4: Report on the Pandemic of Influenza 1918-19* (London, 1920), p. iv.

<sup>3</sup> Registrar-General, *Supplement to the Eighty-First Annual Report: Report on the Mortality from Influenza in England and Wales during the Epidemic of 1918-19* (London, 1920), p. 3; Ministry of Health, *Public Health and Medical Subjects No. 4*, p. 36.

need to be consulted in combination with more modern research available on the issues under review, especially with regard to mortality statistics, 1920s estimations being shown to fall well short of more recent calculations.<sup>4</sup>

Apart from these two main sources of information devoted to the influenza pandemic, other documents from central government were of some use. House of Commons debates published through Hansard were useful in revealing some of the difficulties being caused by the pandemic that ministers were being asked to address. Answers were often very brief and non-committal, but the questions posed did indicate the kind of problems being encountered across Britain, particularly in regard to the return of doctors to civil practice. Similarly, Cabinet Papers, reports and memoranda circulating between the War Cabinet and various ministers and boards of control, revealed some issues of serious concern, again highlighting the urgent need for doctors in civil practice and the crisis in coal production.

Two very revealing reports with regard to the knowledge and understanding about influenza possessed by doctors at the time and their ideas for prevention and treatment came out of meetings held at the Royal Society of Medicine in November 1918 and the Institute of Hygiene in March 1919. The first meeting involved a number of prominent civilian and military doctors, including Sir Arthur Newsholme, Chief Medical Officer of the Local Government Board (LGB), and their deliberations were published as part of the proceedings of the society under the title 'Discussion on Influenza'. The second meeting, also for doctors, revealed how little progress had been made and the state of confusion about the treatment and prevention of influenza that still existed. This was published as, 'The Prevention of Influenza', in the *Nursing Mirror and Midwives Journal*.<sup>5</sup> Other medical publications, such as *The Lancet* and *British Medical Journal*, contained some articles on the influenza of 1918-19, but were not particularly useful as the information being sought was readily available in other sources.

A range of documents was investigated for information on the effects of the influenza pandemic on the East Midlands. The Association of Health Visitors' Reports in the Wellcome Trust library, proved unhelpful in this regard as they mentioned nothing about the influenza outbreak of 1918-19 or the part its members played in relieving

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<sup>4</sup> Johnson, *Britain and the 1918-19 Influenza Pandemic*, pp. 69-82.

<sup>5</sup> 8 March 1919, pp. 353-354.

the distress of sufferers and their families, despite there being evidence of their efforts in other East Midland sources.<sup>6</sup>

The Richard Collier collection of letters at the IWM offered some useful information on the pandemic in a limited number of locations in Britain but with regard to the East Midlands only Leicestershire was represented. Nevertheless, it is one of the few sources of authentic accounts written by people who actually lived through the event, although the passage of time has meant that those accounts tend to be quite short and lacking in detail.

By far the most useful primary source for this study, however, was newspapers, in particular *The Times* for national and international news on the pandemic and local newspapers for reports on the pandemic in the East Midlands, although these also carried some national and international reports. The general dearth of contemporaneous information on the pandemic as highlighted earlier, made newspapers an essential source of documentary evidence on how, when and where the infection was active, how it was being dealt with by government and medical authorities, how daily life was being affected and what the main concerns being voiced at the time were, which was helpful in gaining an understanding of how the pandemic was viewed by some of those who were experiencing it. However, newspapers are, and continue to be, subject to the political and social concerns and motivations of the day and this is reflected in the style and content of their reports. During the influenza pandemic, particularly in the first wave, an additional agenda other than just the provision of public information is apparent in news reports, that being the maintenance of calm and public morale in war time.

In 1914, following the Defence of the Realm Act, censorship was introduced in Britain to ensure nothing was published that might be useful to the enemy.<sup>7</sup> Sir Stanley Buckmaster, head of the Press Bureau, also issued a memorandum calling for any news likely to cause public alarm to be stopped.<sup>8</sup> The limited reporting on the influenza pandemic in Britain during the first wave in the summer of 1918 and the more extensive reporting of its terrible effects in other countries, including Germany and Austria, have been interpreted by some researchers as a means of deliberately

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<sup>6</sup> S. Barwise, *Report on the Health of Derbyshire for the year 1918* (Derby, 1919), p. 12.

<sup>7</sup> M. Sanders and P. M. Taylor, *British Propaganda During the First World War 1914-1918* (London, 1982), p. 9.

<sup>8</sup> T. Rose, *Aspects of Political Censorship 1914-1918* (Hull, 1995), p. 17.

playing down the seriousness of the infection in Britain as compared to that elsewhere.<sup>9</sup> Although David Adams, in his PhD thesis, argues that little was reported on influenza in Britain because nothing out of the ordinary was happening at the time,<sup>10</sup> the Buckmaster memorandum, the devastation in other countries being reported by news agencies such as Reuter and the estimated death toll in Britain during the first wave of the pandemic of between 17,000 and 19,000 people,<sup>11</sup> points to a deliberate policy of concealing the true effects of the pandemic in Britain in order to minimise its importance and enable public attention to remain focused on the war. It would also be valuable propaganda for the enemy to believe that Britain was not as subject to the infection as they were.

British newspaper reporting on the pandemic at home became much more extensive with the arrival of the second wave of influenza, when mortality statistics rose so sharply that they could not be ignored. Even so, news of the war generally took precedence over the influenza pandemic which was rarely given front page headlines or lengthy columns. By the third wave of the pandemic, reporting on its effects was again much more limited even though the war had already ended, making it difficult to acquire detailed information on this final phase of the outbreak.

Thus overall, news reports on the pandemic in Britain tended to be fairly brief and, particularly in *The Times*, focused largely on the situation in London and other major towns, together with the effects on industries and services and associated morbidity and mortality statistics. Therefore, although newspapers are a vital tool in researching the influenza pandemic, the information they contain is limited and manipulated to serve the purposes of the day and this must be taken into account.

As might be expected, provincial newspapers did include much more of local interest in their reports, which allowed for useful comparisons to be made between events in Leicestershire, Nottinghamshire and Derbyshire and other parts of Britain. They also revealed what information and advice was being given to the public by local authorities and what steps, if any, were being taken to halt the spread of the infection

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<sup>9</sup> Tomkins, *Britain and the Influenza Epidemic of 1918-1919*, p. 32; Johnson, *Britain and the 1918-19 Influenza Pandemic*, p. 163.

<sup>10</sup> D. L. Adams, *Putting Pandemics in Perspective; England and the Flu, 1889-1919* (University of Kansas PhD thesis, 2008), p. 354.

<sup>11</sup> RG, *Supplement to the Eighty-First Annual Report*, pp. 4-5; Tomkins, *Britain and the Influenza Epidemic of 1918-1919*, p. 32.

and provide for victims and their families. In addition they provided excellent information on what preparations were being advertised to keep the 'flu at bay or even to cure it.

The Leicestershire press appeared to produce most coverage of the influenza pandemic and included extensive reports on Leicester Town Council meetings and their outcomes, effects on services and advice and information from the MOH. The main aim here would seem to have been to keep the public well informed. Nottinghamshire press coverage was not quite as extensive and included more references to the pandemic in other parts of the region. However, it did include regular updates of mortality in Nottingham and certain rural and urban districts during the second wave of the pandemic together with advice from the Nottingham MOH and information on services. Both also included a number of advertisements for influenza treatments.

The Derbyshire press seemed to present least coverage of the pandemic and much of what it did present was about the effects of the infection in other parts of the country. It also gave considerable space to advertisements for influenza remedies, much more so than Leicestershire or Nottinghamshire. As a result, much less information on the pandemic as it affected Derbyshire was available in that county's press, although this may have been with the intention of preventing public alarm. Furthermore, most of the information in the local press came from the respective county borough authorities with little coming from other local authorities in the region so there was limited evidence to suggest what measures were being taken against the pandemic outside of Leicester, Derby and Nottingham.

MOH reports were also a valuable source of contemporaneous information about the influenza pandemic, as the MOH was at this time the principal authority in matters affecting public health and it was his responsibility to do whatever was necessary to combat epidemics and ensure a healthy population. The reports for 1918 by Dr Charles Millard of Leicester and Dr Phillip Boobyer of Nottingham were particularly comprehensive and included details about the infection, the measures taken in their respective areas to combat it and mortality statistics. The report by Dr Sidney Barwise of Derbyshire was much less comprehensive, consisting mainly of a list of suggestions for preventing influenza or caring for those who have it, plus a short

paragraph on a number of urban and rural districts in the county giving the number of deaths and whether schools were closed. Consequently, as with the newspaper reports, much less is known about the measures taken by public health authorities in Derbyshire from this source. Similarly, there were few references to MOH reports from other authorities in Nottinghamshire and Leicestershire, thus overall the information available was quite limited, although some did find its way into local newspapers through doctors' interviews.

With regard to Military data, a useful source located at TNA, was *Soldiers Died in the Great War 1914-1918*. Produced by the War Office and published in 1921 it is a comprehensive list of all soldiers in British regiments who died during active service. Each entry consists of the soldier's name, birthplace, where they enlisted, their rank and serial number, where and when they died and from what cause. Three causes of death are given, 'k. in a.' (killed in action), 'd. of w.' (died of wounds) and 'd' (died). This final cause indicates that the soldier died either through illness or accident and although the actual cause of death is not recorded, it is, nonetheless, a valuable indicator, depending on the date of death, of those soldiers who may have fallen victim to influenza, particularly as entries show there was a significant increase in the number of soldiers recorded as having 'died' between April and December 1918, the period when the first and second waves of the influenza pandemic were known to be prevalent, as compared to the equivalent period in the previous year.

In contrast, regimental war diaries, the monthly returns made by commanding officers of the day-to-day actions, losses, movements and general events affecting the battalions on the battle front, were of little use due to the very limited information they contain. However, one did include brief details of a contagious illness amongst the troops in the summer of 1918.

Another useful military document, located in the Wellcome Trust Library, was *Studies of Influenza in Hospitals of the British Armies in France, 1918*, produced by the Medical Research Committee (MRC) and published in 1919. This reveals the extent of the effects of the influenza pandemic on the British Expeditionary Force (BEF) by detailing hospital admissions and subsequent deaths from the infection between May 1918 and January 1919, although it gives no indication of the number of less serious cases dealt with by field ambulances or the number of men who may have died of

influenza in the field. In addition to military morbidity and mortality data, this document also gives details of the work being done by the MRC to identify the cause of and develop treatments for the disease primarily in an effort to counter the severity of its effects on British and allied fighting forces, the good health of which was essential to achieving victory in the war.

#### Secondary sources

The secondary sources used provided four main types of information: scientific and medical writings, background information on the period including WWI, accounts of the global spread and effects of the influenza outbreak in 1918, and the influenza pandemic in Britain.

Numerous scientific and medical texts on influenza have been produced in the years since the 1918-1919 pandemic, constantly increasing in their capacity to describe the unique structure, behaviour and power of the virus as the relevant technology increases in sophistication. Two of the earliest attempts to analyse the influenza pandemic of 1918-19 were produced by American doctors. Warren T. Vaughan wrote, *Influenza: An Epidemiological Study*, (1921) and Edwin Jordan wrote, *Epidemic Influenza: A Survey*, (1927).

Vaughan's work is really a study of influenza pandemics between 1893 and 1920 with particular emphasis on the Boston epidemic of 1920 so the pandemic of 1918-19 forms a relatively small part of that. However, it does include some interesting details on its global spread. The Jordan study, on the other hand, is a more extensive work and, according to Rice 'remains a landmark in the history of influenza' because of the comprehensive and insightful nature of Jordan's analysis, including theories about the pandemic's origins and transmission, its occurrence in waves, attack rates and patterns, mortality statistics for many countries around the world, bacteriology, treatments, immunity, and preventive measures, all supported by numerous graphs and tables.<sup>12</sup> Rice adds that it remained the principal authoritative work on the influenza pandemic of 1918-19 until the 1970s and indeed, many writers still refer to it in their own work. Consequently, it was a valuable reference work for this study.

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<sup>12</sup> Rice, *Black November*, p. 265.

A more recent, good basic text of the scientific type despite being written nearly 40 years ago is W. I. B. Beveridge's, *Influenza: The Last Great Plague* (1977), which traces the history of influenza epidemics and pandemics from 1700 onwards, including a short section on the 1918-19 pandemic. It describes what is known about the influenza virus, its characteristics, associated complications following infection and what causes it to become epidemic and pandemic, plus the work that continues to be done to combat the threat it poses to society.

However, more recent works are able to add further scientific detail and in this respect the research and writings of Jeffrey K. Taubenberger and John Oxford are particularly influential.<sup>13</sup> Dr Taubenberger is perhaps best known for successfully sequencing the genome of the 1918 influenza virus in 1997, using preserved autopsy material taken from American servicemen who died of the infection. The results of this research were published in the article 'Initial Genetic Characterisation of the 1918 "Spanish" Influenza Virus' in the same year and suggest a possible origin for the 1918 influenza virus and the reasons for its virulence.

Professor Oxford, as a renowned virologist, influenza specialist and authority on the 1918-19 influenza pandemic, has been involved in two attempts to extract the 1918 influenza virus from victims; the first in 1998 when samples were taken from bodies preserved in the permafrost in Norway and the second in 2008 from a victim interred in a lead lined coffin in a Yorkshire graveyard.<sup>14</sup> He has also written a number of articles on the 1918 influenza outbreak both individually and in collaboration with other scientists. Particularly useful in explaining the characteristics of the 1918 influenza virus, its possible connection to more recent influenza pandemics and the efficacy of vaccines as revealed by modern research is 'Influenza A pandemics of the 20<sup>th</sup> century with reference to 1918: virology, pathology and epidemiology', (2000).

An increasing number of other researchers from around the world have added to the range of scientific and medical articles exploring different aspects of the 1918-19 influenza pandemic, including its relationship to secondary infections. John Brundage

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<sup>13</sup> Dr Taubenberger is head of molecular pathology at the Armed Forces Institute of Pathology, Washington DC; Professor Oxford is senior virologist at Queen Mary's School of Medicine and Dentistry, St. Bartholomew and the Royal London Hospital.

<sup>14</sup> This attempt was the subject of the documentary programme, *In Search of Spanish Flu* (2009), BBC Production (English Regions).

and Dennis Shanks have collaborated to produce some interesting research articles on this topic such as 'Relationship between "purulent bronchitis" in military populations in Europe prior to 1918 and the 1918-1919 influenza pandemic' (2011) and 'Deaths from Bacterial Pneumonia during 1918-19 Influenza Pandemic' (2008), whilst Brundage alone produced 'Interactions between influenza and bacterial respiratory pathogens: implications for pandemic preparedness' (2006).

Such articles tend to be very specialised in the vocabulary and research methods used and may require assistance from a subject specialist to be fully understood. However, those mentioned provided valuable insights into the character and behaviour of the influenza virus and its association to other infections which were essential for an understanding of morbidity and mortality in both the civilian and military populations.

For general background knowledge of the period, Trevor Wilson's *The Myriad Faces of War* (1976) provided a comprehensive and readable account of WWI from the British social, military and political viewpoints and examined its effects upon British society. Other useful texts were G. J. DeGroot's *Blighty: British Society in the Era of the Great War* (1996) and S. Constantine et al's *The First World War in British History* (1995), both of which consider the extent to which WWI was the catalyst for change in British society. However, the influenza pandemic of 1918-19, despite the apparent enormity of the event, receives only a brief mention in Wilson (one and a half pages in a total of over 850), a single paragraph in DeGroot and no reference at all in Constantine et al, an omission common to many WWI histories.<sup>15</sup> In contrast, however, *The Cambridge History of The First World War* (2014), edited by Jay Winter, devotes a whole chapter to the 'Spanish Flu' in volume 3, although it provided no additional information for this study, as the information presented was drawn from many of the sources already used.

A range of books and articles focusing on the global spread and social impact of the influenza pandemic has been published, detailing its appearance in and effects on countries around the world. In addition to Vaughan's early attempt to chart the spread of infection, David Patterson and Gerald Pyle produced diffusion maps for Europe and the world for the first and second waves of the pandemic, indicating the route it took, the month of its arrival and the means of its journey, in their article 'The

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<sup>15</sup> T. Wilson, *The Myriad Faces of War: Britain and the Great War 1914-1918* (Cambridge, 1986), pp. 650-1; G. J. DeGroot, *Blighty: British Society in the Era of the Great War* (London, 1996), p. 248.

Geography and Mortality of the 1918 Influenza Pandemic' (1991). Similar maps were not produced for the third wave due to its 'episodic and scattered' nature.<sup>16</sup> However, these maps and the accompanying analysis were a valuable aid to understanding how the pandemic appeared in so many countries so quickly and how it may have passed between military and civilian populations.

Works on the social impact of the influenza pandemic have been produced in several countries, including details such as the onset and duration of the waves of infection, the speed and course of contagion, the organisation of emergency measures for the treatment of victims, mortality statistics and the impact of the pandemic on everyday life and the war effort. However, few books have been written about the British experience.

Nevertheless, one of the first authors to attempt a social history of the influenza pandemic was British journalist Richard Collier. Using the correspondence sent to him by survivors and eye witnesses as mentioned above, he wrote, *The Plague of the Spanish Lady* in 1974 but this is a very anecdotal work which attempts to tell the personal stories of victims and their families in locations around the world and, although very interesting, is, consequently, of limited academic value.

The seminal work on this subject, however, is Alfred Crosby's *Epidemic and Peace: 1918* (1976), re-published as *America's Forgotten Pandemic* in 1989 with an enlarged second edition appearing in 2003. With Crosby's account, the social aspects of the 1918-19 influenza pandemic became a subject worthy of serious academic study for researchers in disciplines other than the sciences.

In this book, as well as considering the position of the American health authorities, both civil and military, and their ability to deal with the crisis, Crosby describes in graphic detail the effects of the influenza outbreak on the military forces - its early appearance in the spring of 1918 in an American military camp, its spread to other camps, the toll it took on the American Expeditionary Force (AEF) as it crossed the Atlantic Ocean to Europe and its appearance amongst front line soldiers – and on the civilian population in American cities, particularly San Francisco and Philadelphia. He

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<sup>16</sup> K. D. Patterson and G. F. Pyle, 'The Geography and Mortality of the 1918 Influenza Pandemic', *Bulletin of the History of Medicine* 65/1 (1991), p. 4.

also looks at its effects on the native inhabitants of American territories such as Alaska and Samoa. Although written from the American perspective and focusing only on the worst examples of suffering, it is, nonetheless, essential reading for anyone wishing to acquire a sense of the magnitude of the disaster wrought by the influenza pandemic and the quantity of data and description of cases included enable important comparisons to be made with similar communities in other countries.

Following this work, several other writers produced books and articles giving very useful accounts of the epidemic in their own country. These included Margaret Andrews 'Epidemic and Health: Influenza in Vancouver' (1977), Linda Bryder 'Lessons of the 1918 influenza epidemic in Auckland' (1982), I. D. Mills 'The Indian Experience' (1986), Geoffrey Rice *Black November* (1988), on the pandemic in New Zealand and Howard Phillips *Black October* (1990), the story of South Africa's influenza experience. Fred R. van Hertesveldt's *The 1918-1919 Pandemic of Influenza: The Urban Impact in the Western World* (1992), an edited collection of essays by different authors, also gives a compelling account of the influenza outbreak as experienced in a select number of urban centres across Europe and the Americas, including Paris, Frankfurt, San Diego, Rio De Janeiro and Manchester.

All of these works, together with a number of more recent publications, particularly the articles of Sverre-Erik Mamelund of Oslo University, including 'Spanish influenza mortality of ethnic minorities in Norway 1918-1919' (2003) and 'A socially neutral disease? Individual social class, household wealth and mortality from Spanish influenza in two socially contrasting parishes in Kristiana 1918-19' (2006), were important in developing an understanding of how the influenza pandemic had affected the wider global community and provided valuable material for the purposes of contrast and comparison with Britain and the East Midlands, particularly with regard to issues of rurality, socio-economic status and the work of public health authorities.

In contrast, the influenza pandemic in Britain has seemed to generate limited interest amongst writers and researchers to date. It may have been felt that the extensive documents produced on the pandemic by the Registrar-General and the Ministry of Health in 1920 left little more to be said.<sup>17</sup> However, two significant theses have been produced at Cambridge University, focusing on the British experience of the pandemic

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<sup>17</sup> N. Johnson, in H. Phillips and D. Killingray (eds.), *The Spanish Influenza Pandemic of 1918-19: New Perspectives* (Abingdon, 2003), p. 155.

and more recently, theses on the effects of the pandemic in Ireland have also been produced.

The first Cambridge thesis, by Sandra Tomkins, entitled *Britain and The Influenza Epidemic of 1918-19* (1989), is actually less about the pandemic in Britain and more a very critical look at the response, or lack of it, of both the medical profession and local and national government to the influenza crisis both in Britain and some of its colonies and the social consequences of that; a theme further emphasised in her article 'The Failure of Expertise: Public Health Policy in Britain during the 1918-19 Influenza Pandemic' (1992). Tomkins' thesis does not, for example, examine the spread and impact of the pandemic across different parts of Britain, indeed, in section II, entitled 'The Epidemic at Home', she begins with a discussion about the roles of central and local government followed by a consideration of the epidemic in London and how it was managed. Consequently, there is a limited amount of information in this work that addresses the research objectives of this study. However, it does offer a useful perspective on the roles of various political and medical authorities in Britain at the time of the influenza pandemic which can be compared with the East Midlands' situation.

The second thesis, by Niall Johnson, entitled *Aspects of the Historical Geography of the 1918-1919 Influenza Pandemic in Britain* (2001), focuses on the demographic and geographic aspects of the event. Johnson describes his work as inter and multi-disciplinary in which he draws on the knowledge, skills and techniques of geography, history and medicine to explore the subject. He explores the history of the disease and includes a range of maps, graphs and statistics to illustrate the entry into and spread of influenza across Britain in 1918 and its effects on different communities based on, for example, socio-economic status, occupation, and in which part of Britain victims resided. He also considers the effects on population through issues such as mortality patterns and averted births (deaths of women of child bearing age), and the longer term implications.

Consequently, this thesis offers a more comprehensive range of information about the influenza pandemic in Britain than Tomkins, including reference to the spread and mortality of the pandemic in regions across England. However, no region has been

examined in depth, although, much of what is covered can naturally be applied to the East Midlands and the research objectives of this study.

The Irish theses are, *The Effect of the 1918-19 Influenza Pandemic in Ulster*, by Patricia Marsh of Queen's University, Belfast (2010) and *The 1918-19 Influenza Pandemic in Ireland: a Leinster Perspective* by M. I. Milne, of Trinity College, Dublin (2011) both of which may be considered regional studies, focusing, as they do, on specific Irish provinces. These are important works as little has been produced on the influenza pandemic in Ireland to date and, unlike the rest of Britain, no supplementary report by the Registrar-General for Ireland was produced at the time so official documentation of the event is very scarce. Consequently, provincial newspaper reports and, in the case of Milne, memoirs and the oral testimony of local people have been used to help construct the story of the influenza pandemic in Ireland, particularly the regions being focusing on.

Both address many of the themes discussed by other writers on the topic, such as, morbidity and mortality related to age, gender and socio-economic status, the official response (or lack of it) of government and medical authorities and the issue of public memory of the event. In addition, Milne includes an examination of the pandemic in Irish prisons and how it was handled in comparison to the rest of Britain, given the tense political situation at the time. Marsh, on the other hand, provides a fairly extensive analysis of Irish newspapers and how political bias affected the way the pandemic was reported. These works include a range of statistical data and were valuable in highlighting similarities and differences in pandemic experience across the United Kingdom in a regional context.

However, as Milne points out, Leinster and Ulster were the most severely affected regions of Ireland, thus these theses do focus on the worst effects of the pandemic on the island.<sup>18</sup> Nonetheless, both authors' discussion of the political situation in Ireland at the time, just prior to the separation of Southern Ireland from the rest of the United Kingdom in 1921, and how that impacted on people's views and experiences of the pandemic provides a useful point of comparison with those nations engaged in WWI.

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<sup>18</sup> M. I. Milne, *The 1918-19 Influenza Pandemic in Ireland: a Leinster Perspective* (Trinity College, Dublin PhD thesis, 2011), p. 1.

In addition to the theses mentioned, two recently published books focus exclusively on the British experience while another explores that of Ireland. The first book to address the effects of the influenza pandemic in Ireland is that of Caitriona Foley, entitled *The Last Irish Plague: The Great Flu Epidemic in Ireland 1918-19*, published in 2012. In his review of the book, David Killingray states that it 'splendidly fills the looming gap in the recent historiography of modern Ireland.'<sup>19</sup> It also, together with the Milne and Marsh theses, fills a gap in the literature of the influenza pandemic of 1918-19. Using a range of official and private documents from national and regional sources, including hospital, workhouse and prison records and private papers, Foley explores the impact of the influenza pandemic on Ireland from geographic, demographic, social, economic and cultural perspectives. Although the book is light on statistical data, it does include valuable analyses of the effects of the pandemic in the counties of Wicklow, Galway, Donegal and Cork and provides insights into how the pandemic was understood, responded to and remembered by those communities.

The British publications are, *Britain and the 1918-1919 Influenza Pandemic: A Dark Epilogue* by Niall Johnson (2006) which includes much of the work he produced for his thesis together with additional information on the global impact and the repercussions of the pandemic, and *Living with Enza* by Mark Honigsbaum (2009). Honigsbaum used the correspondence sent to Collier together with national and provincial newspaper reports, official documents and memoirs to explore the effects of the pandemic on the home and battle fronts.

Johnson's book is a more academic work and includes a wide range of data and analysis on issues relating to influenza in general and the 1918-19 pandemic in particular. Honigsbaum's work is in a more dramatic, narrative style with a human aspect to it, through the inclusion of many examples of real life experiences, perhaps more in keeping with his skills as a journalist. Although neither work focuses on the East Midlands (Nottingham and Leicester receive passing references in Johnson), both works offered valuable data for the purposes of this study and Honigsbaum's inclusion of personal and local stories was particularly useful as they revealed the thoughts, actions and motivations of real participants in the event, including soldiers, doctors and politicians.

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<sup>19</sup> D. Killingray, Review: *The Last Irish Plague: The Great Flu Epidemic in Ireland 1918-19*, by C. Foley, *Bulletin of the History of Medicine*, 86/1 (2012), p. 139.

Another publication which includes a considerable proportion of British content is *Flu: a Social History of Influenza* by Tom Quinn (2008). This work is really an exploration of influenza in general and considers the disease from medical, scientific and social angles, charting its history, theories about its origins and attempts to diagnose and treat it and its effects on communities from medieval times to the twentieth century. The book also examines the continuing difficulties in dealing with influenza in a modern scientific and technological age. Only two of the book's nine chapters examine the 1918-19 pandemic and its aftermath and the sections dealing with issues such as influenza's spread, the medical and political responses to it and the complications that often accompanied infection are very short and such information is discussed more fully in other works. However, Quinn's exploration of the disease's history is a very useful account which helps to place the 1918-19 pandemic in context and his inclusion, like Honigsbaum, of a number of 'real life' stories and experiences help to bring his account to life.

A source which attempts to pull together many of the strands discussed so far into one book is *The Spanish Influenza Pandemic of 1918-19: New Perspectives* edited by Howard Phillips and David Killingray (2003). They were responsible for organising the multidisciplinary Cape Town Conference of 1998, *Reflections on the Spanish Flu Pandemic After 80 Years: Causes, Course and Consequences*, in which a variety of papers were presented exploring different social, medical and scientific aspects of the influenza pandemic of 1918-19. Topics such as virology, epidemiology, genetics, and demographics were included, together with explorations of the social effects and the official responses and experiences of many countries around the world. Following this event, 16 of the original 36 papers presented were included in the book named above. One of those was by Niall Johnson who, drawing on his PhD thesis, provided a chapter on the influenza pandemic in Britain entitled, *The Overshadowed Killer*. In covering such a variety of themes, the essays in this book, written by some of the world's foremost authorities on influenza, are naturally relatively short but they do present an array of data on different aspects of the 1918-19 influenza pandemic which tends to show that experiences worldwide were in many respects very similar. Consequently, this book offered some useful contrasts and comparisons for this study and provided an extensive bibliography on the subject.

Two articles addressing the spread of the influenza pandemic across Britain were, 'The Spatial Anatomy of an Epidemic: Influenza in London and the County Boroughs of England and Wales 1918-1919' (2002) by Matthew Smallman-Raynor et al and 'The 1918-19 influenza pandemic in England and Wales: spatial patterns in transmissibility and mortality impacts' (2007) by Gerardo Chowell et al, Johnson collaborating in the writing of both. These provided valuable insights into the spread of contagion across counties and within urban and rural areas respectively. Again, even though the East Midlands is not specifically mentioned in either, the maps, data and analysis included were capable of being applied to the region.

In addition, an article by F. R. van Hertesveldt, 'The Doctors and the 'Flu': The British Medical Profession's Response to the Influenza Pandemic of 1918-19' (2010), provided an informative survey of the depleted state of the British medical profession when the influenza pandemic struck and how those that were left attempted to care for hundreds of patients at the same time, often with out-dated methods. This offered useful background information on the situation and was helpful when considering how well doctors in the East Midlands coped with the crisis as revealed in the local press and MOH reports.

Local historians have attempted to add to the documenting of the event as it affected their area by producing pamphlets and histories but these are, at present, few in number. For the East Midlands, Jonathan Wilshire wrote a pamphlet on *Leicester's Great Influenza Epidemic 1918-1919* (1986), and in 2009 the *Nottingham Evening Post* released a special edition of *Bygones* which focused on the Spanish flu pandemic in Nottinghamshire. Peter Foster also wrote a short study of the pandemic in Nottingham, published in *The Nottinghamshire Historian* in 2010. Although of great general interest, particularly in their ability to describe how local communities experienced the pandemic, they are limited in the amount of information they are able to provide.

There have been some television documentaries produced on the influenza pandemic since the 1990s, the most recent being, 'In Search of Spanish Flu', aired in August 2009 by the BBC, and following the attempt by Professor Oxford in 2008 to acquire viable biological samples from a British victim to enable further scientific study of the

virus. Again, these are interesting accounts but provide only information of a general nature for an interested lay audience.

## **CHAPTER 1**

### **Soldiers, Sailors and Civilians**

The influenza pandemic which swept around the world in 1918 was unlike anything that had been encountered before. It occurred in three distinct waves: a highly infectious though relatively mild summer wave between March and August 1918, a severe autumn wave causing extremely high levels of mortality between September and December 1918 and a rather less severe winter wave between January and May 1919. Although the onset and duration of these waves did vary from place to place and not every country or region experienced all three, in less than 12 months the disease had killed millions worldwide and affected the physical and, in some cases, the mental health of millions more.

Such an extraordinary event, which has implications for the control of future outbreaks of the disease, naturally poses many questions which experts in the field, through medical and historical research, seek to answer. Amongst the questions about the influenza pandemic which have never been fully answered but which continue to generate interest amongst researchers are, where did the disease come from and did it start in the military or the civilian population? This chapter examines these questions by exploring some of the theories that have been posited to date by writers and researchers as to the origin of the infection and its effects upon military and civilian populations, as well as considering how influenza spread around the globe so quickly, how it entered Britain and how it may have reached the East Midlands. It also considers the contribution made by military medical services to research into the cause of the pandemic.

#### **Origins**

In 1918, the pandemic which struck the world was known as Spanish influenza. This term was clearly a misnomer and came about purely because the first news reports about the disease and its effects were seen in the uncensored press of neutral Spain. Although the name continues in use even to the present day, it quickly became clear at the time, that Spain was not the origin of the infection.

In 1921, following on from the influenza pandemic of 1918-19, Dr Warren T. Vaughan of Harvard Medical School in the USA, produced an epidemiological study of influenza

under the auspices of the influenza Commission of the Metropolitan Life Insurance Company. Although the study focused mainly on what was known about influenza as a contagious disease at that time and on the effects of an influenza epidemic in Boston in 1920, Vaughan did give much of section II to an examination of the 1918 pandemic. With regard to where the pandemic started, Vaughan states: '...it becomes evident that we cannot with the information at hand find any one locality in which the disease was prevalent sufficiently ahead of the pandemic and to the exclusion of other localities, so that we might determine accurately the site of origin'.<sup>1</sup> Since that time research by medical scientists has uncovered many of the 'secrets' of influenza although the problems associated with epidemics and pandemics, their origins and how to deal with them still remain.

Microbiologist and animal pathologist, William Beveridge, author of a text on influenza which he refers to in the title as 'an unfinished story of discovery', explains that all pathogenic microbes such as bacteria and viruses were first found to cause diseases in animals and only through subsequent research were they found to cause diseases in humans.<sup>2</sup> Research on the influenza virus has revealed a similar propensity to afflict animals; pigs and birds being particularly susceptible to influenza infection but also occasionally horses.<sup>3</sup>

Unfortunately, the same strains of influenza which affect pigs and birds can also affect human beings. Thus, Geoffrey Rice points out that the close proximity of birds and humans in China and South East Asia, together with the fact that a high percentage of influenza pandemics start in that part of the world have led many researchers to regard this geographical area as the epicentre of influenza strains; the place where strains of the virus within the avian population can find their way into human victims to create dangerous new varieties of the disease to which there is no immunity.<sup>4</sup>

This view, linked to the fact that Britain and France employed thousands of civilian Chinese labourers, the Chinese Labour Corps, to assist their troops on the front line during 1916 and 1917, has caused some conjecture that this might have been the original cause of the influenza pandemic of 1918-19. Opinion is divided on this, however. David Patterson and Gerald Pyle regard this as a story fabricated by the

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<sup>1</sup> W. T. Vaughan, *Influenza: An Epidemiological Study* (Baltimore, 1921), p. 65.

<sup>2</sup> Beveridge, *Influenza: The Last Great Plague* p. 4.

<sup>3</sup> Johnson, *Britain and the 1918-19 Influenza Pandemic*, p. 12.

<sup>4</sup> Rice, *Black November*, p. 49.

Germans for propaganda purposes,<sup>5</sup> but Christopher Langford suggests that there may be some substance to it.<sup>6</sup>

The main argument against this idea is summed up by Rice. He states that the civilian labourers did not have influenza when they left China, indeed, there were no reported outbreaks of influenza in that location when they travelled to Europe, so they must have become infected after they had arrived.<sup>7</sup> Langford, however, postulates that the virus responsible for the 1918 pandemic may have developed in China in a fairly benign form some time earlier, which conferred a certain level of immunity on the Chinese and this protected the labourers to some degree when the virus mutated and turned lethal after they arrived in Europe carrying it with them. He further adds that during the course of their journeys to France in 1916 and 1917 via ships and trains, the labourers visited a number of ports such as Cape Town in South Africa and Freetown in Sierra Leone, and travelled across Canada and the USA during which contact with local inhabitants would have been inevitable. In this way, seeding could have occurred almost worldwide. Tom Quinn also supports this theory, stating that, despite differing viewpoints, most scientists believe that China was the origin of the pandemic.<sup>8</sup>

Another hypothesis that suggests a civilian origin comes from America. Based on a similar scenario with humans and animals living in close proximity, an early incidence of influenza in 1918 is described by John M. Barry in his book on the pandemic in America. This occurred in Haskell County, Kansas, a sparsely populated environment consisting mainly of isolated farmsteads where 'Farmers lived in close proximity to hogs and fowl, with cattle, pigs and poultry everywhere.'<sup>9</sup>

He refers to it as a new influenza which appeared in late January and early February 1918 and attacked suddenly and violently, affecting many of the strongest and healthiest adults in the county and killing many.<sup>10</sup> Then the disease disappeared as suddenly as it had come but the experience had so concerned Loring Miner, the County Health Officer, that he formerly warned national public health officials about

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<sup>5</sup> Patterson and Pyle, 'The Geography and Mortality of the 1918 Influenza Pandemic', p. 8.

<sup>6</sup> C. Langford, 'Did the 1918-19 Influenza Pandemic Originate in China?' *Population and Development Review* 31/3 (2005), p. 473.

<sup>7</sup> Rice, *Black November*, p. 49.

<sup>8</sup> Quinn, *Flu: A Social History of Influenza*, p. 25.

<sup>9</sup> J. M. Barry, *The Great Influenza: The Story of the Deadliest Pandemic in History* (New York, 2005), p. 91.

<sup>10</sup> *ibid*, p. 93.

an 'influenza of severe type' and this was published in the United States Public Health Service's weekly journal *Public Health Reports*.<sup>11</sup>

Little was reported in the local press, however, for fear of damaging morale in wartime but because it was wartime and America had, by this time, entered the conflict to fight with the allies, young men from such isolated areas, where infectious diseases might have quickly run out of hosts and disappeared, were being sent to crowded military camps for training in preparation for their journey to European battlefields. One of the largest of these camps was Funston and it was here that men drafted into the army from Haskell County were sent, indeed, Barry writes, 'There was a small but constant flow of traffic between the two places'.<sup>12</sup>

Yet another theory which is gaining acceptance, especially with the support of Professor John Oxford, is that the influenza pandemic had its origins in the military but actually appeared during 1916 and 1917 at Aldershot and Etaples, a British camp on the French coast near Boulogne, where thousands of soldiers, waiting to be sent to the front line, shared their living space with horses, pigs, geese, ducks and chickens. Vera Brittain, who served as a nurse with the Red Cross' Voluntary Aid Detachment (VAD), commented on her arrival there with three other VADs in 1917: 'We finally emerged into open country and the huge area of camps, in which, at one time or another, practically every soldier in the British army was dumped to await further orders'.<sup>13</sup>

The camp site was extensive and contained a hospital to accommodate 22,000 men, three separate infantry depots, a firing range, training grounds, a laundry, two post offices, a cemetery, stabling for thousands of horses, and a farmyard with piggeries and poultry pens. Conditions at the camp were known to be appalling; crowded and unsanitary; the perfect environment for the growth and spread of microbes of all kinds. The amount of human traffic which passed through this camp during the war years was staggering. Mark Honigsbaum states that during the last two years of the war, the camp would have contained around 100,000 men and women and that more than a million would have passed through it between 1915 and 1917.<sup>14</sup> Many of

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<sup>11</sup> *ibid*, pp. 94-95.

<sup>12</sup> *ibid*, p. 96.

<sup>13</sup> V. Brittain, *Testament of Youth: an autobiographical study of the years 1900-1925* (London, 1978) p. 370.

<sup>14</sup> Honigsbaum, *Living with Enza*, pp. 20-22.

those men would have been from the East Midlands region, especially as East Midlands' regiments such as the Leicestershire Regiment and the Sherwood Foresters, were part of the British Expeditionary Force (BEF) and many men from those counties would have chosen to join or been assigned to their local regiments.

The sickness which struck Etaples in 1916 was known as purulent bronchitis and exhibited many of the characteristics that were observed in the influenza outbreak in 1918, in particular, high fever and lung congestion causing breathing difficulties and heliotrope cyanosis, the dusky purple colouration of the skin which so often signalled the impending death of the patient. The main difference between this ailment and the influenza of 1918-19 was the excessive expectoration of pus from the lungs.

One victim of this infection was Private Harry Underdown, who had spent the autumn of 1916 in Bagthorpe Military Hospital in Nottingham, recovering from shell shock. He returned to active service in November but died of purulent bronchitis in February 1917. Underdown was just one of 156 soldiers to die of the disease at Etaples between February and March 1917.<sup>15</sup>

The sudden appearance of purulent bronchitis and its effects on the victims were described by Major A. Abrahams of the RAMC, who was working at the Connaught Military Hospital in Aldershot during 1915 and 1916. In giving his report to the Royal Society of Medicine in 1918, he referred to the high level of contagion and the 'very dreadful mortality' which occurred with this disease.<sup>16</sup> He went on to argue that the disease which occurred in France at the same time was the same as that at Aldershot and that it was also 'fundamentally the same condition' as the influenza of 1918 and 1919.<sup>17</sup>

Oxford agrees with this finding, adding that the influenza A virus, which modern research has shown to be the type responsible for pandemics, may not erupt immediately but may 'smoulder' for several years before breaking out simultaneously

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<sup>15</sup> *ibid*, p. 26.

<sup>16</sup> A. Abrahams, 'Discussions on Influenza', *Proceedings of the Royal Society of Medicine* 1918, 12 (1919), p. 97.

<sup>17</sup> *ibid*, p. 98.

in widely separate locations.<sup>18</sup> Nonetheless, Oxford admits that a Chinese origin for the influenza virus cannot be ruled out.<sup>19</sup>

Yet another hypothesis is suggested by Geoffrey Rice, the possibility that the pandemic may have started at the same time in both America and China and that in the two groups coming together because of the war, the two individual viruses combined to produce a new, hypervirulent strain of influenza.<sup>20</sup> Many historians and researchers, however, favour the idea that it began within the American military population in the spring of 1918 and spread from there to Europe as thousands of U.S. troops were transported by ship to the Front Line in France. From there it is believed to have spread into the civilian population as servicemen returned to their families on leave.

It is certainly possible that the young farmers of Haskell County took the influenza virus to Camp Funston when they were drafted, particularly as the sudden disappearance of influenza from the farms in March coincided with its appearance in Camp Funston.<sup>21</sup> The first man recorded as falling victim to influenza at the camp was the cook, Albert Gitchell. He reported sick on 4 March and was admitted to the infirmary. Two other men, Corporal Drake and Sergeant Hurby, quickly followed with identical symptoms and were also hospitalised. Within hours there were more than a hundred cases and after a month there were thousands. Other military camps and cities in the USA, such as New Jersey, Detroit and Chicago were soon reporting influenza epidemics and it had also appeared in the American Expeditionary Force (AEF) which was in the process of being shipped over to France. Honigsbaum quotes figures of 84,000 American troops who sailed for Europe in March 1918 and another 118,000 in April.<sup>22</sup>

#### Influenza amongst the troops

Levels of morbidity and mortality for both civilian and military populations will be discussed in the next chapter. However, American troops from camps infected with influenza sailed for France and in April 1918; shortly after their arrival, influenza broke

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<sup>18</sup> J. S. Oxford. 'Influenza A pandemics of the 20<sup>th</sup> century with special reference to 1918: virology, pathology and epidemiology.' *Reviews in Medical Virology*, 10 (2000), p. 122.

<sup>19</sup> J. S. Oxford et al, 'World War I may have allowed the emergence of "Spanish" influenza.' *The Lancet Infectious Diseases*, 2 (2002), p. 113.

<sup>20</sup> Rice, *Black November*, p. 53.

<sup>21</sup> Barry, *The Great Influenza*, p. 94.

<sup>22</sup> Honigsbaum, *Living with Enza*, pp. 41-44.

out in Brest, their main disembarkation port, followed by American camps in Marne and Vosges.<sup>23</sup>

The position of British forces at this time was revealed by the medical department of the Local Government Board (LGB) in their final annual report before being superseded by the Ministry of Health. In the British Navy an influenza epidemic was recorded in the Grand Fleet at Scapa Flow and Rosyth in the middle of April 1918, peaking on 10 May when 744 men reported sick. By the time the outbreak had passed, 10,313 officers and men out of a total compliment of 90,000 had been attacked.<sup>24</sup> British soldiers in France were also attacked during April and by the end of May thousands of men had been affected, many requiring medical treatment.

Enemy troops fared no better. Barry records that German soldiers on the Western Front were stricken in April and makes reference to the memoirs of General Erich von Ludendorff, Commander of the German Army, who wrote: 'It was a grievous business having to listen every morning to the chiefs of staffs' recital of the number of influenza cases, and their complaints about the weakness of the troops if the English attacked again.'<sup>25</sup>

It would appear from press reports that sickness amongst German troops may even have affected their ability to pursue their battle plans. *The Times* in June 1918 carried the report of a successful advance by British troops in the Forest of Nieppe during which more than 300 prisoners were taken and these provided:

...confirmation of the tales which we have heard of the prevalence of influenza in the German Army. Reports have been current for some time past that the malady was sufficiently serious to have constituted one reason why the Germans have been so slow in pushing the offensive, divisions intended for the attack being so prostrated as to be unable to fight...They say that the disease is widespread in all departments of the Army.<sup>26</sup>

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<sup>23</sup> *ibid*, p. 45.

<sup>24</sup> *Forty-Eighth Annual Report of the Local Government Board, 1918-1919: Supplement containing the report of the Medical Department for 1918-1919* (London, 1919), p. 7.

<sup>25</sup> Barry, *The Great Influenza*, p. 171.

<sup>26</sup> *The Times*, 29 June 1918, p. 6.

Influenza continued to spread rapidly through the military forces on both sides and on through civilian populations in France, Germany and neighbouring European countries, stretching the available medical resources and affecting the prosecution of the war and the daily life of citizens.

#### The global spread of influenza

Reports of the spread of the infection began at this time to appear in British national and provincial newspapers. *The Times* reported in June 1918 that influenza similar to that being experienced in Spain had appeared in Birmingham.<sup>27</sup> Only four days later it was reporting on a much more serious situation developing in many parts of England, Wales and Ireland, with hundreds of cases of influenza suddenly occurring.<sup>28</sup>

The East Midlands' press carried some early reports of influenza in London and in other countries. The Derby press, for example, reported on the hospitalisation of many people in Germany due to influenza. It also reported on influenza in Italy and in a London military hospital.<sup>29</sup> However, it was not until the region itself began to experience a significant rise in influenza cases that local newspapers gave serious attention to it.

As influenza began to spread across Britain and mainland Europe, it also began appearing in many other countries around the world, apparently carried by ships as they transported troops, equipment and supplies to and from ports servicing the war effort. The spread of influenza, therefore, following its possible origin in American military camps, would seem to have been facilitated by the mass movement of troops and supplies necessitated by war.

The order in which the influenza spread across the Globe after it appeared amongst troops in France in April 1918 is difficult to establish but attempts have been made to map it. The first such attempt was made by Vaughan in 1921 on evidence provided by members of the AEF, Thomas Carnwath of the LGB and various other observers across Europe, Asia, Africa and South America, but Vaughan acknowledged that some information was based on only a single source and that establishing the origin of the

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<sup>27</sup> *ibid*, 22 June 1918, p. 6.

<sup>28</sup> *ibid*, 26 June 1918, p. 7.

<sup>29</sup> *Derby Daily Telegraph*, 24 June 1918 p2, 3 July 1918 p3; *Derby and Chesterfield Reporter*, 28 June 1918, p. 5.

outbreak and the direction of spread presented considerable difficulty.<sup>30</sup> Nonetheless, Vaughan produced a map illustrating what he believed to be the spread of infection around the world during 1918 from a presumed point of origin in the United States and this can be seen in Figure 2 below.

Vaughan's map indicates sites of influenza infection in the United States in March as well as sites in China and Japan. According to Rice the Chinese outbreak may have been a different virus but Japan may have suffered early infection following the visit of a Japanese naval squadron to a naval training camp in San Diego during which the camp was struck by the same sickness that had appeared at Camp Funston. On their return to Japan, influenza appeared in other naval units and quickly spread across the country.<sup>31</sup>

Vaughan goes on to state that after being carried over to France with the AEF in April and infecting troops there, influenza appeared in civilian populations in Scotland, Spain, Greece, Italy and Egypt (carried there by the Egyptian Expeditionary Force) in May, in England, Switzerland, Germany, Austria, Norway, India and the Philippine Islands in June and Sweden and the Netherlands in July.

A more recent assessment of the spread of infection has been made by David Patterson and Gerald Pyle, who produced maps to show their suggested diffusion of the first and second (spring and autumn) waves of influenza both for Europe and for the world. Maps for the first wave can be seen in Figures 3 and 4 below. Their suggested route and timing of diffusion adheres closely to Vaughan's but they add that Australia, New Zealand and Indonesia were also infected in June.<sup>32</sup> This is challenged by Rice, however, who argues that Australia, New Zealand and South Africa were not affected by the pandemic until September and in the latter case this is supported by Howard Phillips.<sup>33</sup>

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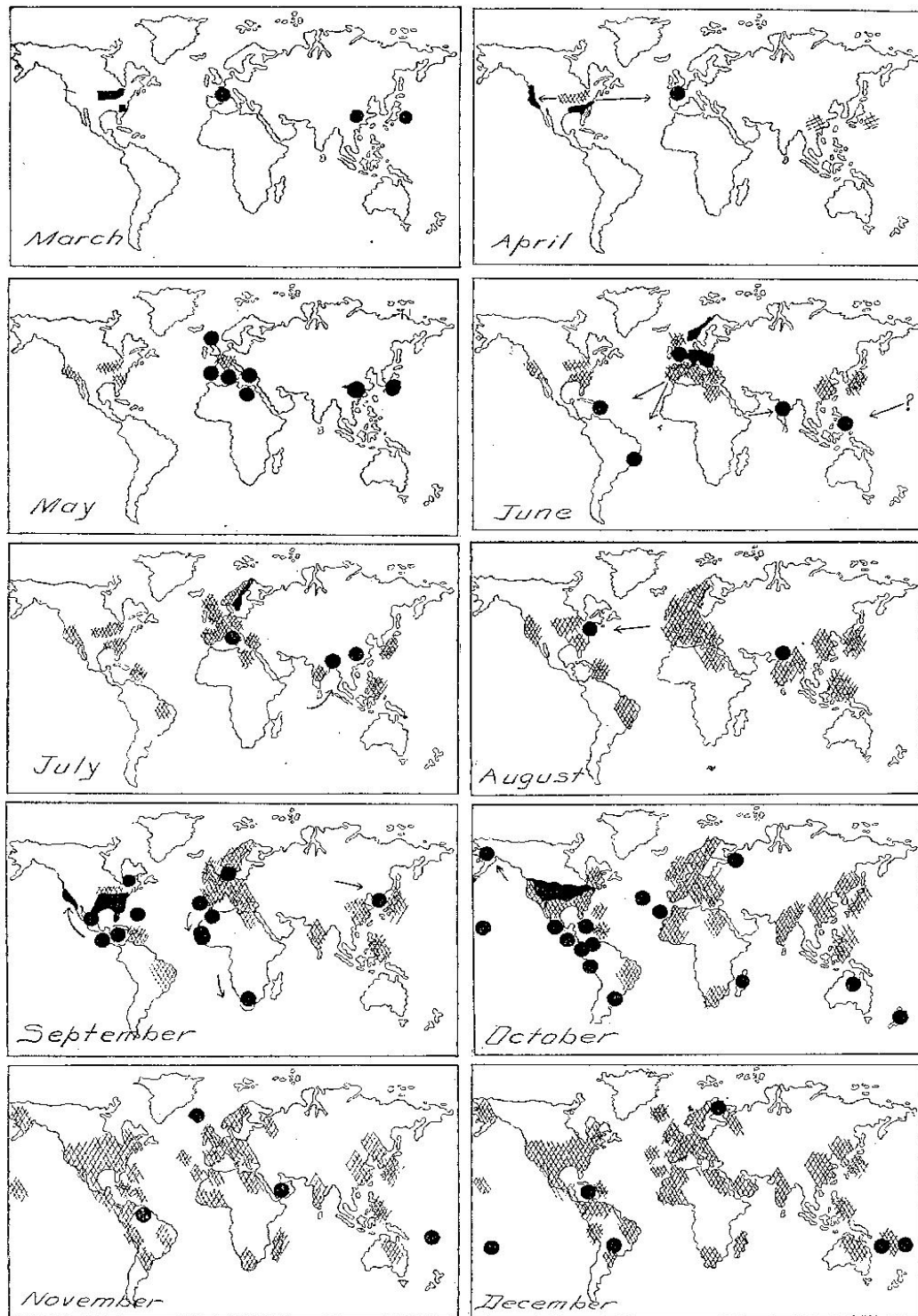
<sup>30</sup> Vaughan, *Influenza: An Epidemiological Study*, p. 69.

<sup>31</sup> G. W. Rice, and E. Palmer, 'Pandemic Influenza in Japan, 1918-19', *Journal of Japanese Studies*, 19/2 (1993), pp. 393, cited in Rice, *Black November*, p. 53, note 16.

<sup>32</sup> Patterson and Pyle, 'The Geography and Mortality of the 1918 Influenza Pandemic', p. 8.

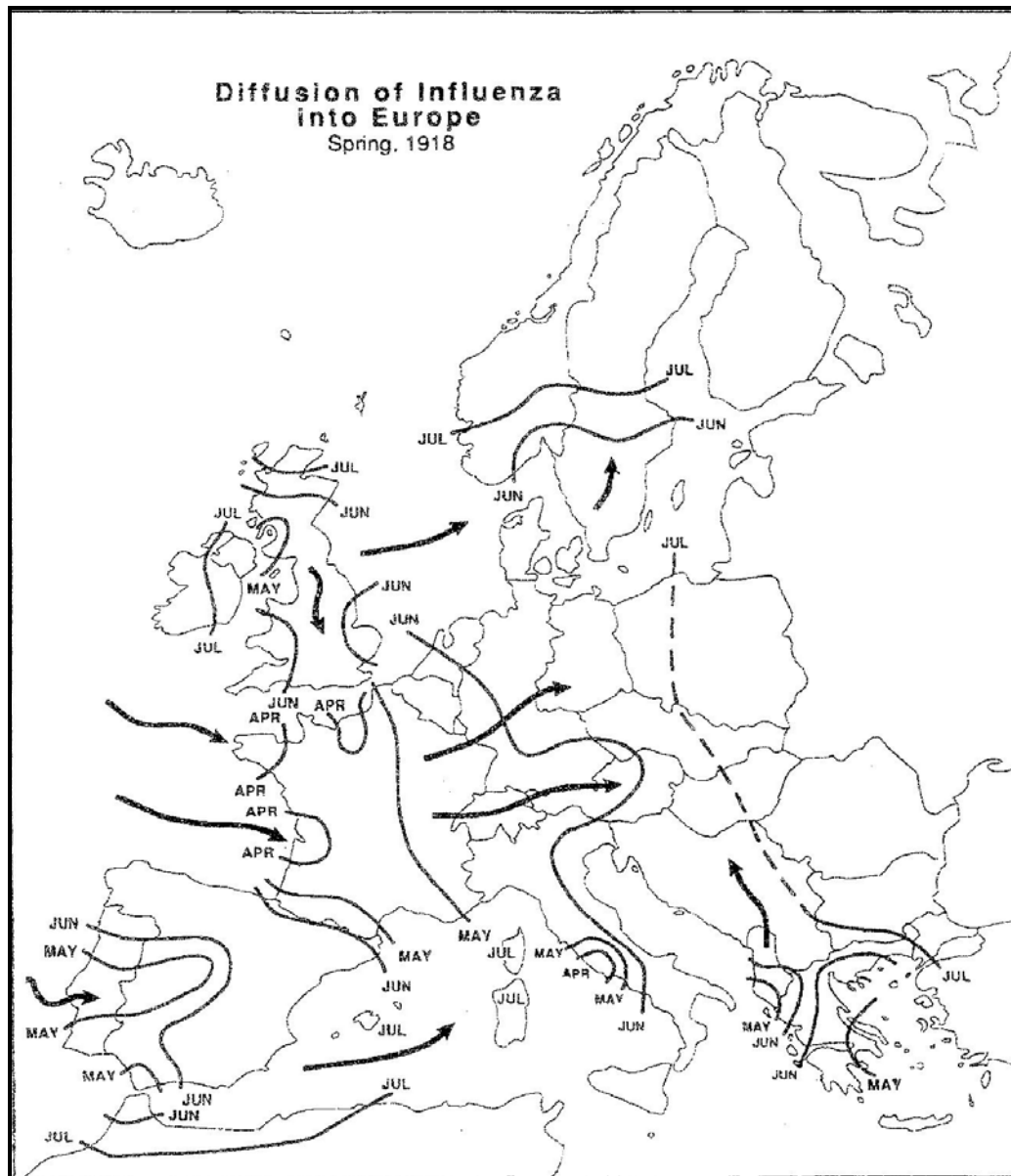
<sup>33</sup> Rice, *Black November*, p. 54. See also H. Phillips, *Black October: The Impact of the Spanish Influenza Epidemic of 1918 on South Africa* (Pretoria, 1990), p. 1.

Figure 2. Map of the Global Spread of the Influenza Pandemic 1918-19.



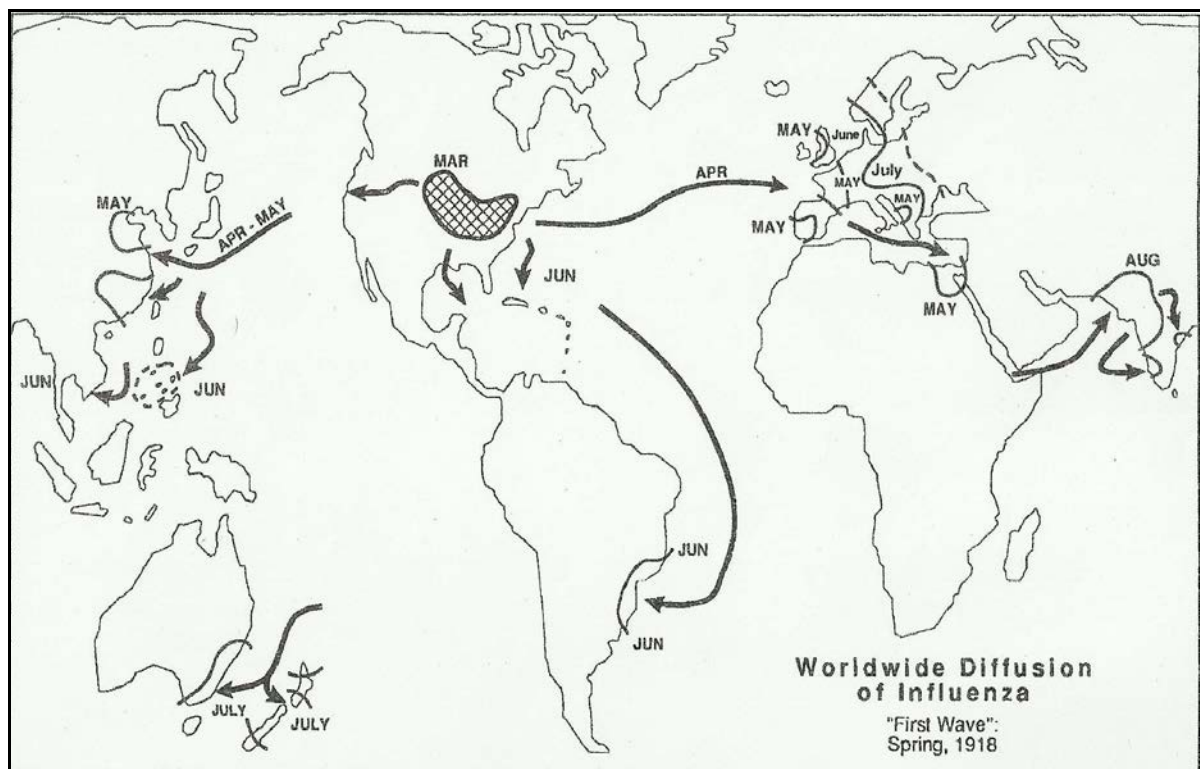
Source: Vaughan, *Influenza: an Epidemiological Study*, p. 69.

Figure 3. Map of the Diffusion of Influenza into Europe in the First Wave of the Pandemic, Spring 1918.



Source: Patterson and Pyle, 'The Geography and Mortality of the 1918 Influenza Pandemic', p. 6.

Figure 4. Map of the Worldwide Diffusion of Influenza in the First Wave of the Pandemic, Spring 1918.



Source: Patterson and Pyle, 'The Geography and Mortality of the 1918 Influenza Pandemic', p. 7.

#### Influenza in Britain

In Britain, the first occurrence of influenza in the civilian population during the first wave was in Glasgow in May 1918 according to reports by the Registrar-General (RG) for Scotland and the Principal Medical Officer of the LGB.<sup>34</sup> With Glasgow being a major port, this supports the contention that the ports were the principal points of entry for the pandemic and the means by which it spread so rapidly across the globe. Similarly in England, major ports were cited as entry points through which the infection reached the civilian population as men returned home from the Front. The RG for England and Wales stated that in the first wave the seaports affected apart from London were chiefly in the north east, specifically Hull, Middlesbrough,

<sup>34</sup> Registrar-General for Scotland, *Report on the Mortality from Influenza in Scotland during the Epidemic of 1918-19: A Supplement to the Annual Reports of the Registrar-General for Scotland*, (Edinburgh, 1919), p. 1; *Forty-Eighth Annual Report of the LGB, 1918-1919*, p. 7.

Hartlepool, West Hartlepool, Sunderland and Newcastle and some confirmation of this appeared in a report in the Loughborough press in July 1918 which stated that, 'At Middlesbrough it was reported eleven seamen died in one ship from pneumonia following influenza, and four in another.'<sup>35</sup>

As with the mapping of the diffusion of the influenza pandemic throughout Europe and the rest of the world, diffusion of the pandemic throughout England and Wales has also been mapped by Matthew Smallman-Raynor et al in their study of the transmission of infection within the urban system represented by London and the 82 county boroughs. For this they drew on the statistics and reports compiled by the RG for England and Wales (1920), The LGB (1919), the Ministry of Health (1920) and other relevant post-war documents. Their maps can be seen below in Figure 5.

In these maps the circles represent London and the county boroughs and the shading indicates in which week of the wave the first influenza death was recorded. Black circles represent those boroughs where a death was recorded the week before the accepted onset of the respective wave, indicating a possible 'seed' location and the arrow indicates the general direction in which the wave spread. Map A in Figure 5 represents the first wave of the pandemic which is taken to be from June to August 1918.

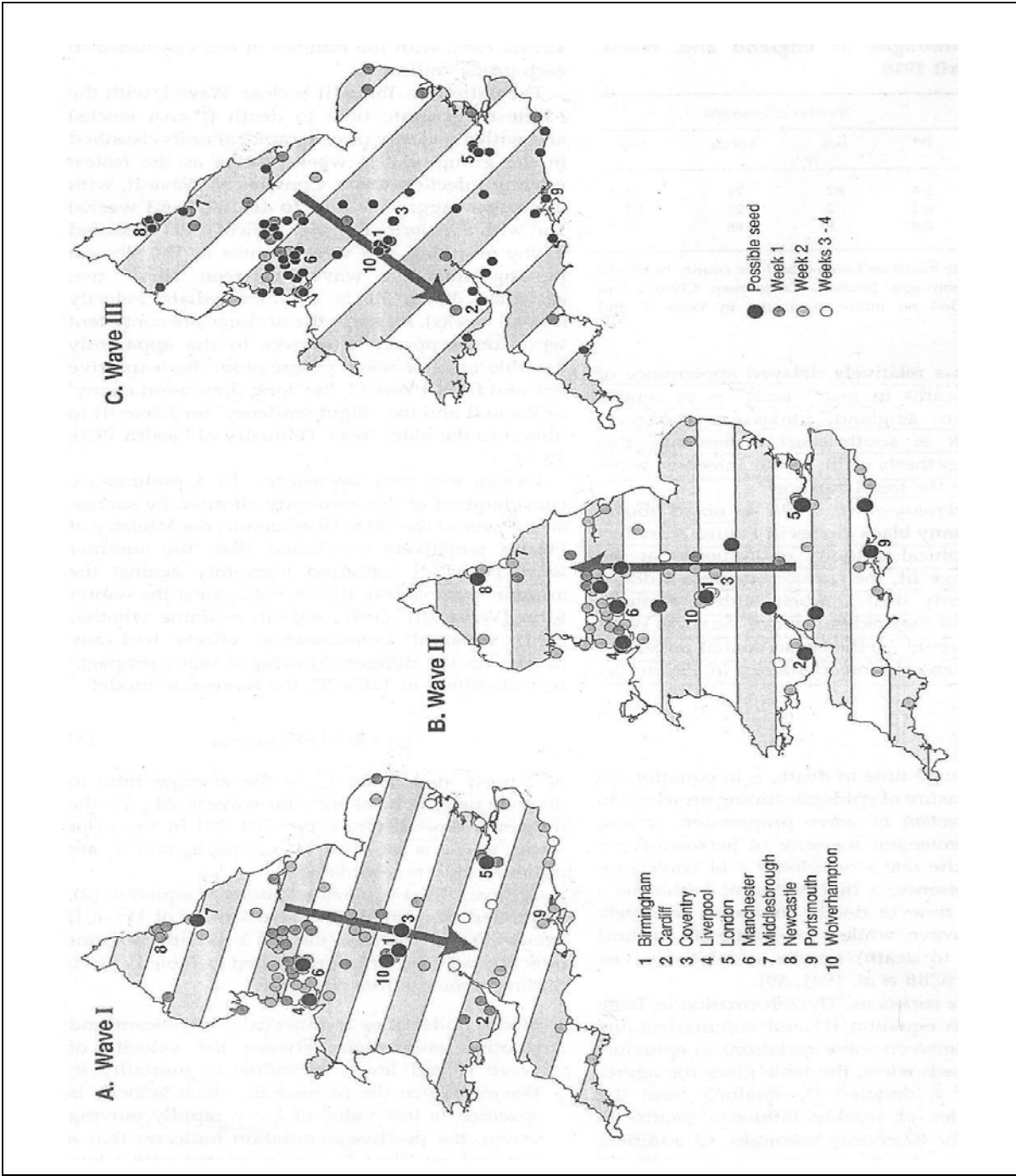
Smallman-Raynor et al explain that, as stated by the RG in his report on the Influenza pandemic (1920), influenza was affecting the main ports and cities in the north of England together with London and the industrial areas of the West Midlands from where it spread out into the neighbouring county boroughs over the next two weeks, travelling in a generally southerly direction. They confirm contemporary news reports by adding that Birmingham was the first provincial city to experience a sudden and sustained rise in influenza mortality with deaths also occurring in neighbouring Wolverhampton and Coventry at about the same time, together with Manchester, Liverpool, London and Middlesbrough. They go on to say that shortly after this all urban centres in the country were affected.<sup>36</sup>

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<sup>35</sup> *Loughborough Monitor and News*, 11 July 1918, p. 4.

<sup>36</sup> M. Smallman-Raynor et al, 'The Spatial Anatomy of an Epidemic: Influenza in London and the County Boroughs of England and Wales, 1918-1919', *Transactions of the Institute of British Geographers*, 27/4, (2002), p. 458. See also RG, *Supplement to the Eighty-First Annual Report*, pp. 10-14

Figure 5. The Spread of Influenza in London and the County Boroughs of England and Wales, June 1918 – April 1919.



Source: Smallman-Raynor et al, 'The Spatial Anatomy of an Epidemic', p. 459.

Reports of influenza occurring in the East Midlands appeared in the local press by the end of June 1918, when it was reported that the infection was prevalent in Derby and affecting work and education, although it was thought to be only a mild form of the disease.<sup>37</sup>

At the beginning of July, the *Leicester Mercury* stated that there were already 'a considerable number of cases of the new influenza' in the town and even one fatality, a nineteen year old woman.<sup>38</sup> The following day the same newspaper announced that 'The influenza epidemic has reached North Nottinghamshire where there are many hundreds of cases.'<sup>39</sup> The Loughborough press carried a similar story but also indicated that there did not seem to be cause for great anxiety.

There are further reports of the spread of influenza in many parts of the Kingdom, and in the large towns especially... Some fatal cases have occurred, but it is the opinion of the medical Officers of Health...that the epidemic, though so widely prevalent, is for the most part of mild type...<sup>40</sup>

The mood changed by 11 July, however, as the same newspaper reported several deaths from influenza in the village of Barrow [upon-Soar], with three deaths in one family.<sup>41</sup> By the following week it was reporting on the infection of hundreds of children and the closing of schools.<sup>42</sup>

The Nottingham press also carried numerous reports of influenza across Britain and elsewhere from early July 1918, and under the heading 'Nottingham and District', the *Nottingham Journal and Express* stated: 'As far as this country is concerned the epidemic continues to be more severe in the Midlands and the North than elsewhere...Although it cannot be said that the malady is present in Nottingham in grave epidemic form, there are nevertheless quite a number of cases.'<sup>43</sup>

As reporting continued on the progress of the influenza pandemic across the county throughout July, it was clear that the situation was much worse than had originally

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<sup>37</sup> *Derby Daily Telegraph*, 28 June 1918, p. 4.

<sup>38</sup> *Leicester Mercury*, 1 July 1918, p. 2.

<sup>39</sup> *ibid* 2 July 1918, p. 2.

<sup>40</sup> *Loughborough Herald and North Leicestershire Gazette*, 4 July 1918, p. 5.

<sup>41</sup> *ibid* 11 July 1918, p. 5.

<sup>42</sup> *ibid* 18 July 1918, p. 4.

<sup>43</sup> *Nottingham Journal and Express*, 4 July 1918, p. 3.

been thought as reports of deaths and disruption began to fill the newspapers. Under the front page headline 'The 'Flu' Scourge Extension of its Ravages Locally' the *Nottingham Journal and Express* declared it to be spreading across Nottinghamshire and Derbyshire and spoke of deaths in Derby and Lincoln, the closure of schools, delays in carrying out important work and victims collapsing in the street.<sup>44</sup>

Thus, the effects of the first wave of the influenza pandemic on the East Midlands were reported in local newspapers. However, as Derbyshire, Nottinghamshire and Leicestershire are placed in the centre of the country and have no ports, the acknowledged entry of the disease into the country, passage into the region must have been by some other means. The same would be true for Birmingham and other towns and cities in the industrial heartland of England, already mentioned as being early victims of the influenza pandemic.

#### Dissemination of infection

The manner in which infection is spread between and within countries is described by Niall Johnson as hierarchies and contagion, a hierarchy being a connected communication system with a major urban centre at the top which is the first to come into contact with the infection, usually a port.<sup>45</sup> The transport system, particularly railway networks, then distributes the infection throughout the urban centre and on down the hierarchy to other towns along the line. Once this has occurred, contagion takes over and the infection is spread throughout the towns and cities by day to day human contact. With regard to Britain, Johnson explains that in such a compact and highly urbanised country this process would take place fairly quickly and the news reports of the day would seem to support that view. *The Times* in December 1918 stated:

The ports were first involved, Glasgow and Liverpool in particular suffering very heavily for a considerable time before other centres were affected. Next the disease reached London, to which no doubt it was brought by travellers in the through trains. From London it radiated again, visiting Birmingham, Nottingham, and other centres.<sup>46</sup>

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<sup>44</sup> *ibid* 10 July 1918, p. 1.

<sup>45</sup> Johnson, *Britain and the 1918-19 Influenza Pandemic*, p. 54.

<sup>46</sup> *The Times*, 18 December 1918, p. 5.

The reference here to London, Birmingham and Nottingham indicates the way in which the influenza pandemic is likely to have been carried into the East Midlands, a region with limited connection to major ports but with extensive passenger and freight rail links.

What is today known as East Midlands Trains originated in the 1830s as the Midland Counties Railway with three lines which met in Derby. Over the next ten years new stretches of track were connected resulting in three routes, one from Derby to Birmingham, another going north to Leeds via Chesterfield and a third, the Midland Counties route, which ran between Derby, Nottingham and Leicester terminating at Rugby, which, following the completion of the Rugby viaduct, gave access to London Euston. By the 1850s the Midland Railway, as it was now called, had its own route from Leicester to London St Pancras and twenty years later lines were opened which extended its routes north into the Yorkshire Dales, Manchester and Edinburgh.

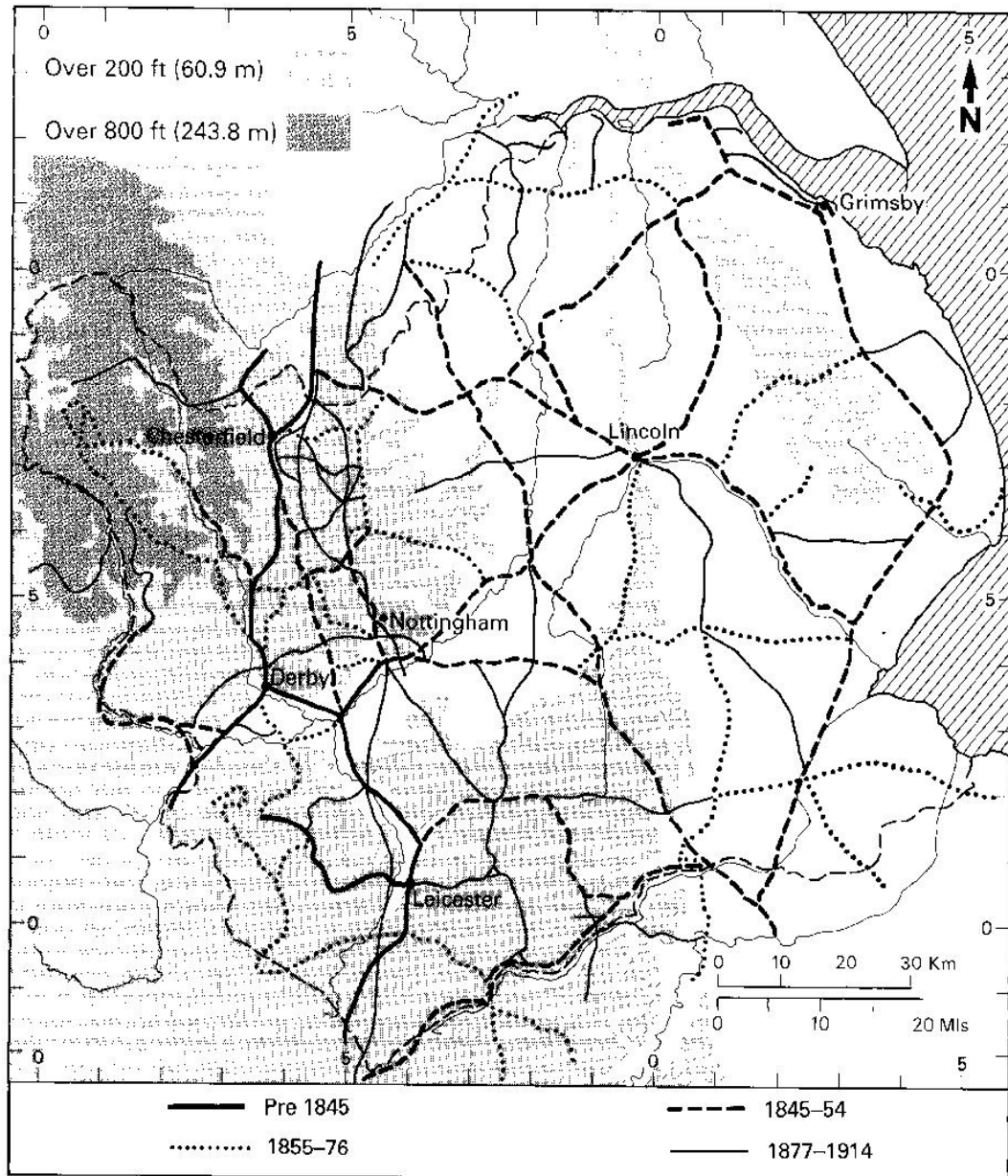
In addition, in 1897 the Manchester, Sheffield and Lincolnshire Railway became the Great Central Railway. This company served Lincolnshire, Derbyshire and Nottinghamshire and, in 1899, opened an extension to London, bringing the service southwards through Leicestershire. It served the region's coal mines and quarries as well as handling passenger and goods traffic and it was designed to provide a high speed service. These railway networks (Figure 6 below), would have provided swift and easy routes for influenza to move from London, one of the principal ports and an early focus of influenza infection, into the heart of England, the East Midlands region and beyond, by means of soldiers returning home on leave and other passenger and goods traffic.

It would appear, therefore, that even if the exact origin of the influenza pandemic cannot be identified, it was the transport of soldiers to and from France in the spring and summer months of 1918 that carried the infection into the civilian population. This probability was acknowledged by Carnwath, Medical Inspector of the LGB, when he admitted in a lecture delivered to the Royal Institute of Public Health in 1919 that 'It is possible... that the main bulk of the infection was introduced into this country... by convalescents and by men returning on leave.'<sup>47</sup>

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<sup>47</sup> T. Carnwath, 'Lessons of the Influenza epidemic 1918,' *Journal of State Medicine*, 27/5 (1919), p. 143.

Figure 6. Railways in the East Midlands in the nineteenth century.



Source: Beckett, *The East Midlands from AD1000*, p. 266.

The second wave

If what the soldiers carried with them back to their homes was highly contagious but relatively mild as compared to previous epidemic outbreaks of influenza, what they encountered back in their camps and on the battlefields was not. Throughout August and September 1918 there were no further reports concerning influenza in the East Midlands press beyond advertisements for preparations to ward off the infection should it re-appear. However, by late August, influenza re-appeared in the military population, once again at Brest in France, the American military transit camp. This was the start of the second or autumn wave of influenza, but unlike the first wave, this turned out to be a much more virulent form of the disease bringing with it serious complications, particularly pneumonia.

Why the virus changed as it did is another question to which an answer is still being sought by scientists, as is where this second wave started. In response to the former, various theories have been put forward. Rice, for example, suggests it could have been caused by the creation of 'abnormal communities' of fit, young men being brought together in vast army camps and naval vessels.<sup>48</sup> Another possible explanation is it was the result of the extensive use of mustard gas on the battle fields especially by Germany.<sup>49</sup>

The most often quoted theory as to the change in the virus, however, is that it mutated by passing between human and animal hosts, such as pigs or poultry, both of which were housed in close proximity to soldiers in military camps in France. Passing between hosts of different species is thought to have allowed the virus to re-assort its genes and achieve antigenic shift thereby transforming itself into a new and highly aggressive form of influenza to which no human had any immunity.<sup>50</sup>

Where and when it actually started are also not entirely clear. Honigsbaum states that there were 200 cases on a Norwegian steamer in New York harbour as early as 12 August 1918, although Patterson and Pyle argue that it was first reported in Brest on 22 August. As with the first wave of influenza, Patterson and Pyle have created maps (Figures 7 and 8 below) to show the likely route and order of dissemination of

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<sup>48</sup> Rice, *Black November*, p. 54.

<sup>49</sup> *ibid*, pp. 54-56. See also Honigsbaum, *Living with Enza*, pp. 22-24.

<sup>50</sup> Patterson and Pyle, 'The Geography and Mortality of the 1918 Influenza Pandemic', p. 8; Honigsbaum, *Living with Enza*, p. 11; J. S. Oxford et al, 'World War 1 may have allowed the emergence of 'Spanish' influenza', p. 114.

the second wave of the disease across Europe and the rest of the world. In tracing its spread they comment that 'Transmission in many places was greatly facilitated by wartime disruption and troop movements and its pace was quickened by the vastly improved railway networks that spanned the continents and by steam ships that connected them with unprecedented efficiency.'<sup>51</sup>

Their maps show that in Britain the second wave travelled north through England (also seen in Figure 5B, p. 51) and into Scotland from where it passed into Scandinavia. From France it travelled south down through Italy and into Sicily. It also travelled over the Pyrenees into Spain. They state that by October 1918 most cities in western and central Europe were stricken with epidemic influenza. Diffusion across the rest of the world was accomplished principally by Atlantic and Pacific shipping, river boats and trans-continental railways. Thus, by November 1918, almost every country had been infected by the second wave, Australia being one of the few places to escape until January 1919 because of rigorous quarantine regulations imposed from mid-October.

A striking feature of this wave of the pandemic was that it broke out simultaneously in three widely separate locations. As it appeared in France, it also erupted in the USA, and in Freetown, Sierra Leone, to where it was transported, according to Crosby and Rice, on the British ship, *S.S.Mantua*, there being 200 of the crew sick with influenza by the time it docked. As Freetown was a major port and coaling station in West Africa, ships from many nations docked there before going on to their respective destinations; ships like the *Tahiti* carrying New Zealand soldiers of the 40<sup>th</sup> Reinforcement which, by the time it reached Plymouth, had recorded 76 deaths and hundreds too sick for duty. Similarly, the *Chepstow Castle*, also carrying New Zealand Troops, and HMS Africa, both suffered appalling epidemics of influenza after visiting Sierra Leone.<sup>52</sup>

In America the second wave of influenza appeared, once again, in a military encampment, that of Camp Devens in Boston, Massachusetts. The first case was reported on 7 September 1918 and by the following day many more soldiers were infected. Crosby states that by the eighteenth of the month there had been 1,176

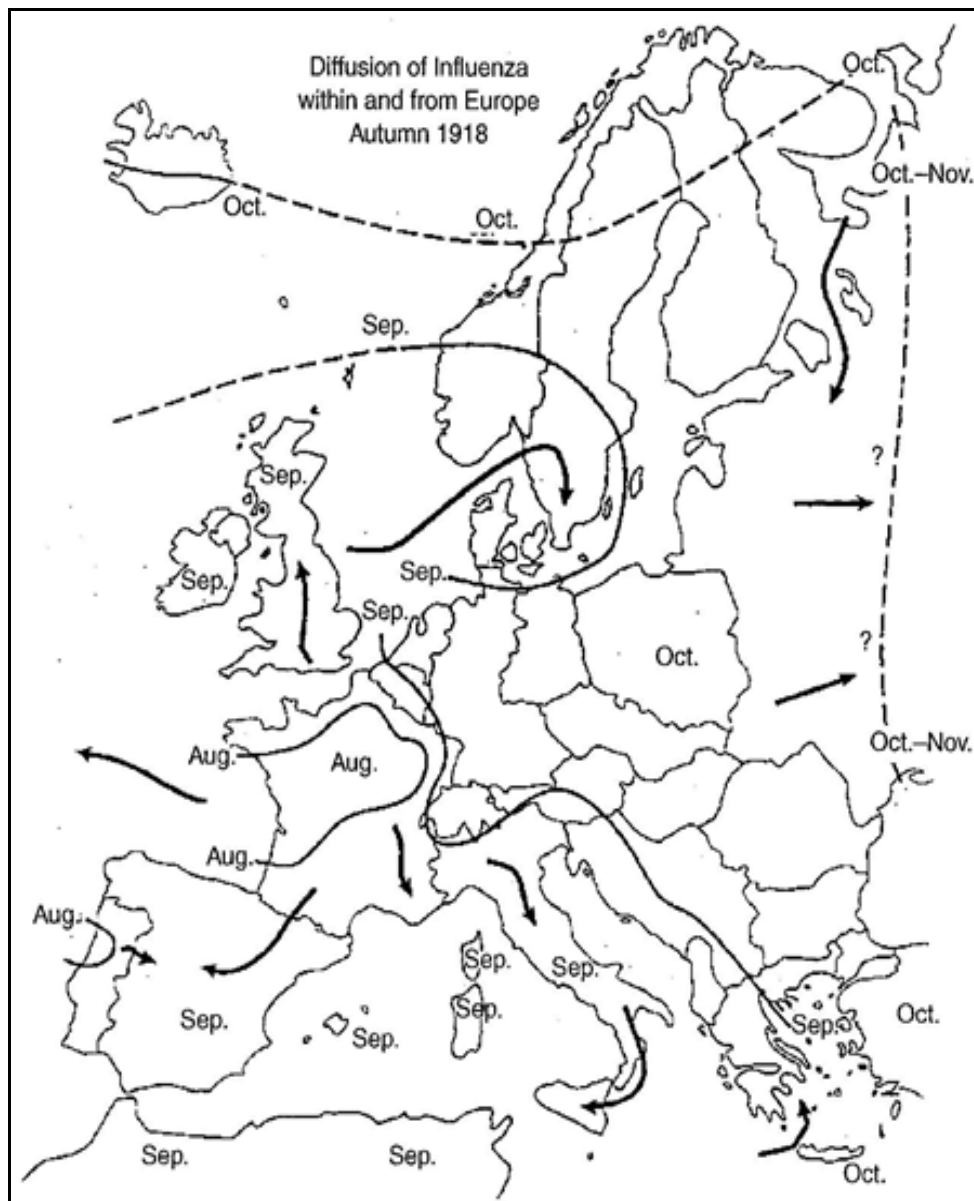
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<sup>51</sup> Patterson and Pyle, *The Geography and Mortality of the 1918 Influenza Pandemic*, p. 10.

<sup>52</sup> Crosby, *America's Forgotten Pandemic*, p. 38; Rice, *Black November*, p. 58.

hospital admissions and 6,674 reported cases of influenza in the camp. The infection also spread to other camps including Upton in New York and Lee in Virginia.<sup>53</sup>

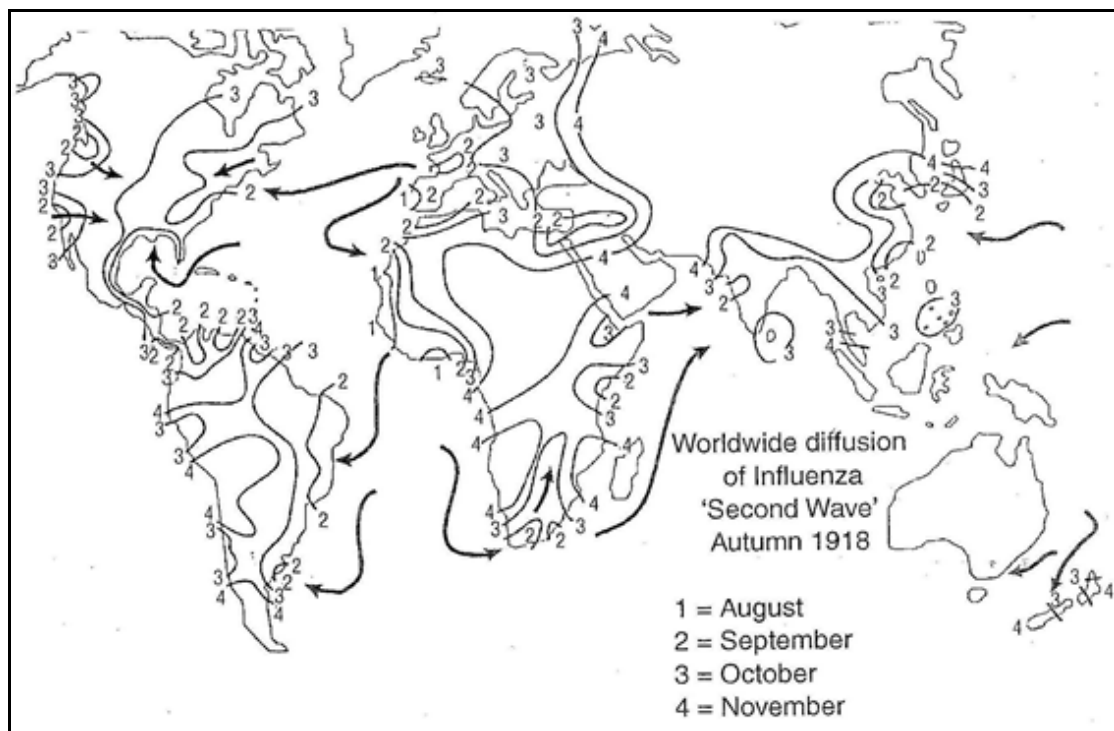
Figure 7. Map of the Diffusion of Influenza within and from Europe in the Second Wave of the Pandemic, Autumn 1918.



Source: Patterson and Pyle, 'The Geography and Mortality of the 1918 Influenza Pandemic', p.9.

<sup>53</sup> Crosby, *America's Forgotten Pandemic*, pp. 4-5.

Figure 8. Map of the Worldwide Diffusion of Influenza in the Second Wave of the Pandemic, Autumn 1918.



Source: Patterson and Pyle, 'The Geography and Mortality of the 1918 Influenza Pandemic', p. 12.

In his discussion on the human cost of the influenza pandemic, Johnson refers to 'discrete populations' or enclosed communities with high mixing rates within which epidemic diseases such as influenza are able to run riot.<sup>54</sup> He identifies these populations as being those found in military camps, hospitals, schools, particularly boarding schools and on ships, indeed, he states that 'Being on board ship was probably one of the worst places to experience the pandemic... there would have been little escape and no way to avoid infection...'<sup>55</sup>

He includes statistics relating to a number of named ships and the levels of sickness and death on board. Although conditions were not the same on all ships, the worst affected were sites of dreadful suffering. The Barambah, for example, with 997

<sup>54</sup> Johnson, *Britain and the 1918-19 Influenza Pandemic*, p. 108.

<sup>55</sup> *Ibid*, p. 111.

persons on board, had 800 cases of influenza and 25 deaths, while H.M.S. Africa with 775 persons on board had 75 per cent of its passengers and crew affected and 9 per cent mortality. These became veritable plague ships carrying infection with them to their destination.<sup>56</sup>

One of the most vivid descriptions of the effects of the second wave of influenza on a discrete population - soldiers who moved from one enclosed environment, that of a military camp, to another, that of a ship - is given in the account of the American troopship, *Leviathan*, which was scheduled to carry soldiers from New York to France in September 1918. On the march from camp to where the ship was moored, men of the 57<sup>th</sup> Pioneer Infantry were collapsing and being picked up by ambulances following behind and driven back to the camp hospital. On arrival at the dock more men fell ill during inspection and on boarding the vessel a further 120 became ill and had to be taken off the ship.

The *Leviathan* set sail for France on 29 September with 2,000 crew and approximately 10,000 army personnel. By the end of the first day at sea 700 soldiers were sick with influenza and one sailor had died. Despite efforts to isolate the sick, more victims succumbed and by the time they reached their destination, 2,000 men were sick and probably many more infected; 80 had also died. Every bunk was filled and many more lay on the decks which, in some cases, were awash with blood from nasal haemorrhages, vomit and other bodily fluids.<sup>57</sup> Crosby records similar conditions on other troop ships. Once again, therefore, shipping, in many cases known vessels, were held responsible for carrying influenza to other continents, where their respective transport systems conveyed it between and across countries.

In Britain, the first reports of the new wave of influenza in *The Times* do not appear until the middle of September 1918 and then they were exclusively about the re-appearance of influenza in the Empire and other countries. It was not until 14 October that, in an article on the summer epidemic (the first wave), there was a final sentence reporting the prevalence of influenza in Oxford and the closure of its schools.<sup>58</sup>

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<sup>56</sup> Ibid, p. 113.

<sup>57</sup> Crosby, *America's Forgotten Pandemic*, pp. 125-129; Honigsbaum, *Living with Enza*, pp. 73-74.

<sup>58</sup> *The Times*, 14 October 1918, p. 5.

Smallman-Raynor et al argue that influenza was, in fact, already present in many urban centres across the country at the onset of the second wave, as shown by the black circles on map B, Figure 5. They suggest that this may have been the result of the seeding of southern ports such as Portsmouth by naval personnel, amongst whom, according to the report of the LGB in 1919, a serious outbreak of influenza had occurred in August and September. From these southern coastal towns the infection then moved northwards, infecting the whole country. This can also be seen in Figure 7.

The East Midlands press took up the story of the re-appearance of influenza on the world stage during October. Taking reports from Reuter's news agency, the *Derby Daily Telegraph* announced the emergence of an epidemic of influenza with additional complications in India: 'Bombay is suffering from a second epidemic of influenza with pneumonia supervening. The deaths reached 427 on Sept. 23... The disease is very prevalent at Poona and elsewhere.'<sup>59</sup> Five days later the same newspaper reported a grave situation in South Africa, particularly Cape Town, Bloemfontein and the mining area of Kimberley, where industries, shops and other businesses were almost 'at a standstill'.<sup>60</sup>

It was the Leicester press, however, which first revealed the return of influenza to the East Midlands' region, reporting that it was rife once again in the town. On the same day a Loughborough newspaper carried the warning of Medical Officer of Health, Dr Blackham, who feared that another influenza epidemic was threatening as the infection was already prevalent in the town and 12 factory workers had succumbed to it in a single day.<sup>61</sup>

The following day the *Nottingham Evening Post* carried the advice of Sir Arthur Newsholme, Chief Medical Officer of the LGB, for those who were attacked by influenza and, despite acknowledging that influenza was again rampant in various locations and numerous deaths had occurred, he expressed the optimistic view that the worst was over.<sup>62</sup>

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<sup>59</sup> *Derby Daily Telegraph*, 2 October 1918, p. 3.

<sup>60</sup> *ibid*, 7 October 1918, p. 3.

<sup>61</sup> *Leicester Daily Post*, 10 October 1918, p3; *Loughborough Monitor and News*, 10 October 1918, p. 2.

<sup>62</sup> *Nottingham Evening Post*, 11 October 1918, p. 2.

The scale and severity of the second wave in human terms brought with it a range of problems that would have been difficult enough to solve in peacetime but during a war they proved almost insurmountable. It is also at this time that the local press start to print many stories of the suffering and tragedy of the pandemic rather than just the patriotism and heroism of war. Accounts of the struggle to maintain services, absences from school, factories and offices, whole families stricken with no one to help and hospitals unable to cope with the sick and the dying, found their way onto the pages of national and provincial newspapers. The names of soldiers also started to appear, not in recognition of acts of bravery or sacrifice but of, for example, coming home on leave and dying of influenza. One such case, that of a young soldier from Shepshed, was reported in the *Loughborough Herald and North Leicestershire Gazette*.

Death whilst on leave – we regret to announce the death of Gunner Hugh Mills R.G.A., eldest son of the late Mrs Mills, of Field Street, Shepshed, which occurred on Monday afternoon at Hathern, where he was staying with friends. The deceased arrived from France on 14 days leave on Sunday, October 20<sup>th</sup>. He appears to have contracted influenza, and had to take to his bed on Wednesday last. Unfortunately pneumonia developed, and he passed away as stated. He was 23 years of age, and joined up at Leicester at the beginning of 1917, and had been in France about 12 months when he obtained his leave.<sup>63</sup>

Other cases included those of Major Basil Hooley of Derby, who died 'while on leave from the front' and Driver E Singleton R.E. of Beeston, Nottinghamshire who died of pneumonia following influenza 'while home on leave from France'.<sup>64</sup>

Similarly, the names of civilians appeared in the local newspapers, accompanied by expressions of sorrow and regret at the passing of a valued member of the community. Between October and early December the local newspapers were replete with harrowing reports of sudden sickness and death, often of people who, in terms of their age, should have been strong and healthy. There were, of course, a great many more who died whose names were not recorded in newspaper columns.

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<sup>63</sup> *Loughborough and North Leicestershire Gazette*, November 7 1918, p. 5.

<sup>64</sup> *Nottingham Evening Post*, 28 October 1918, p. 2, 8 November 1918, p. 2; *Loughborough Monitor and News*, 7 November 1918, p. 4.

### The third wave

The third and final wave of the influenza pandemic struck in the winter of 1919 but it did not occur everywhere. It appeared in the USA in January as it did in Australia, but it appeared in Europe in February and its spread across Britain, as indicated in map C, Figure 5, (p. 51), was similar to the first wave, being north to south once again, but this time with a more westerly drift. Smallman-Raynor et al state, however, that the number of black circles on map C does not indicate seeding as in maps A and B, but rather that, after the two previous waves, influenza was already widespread before the official onset of the third wave. Certainly this outbreak seemed to attract rather less press attention than the previous two waves, perhaps because the public was by now very familiar with its effects and knew what to expect and also because measures to combat it were already in place and simply needed to be continued or reapplied.

The timing of the third wave was also different in that it occurred at a time when armies were being demobilised following the Armistice on 11 November 1918. This has caused some historians to argue that it was the return of demobilised soldiers that was responsible for this wave. Honigsbaum points to the example of Australia which had remained free of the second wave due to its strict maritime quarantine regulations, but as troops returned home in January, influenza cases with pneumonic complications quickly appeared in Melbourne and Sydney and within months thousands of Australians had died.<sup>65</sup> There is also the example of writer Robert Graves, who, on leave in Ireland and feeling himself to be coming down with influenza, fled back to London and his family without proper demobilisation papers and infected the whole household.<sup>66</sup>

Unlike Graves, many soldiers had already returned home to civilian life by the time influenza emerged again in 1919 and this brought with it the added tragedy of soldiers who had managed to survive the horrors of four years of war, only to die of the 'flu. One such case was reported in the Nottingham press of a Derby soldier who arrived home on the 30 November 1918 only to die of pneumonic complications following influenza in February 1919.<sup>67</sup> A similar case was that of Lance-Corporal Clare of Stanley Common, Derbyshire who was called to the Colours in August 1914 and left England as part of the BEF. After being wounded in Mons, he survived to continue

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<sup>65</sup> Honigsbaum, *Living with Enza*, p. 121.

<sup>66</sup> *ibid.* See also R. Graves, *Goodbye to All That*, (Middlesex, 1960), p. 233.

<sup>67</sup> *Nottingham Journal and Express*, 26 February 1919, p. 3.

serving in France and Egypt until his demobilisation. He returned home in February 1919, only to die on 8 March.<sup>68</sup> Unlike their fallen comrades, their names were not placed on war memorials.

#### Research by doctors in military service

Based on available information, therefore, it is still difficult to say with certainty whether the influenza pandemic started with the military or the civilian population, whether it came from America, France or China or whether it started in 1918 or perhaps earlier in the military hospital at Aldershot and the camp at Etaples. What is certain, however, is that the doctors serving in the military were at the forefront of efforts to identify the infection and to find a means to eliminate it, not only in Britain but in America, France and many other countries.

The reasons for this are twofold. Firstly, fighting a war brings with it the need for extensive medical services to treat sick and wounded soldiers. Consequently, a great many doctors, nurses and medical equipment had been diverted from civilian to military use. Secondly, the successful prosecution of war requires a healthy fighting force, thus, the emergence of a highly contagious disease which significantly reduces military capabilities would inevitably result in urgent action to establish a medical solution to the problem. Thus, in his article on the British military medical service and its work in combatting the influenza outbreak of 1918, Michael Bresalier discusses what he calls its decisive role in 'shaping official strategies against the pandemic'.<sup>69</sup>

The Medical Research Committee (MRC), established in 1913, was central to the provision of effective medical services during the war, their main role being to identify the agents of infectious disease affecting fighting men and develop vaccines for them which could also be used for civilians during peace time. Walter Fletcher, secretary to the Committee, stressed the perfect opportunity that wartime conditions afforded this kind of work.

Such effort required the services of a great many pathologists and the establishment of well-equipped laboratories and Bresalier states that 85 hospital laboratories were used in France and Flanders in addition to 25 mobile laboratories to serve British

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<sup>68</sup> *Ilkeston Advertiser and Erewash Valley Weekly News*, 21 March 1919, p. 1.

<sup>69</sup> M. Bresalier, 'Fighting Flu: Military Pathology, Vaccines, and the Conflicted Identity of the 1918-19 Pandemic in Britain,' *Journal of the History of Medicine and Allied Sciences*, 68/1 (2013), p. 89.

troops. However, he points out that a great deal of the work was done by men practising in civilian institutions in Britain who were willing to take on war-related work, some of whom received commissions in the RAMC for their contribution. The importance of this arrangement was that medical scientists working in civilian practice had access to and were able to take part in research opportunities in military facilities, the fruits of which, although principally for the benefit of fighting troops, would also benefit civilians.

Two Britons at the forefront of British efforts to combat the influenza pandemic were Fletcher of the MRC mentioned above who, with the arrival of the first wave of the pandemic in France, was sent to oversee research work in Abbeville aimed at identifying the cause of the outbreak and producing a vaccine, and Major Graeme Gibson, also at Abbeville, who led a team of specialist researchers assembled when the second wave of the pandemic appeared amongst the BEF in October 1918.<sup>70</sup> By this time it was suspected that the influenza germ was a 'filter-passer' and the need to isolate it so that an effective vaccine could be produced was regarded as urgent. Although, as we know today, medical science had not yet developed to the stage where this could be done, serious attempts to find a cure were made through animal experiments and human volunteers, despite the difficulties experienced after the Armistice and the dismantling of army camps.

Although a vaccine was eventually produced by Percy Bassett-Smith at the Royal Naval College in Greenwich and trialled on boys at the Royal Hospital School with apparent success, it was admitted that it was of limited use as a preventive. Efforts by researchers in America, France and Germany also failed to produce the required results but the work continued. Unhappily, Gibson's determination to find the answer to the pandemic resulted in his own death in February 1919 but Fletcher's efforts were eventually rewarded. After the war he continued his research for the MRC. He acquired a site at Mill Hill in London where he built a laboratory specifically for the investigation of diseases such as influenza and it was here, in 1933, where the influenza virus was finally isolated. Thus, if the global spread of the influenza pandemic was the fault of the military, this debt was perhaps repaid to some extent by the research and sacrifice of military pathologists which eventually brought about the discovery of its cause.

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<sup>70</sup> Honigsbaum, *Living with Enza*, pp. 53 and 115.

Nonetheless, research on the 1918-19 influenza pandemic continues to the present day, led by medical scientists such as Taubenberger and Oxford, in the hope that modern scientific techniques will be able to throw new light on the event. For example, in Britain, in September 2008, Professor Oxford removed lung and brain samples from the remains of Sir Mark Sykes who died of influenza in 1919 while in Paris actively engaged in the peace negotiations following the Armistice.

This chapter has focused on the possible origins of the influenza pandemic, both military and civilian and has considered how it spread so quickly around the world and how it entered Britain and, in particular, the East Midlands' region. It has also looked at the efforts made by military pathologists to discover the causative agent of the outbreak and develop prophylactic vaccines.

Although the origins of the pandemic are still a matter of conjecture, its global spread would appear to have been ship-borne as troops and equipment were transported around the world. Once entry was gained via ports, the country's own communications network carried the virus to major urban centres where human contact spread the infection to all areas. The well-developed railway system which radiated out of the East Midlands, linking with towns and cities to the north, the south and other parts of the Midlands, is the means by which the influenza pandemic would have entered and spread throughout the region.

Efforts to combat the disease came through the doctors and pathologists of the military medical services and although they were not successful during the course of the pandemic, their work initiated the process by which the cause of influenza outbreaks was discovered. What is certain, however, is that both military and civilian populations suffered grievously from its ravages and the levels of mortality it wrought will be the subject of the next chapter.<sup>71</sup>

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<sup>71</sup> See chapter 2 for statistical analysis of mortality.

## CHAPTER 2

### Morbidity and Mortality

In his forward to *The Spanish Influenza Pandemic of 1918-19: New Perspectives*, John Oxford referred to the event as 'the largest outbreak of infectious disease the world has ever known'.<sup>1</sup> This might exaggerate the situation but few historians doubt that it was an event on a truly global scale, matched only (to our knowledge) by the plague of Justinian in AD 542 which, during a period of fifty years killed 100 million people, and the Black Death which, between 1347 and 1350 killed a total of 62 million people across Europe and the east.<sup>2</sup>

This chapter focuses on the characteristics of the 1918-19 influenza pandemic and examines its unique effects on the health both of individuals and of specific groups, particularly with regard to age, gender and ethnicity. It also examines the estimated global, national and regional mortality statistics, with particular emphasis on those relating to the East Midlands' large towns and county boroughs. In addition, consideration is given to military morbidity and mortality especially in connection with East Midlands' regiments. Statistics for the civilian population are drawn from the official reports on the pandemic produced by the Registrar-Generals (RG) for England and Wales and for Scotland and for the military population from records of the War Office and the Medical Research Committee. The second part of the Ministry of Health's report on the pandemic is used for statistics relating to other countries, together with accounts of the disease in various locations found in newspaper reports and produced by other writers and historians.

#### Complications and sequelae

The characteristics of the influenza which emerged in the spring of 1918 were not typical of the normal seasonal variety of the infection. To begin with it occurred at an unusual time of year, the first wave striking many civilian populations in June and July rather than in the winter months. Then there was the nature of the three waves which occurred. The first wave, between March and August of 1918, was extremely contagious though not thought to be especially dangerous even though, according to

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<sup>1</sup> In Phillips and Killingray (eds.), *The Spanish Influenza Pandemic of 1918-19*, p xvii.

<sup>2</sup> R. Collier, *The Plague of the Spanish Lady* (London, 1974), p. 306.

the RG's Supplement, it caused the deaths of 9,000 women and 8,000 men.<sup>3</sup> The second wave, between September and December 1918, was more virulent, attacking rapidly and often with fatal consequences. Victims could become prostrate with a high fever, vomiting and pains in the head, back and limbs within hours of exposure and in the worst cases simply collapse and die almost without warning. One of the most alarming features of the pandemic in this wave was the heliotrope cyanosis, the purplish-blue discolouration of the faces of victims, signalling a lack of oxygen to the body and the approach of certain death, an indication that the patient had been overwhelmed by secondary bacterial infection.

An aspect of influenza infection which was understood at the time was its tendency to be associated with additional complications such as bronchitis or pneumonia. However, the influenza of 1918 brought with it, particularly in the second wave, extraordinary levels of pulmonary and cardiovascular complications causing a high incidence of mortality from additional bacterial infections or weakened hearts. The results of this infection overload would often be seen after death as bodies would leak fluid from almost every orifice and post mortem examinations of victims revealed lungs full of bloody froth, indicating the patient had effectively drowned.

The third and final wave, between January and May 1919, was only slightly less severe in its effects than the second wave and was not experienced everywhere, but those locations which were attacked, including the East Midlands, suffered further high mortality.

In addition to these difficulties, some of those who survived influenza were affected by neurological problems afterwards. Niall Johnson states that a number of these conditions affecting the central nervous system are associated with influenza and can occur as after effects (sequelae), ranging from depression and mania, sometimes severe enough to lead to suicide or other acts of violence, to long-term conditions such as encephalitis lethargica, schizophrenia and parkinsonism.<sup>4</sup> He cites the recent case of Dr Charles Maurizi, himself a researcher into the neurological effects of influenza, who, following a serious bout of influenza, suffered several months of neurological disturbance including various periods of extreme anxiety, elation, grandiose delusion and hyperactivity together with an inability to judge time or

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<sup>3</sup> RG, *Supplement to the Eighty-First Annual Report*, pp. 4-5.

<sup>4</sup> Johnson, *Britain and the 1918-19 Influenza Pandemic*, pp. 4-8.

engage in abstract thought.<sup>5</sup> Alfred Crosby also gives an account of President Woodrow Wilson's attack of influenza in April 1919 whilst at the Paris peace conference and the subsequent effect it had on him. He quotes British Prime Minister, Lloyd George, who referred to the president's 'nervous and spiritual breakdown'. Others close to the president noted that he became anxious, absent minded and had difficulty making decisions.<sup>6</sup>

In the East Midlands' press, many tragic stories of desperate acts committed whilst recovering from influenza appeared during 1918 and 1919, a high proportion of them involving cut throats. In Nottingham, for example, Mary Spowage killed her baby son by hitting him on the head with a hammer and cutting his throat while she was suffering from the effects of influenza.<sup>7</sup> In the Leicester press, a similar case was reported of a man who, having recently recovered from influenza, attempted to cut the throats of his wife and six children before finally committing suicide by cutting his own throat.<sup>8</sup> While in Derbyshire, Mrs Dorothy Fritz of Matlock attempted to poison herself with carbolic acid and Mrs Sarah Twemlow drowned herself in Elvaston Brook; both had recently suffered from influenza.<sup>9</sup>

There were many other reports of actual or attempted suicides and killings in the local news which is surprising considering the Buckmaster memorandum mentioned earlier and the call to prevent the publication of news likely to cause alarm or distress. It is possible that news editors were engaging in a degree of sensationalism although Foley argues that 'the realities of the disease were in many cases equal to any sensationalism engaged in by the press.'<sup>10</sup> It may be, therefore, that such reports served to alert people to the kind of serious after-effects that could occur following an attack of influenza even though the patient may seem to have recovered.

### Morbidity

With regard to morbidity, accurate figures are impossible to obtain, largely because influenza, both in Britain and a great many other countries around the world, was not a notifiable disease and many people treated themselves at home without any

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<sup>5</sup> *ibid*, p. 6.

<sup>6</sup> Crosby, *America's Forgotten Pandemic*, pp. 198-196.

<sup>7</sup> *Nottingham Evening Post*, 13 November 1918, p. 2.

<sup>8</sup> *Leicester Evening Mail*, 9 December 1918, p.4.

<sup>9</sup> *Derby Mercury*, 8 November 1918, p. 8; 14 November 1918, p. 5.

<sup>10</sup> Foley, *the Last Irish Plague*, p. 82.

reference to a doctor. Consequently, although hospital records are an obvious source of information with regard to the number of influenza cases serious enough to require hospitalisation (currently not available to be seen in Britain although other countries may permit this), there is no way of ascertaining the number of people who were infected and were successfully nursed at home by family and friends. Despite this, both Collier and Johnson comment that over one billion people, more than half the world's population at that time, is thought to have been infected, although they do not reveal their source.<sup>11</sup>

In Britain, during the course of investigating the extent of the influenza pandemic and its effects within the civilian population, some morbidity information was collected by the Ministry of Health, (successor to the Local Government Board), which engaged in six local inquiries, five in the north of England plus Leicester. In his annual report, the Medical Officer of Health (MOH) for Leicester, Dr Charles Millard, explained that the city had been selected for a detailed investigation by Dr M. B. Arnold, one of the LGB's medical inspectors. Between 4 and 17 March 1919, assisted by some of the local sanitary inspectors, Arnold conducted a house to house survey in streets across the city, selected to be representative of the various types of households to be found in Leicester. Data was collected from every fifth house with a total of 1,061 houses, inhabited by 4,619 people representing about 2 per cent of the population, being visited.

The data collected indicated that in those households surveyed, there had been 1,387 incidences of influenza between May 1918 and March 1919, 164 people being attacked twice and six people attacked three times, thus 1,311 people had been attacked altogether. The incidence of attack as distributed across the three waves which occurred was also analysed and gave the results seen in Table 1 below:

Based on these figures, it was concluded that a similar percentage of attacks would have occurred across the whole of Leicester during each wave, meaning that overall about 30 per cent of the population or over 65,000 people were attacked by influenza while 70 per cent escaped infection.<sup>12</sup> Millard, admitted to being surprised by this statistic as his impression was that the situation had been much more severe.

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<sup>11</sup> Collier, *The Plague of the Spanish Lady*, p. 305; Johnson, *Britain and the 1918-19 Influenza Pandemic*, p. 82.

<sup>12</sup> C. K. Millard, *Report on the Health of Leicester for the year 1918*, (Leicester, 1919), pp. 15.

Table 1: Attacks of Influenza in Leicester amongst the Sample Population.

Wave	Number of attacks	Percentage attacked
Summer	295	6.3
Autumn	678	14.6
Spring	370	8.0
Intermediate Cases	44	

Furthermore, the information collected in these local inquiries gave rise to statistics on the incidence of attack on different age groups. The Ministry of Health constructed charts and tables on Leicester and the five northern towns surveyed, Manchester, South Shields, Blackburn, Wigan and Widnes, showing the age incidence for each of the three waves ie. the rate of attack as a percentage of each age group. Figure 9 and Table 2 below show this information and have been reproduced in full here to enable comparison between the towns to be made.

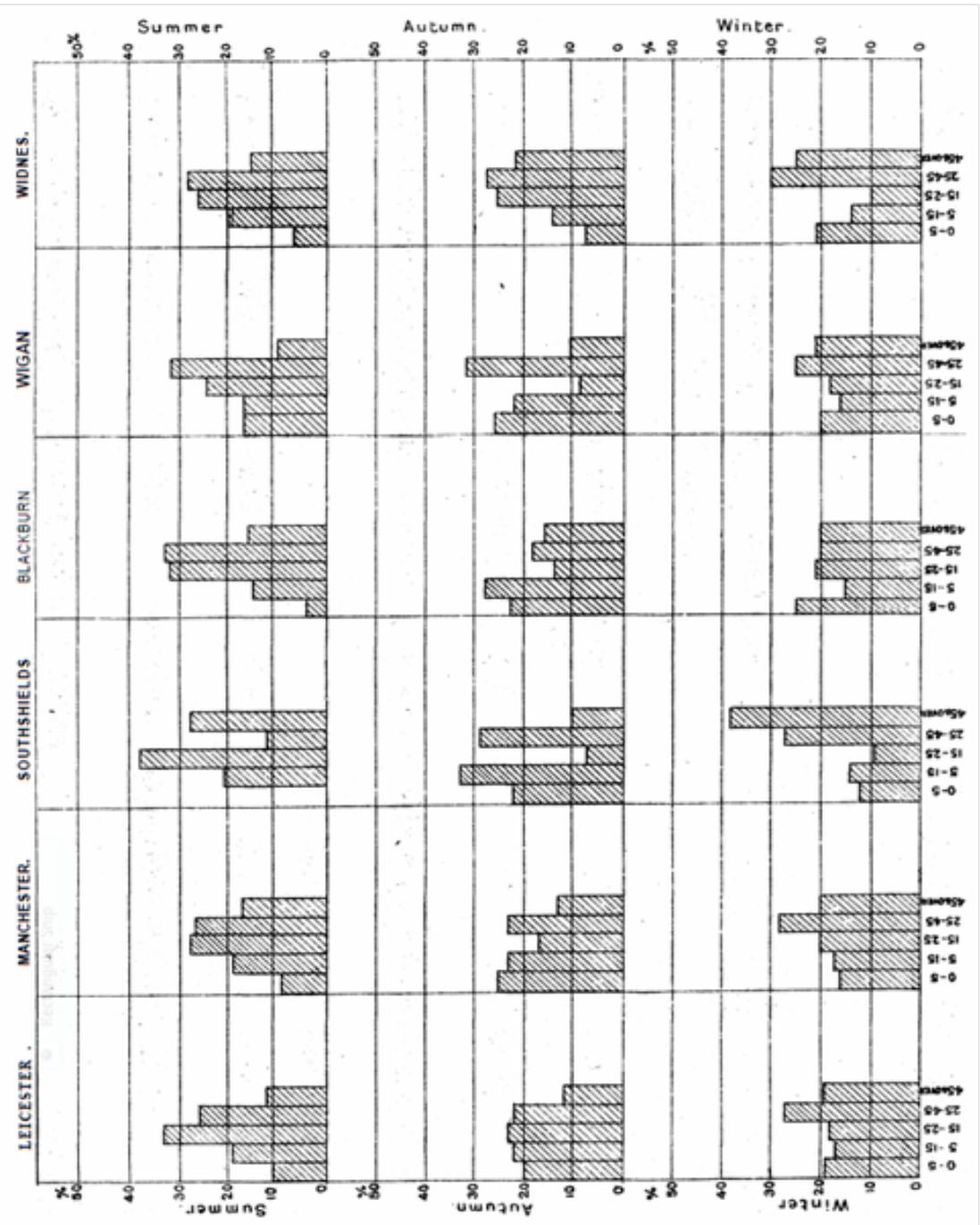
A particular point of note here is the difference between the six towns in the survey. Leicester's morbidity pattern is perhaps closest to that of Manchester, with all age groups up to 45 suffering a very similar level of attack in the second wave. The 0-5 year olds and the over 45s suffered least in the first wave but both of those age groups suffered approximately twice the rate of attack in the third wave. High points in Leicester were for the 15 – 25 year olds in the first wave and the 25-45 year olds in the third wave.

As acknowledged in the report,<sup>13</sup> all these results came from sampling and thus rely on the recollections of the people interviewed so they show some irregularities which, for example, may account for the rather unusual profile of South Shields, but what is evident is the generally high level of morbidity suffered by the very young and by those in what is usually termed, the prime of life, being approximately 18 to 45 years of age. In this respect Leicester's experience appears to have been very similar to that of the northern towns surveyed.

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<sup>13</sup> Ministry of Health, *Public Health and Medical Subjects No. 4*, p. 43.

Figure 9. Age Incidence of Influenza Cases in 6 Sample Populations.



Source: Ministry of Health, *Public Health and Medical Subjects No 4*, diagram 4.

Table 2: Age Incidence of Influenza Cases in 6 Sample Populations.

Ages.	Leicester.	Manchester.	South Shields.	Blackburn.	Widnes.	Wigan.
FIRST WAVE.						
0-5	3.6	6.7	0	1.5	4.1	3.4
5-15	6.6	13.6	2.9	5.9	11.5	3.3
15-25	11.2	19.8	5.3	12.7	15.5	5.0
25-45	8.7	19.1	1.7	13.0	16.2	6.3
45 and over	4.0	12.2	3.9	6.2	9.3	2.0
Total	34.1	71.4	13.8	39.3	56.6	20.0
SECOND WAVE.						
0-5	14.7	12.2	6.5	8.3	3.2	9.3
5-15	16.6	11.3	9.7	9.8	5.9	8.1
15-25	17.2	8.4	2.1	5.0	10.3	3.3
25-45	16.4	11.5	8.6	6.9	11.0	11.5
45 and over	9.1	6.2	2.9	5.6	8.6	4.0
Total	74.0	49.6	29.8	35.6	39.0	36.2
THIRD WAVE.						
0-5	7.6	1.8	4.3	9.8	10.6	11.0
5-15	7.0	2.0	4.9	5.9	7.0	8.8
15-25	7.2	2.3	3.2	8.3	5.4	10.0
25-45	11.1	3.2	9.5	8.1	15.6	13.5
45 and over	7.8	2.3	13.7	7.8	13.1	11.5
Total	40.7	11.6	35.6	39.9	51.7	54.8

NOTE – The first column under each locality gives the observed percentage attack rate. The sum of these entries gives the number of attacks which would have occurred had 100 persons in each age-group been exposed to risk. The second column expresses the rate at ages as percentages of the sum of the first column.

Source: Ministry of Health, *Public Health and Medical Subjects No 4*, p. 41.

Dr Millard illustrated Leicester's experience in the following simplified table which appeared in his annual report for 1918:

Table 3: Incidence of Influenza upon Different Age Periods in the Sample Population in Leicester.

Age Period	Attack Rate
0-15 years (childhood)	29.3%
15-45 years (prime of life)	35.5%
Over 45 (after middle age)	21.0%

He went on to point out that not only were those in the prime of life attacked proportionately more than those in the other two groups but that the elderly were the least susceptible group of all.<sup>14</sup>

Similar statistics were not available for Nottinghamshire or Derbyshire as they were not involved in the survey, and the respective MOH reports were, consequently, less detailed with no reference to morbidity rates. Unfortunately, there were also no similar surveys of southern towns which, despite the note of caution with regard to figures collected in this way, prevent more extensive comparisons being made.

#### Mortality

In comparison to the problem of establishing the extent of morbidity, mortality figures were available for Britain and for many other countries around the world due to the requirement to register deaths, but even so, these were acknowledged to be not entirely accurate both by the RG for England and Wales, in that he gives only an estimate of total mortality, and by Dr R. Bruce Low in the Ministry of Health report.

Amongst the reasons for this were the difficulty of diagnosing influenza as the primary cause of death, particularly in the light of additional complications as mentioned above, and also because so many died without seeing a doctor, either because they could not afford to pay the fee or because one could not be found in time, a situation made worse by the fact that medical care for civilians had been reduced to a minimum

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<sup>14</sup> Millard, *Report on the Health of Leicester for the Year 1918*, p. 15.

in order to provide for the needs of the armed services. Furthermore, some developing countries, particularly in Africa and Asia, had neither well developed medical services nor adequate systems for recording deaths, so mortality figures relating to countries outside of Europe and the USA are in even greater doubt. Nevertheless, figures quoted in official documents and news reports at the time do offer some indication of the unprecedented levels of mortality experienced worldwide and present a stark image of how devastating the influenza pandemic of 1918-19 had been.

The first attempt to compile global mortality figures was made by the Ministry of Health and published in a report in 1920. Statistical data from a total of 198 countries, states and cities across Europe and the western hemisphere, Australasia, Africa and Asia were brought together in an attempt to trace the effects of the influenza pandemic worldwide. Despite the effort involved in the task, the results were acknowledged to be very incomplete thus making any effective analysis impossible. As Bruce Low commented in his introduction to part II of the report '...in certain other countries, and particularly those in which during 1918 hostilities were still in progress in connection with the great European war, the details received were scanty and infrequent'.<sup>15</sup>

The pandemic itself added considerably to the difficulties already being experienced and with sudden uncontrollable sickness and death, systems that did exist were often stretched to breaking point. Rice also suggests that the incompleteness of information together with the difficulty of translating some of the reports received from other countries prevented the Ministry of Health from attempting an analysis of world mortality figures. Nevertheless, the Ministry of Health put together a substantial document containing a wealth of explanatory tables and graphs in an attempt to identify patterns of infection across the world.

However, the first significant attempt to put a definitive figure on global mortality was made in a survey by Edwin Jordan in 1927. Drawing on as many mortality statistics from around the world as he could acquire, he estimated that the total global mortality from the influenza pandemic was 21,642,283.<sup>16</sup> Modern research has, however, shown this figure to be far too low, especially as India alone is estimated to

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<sup>15</sup> Ministry of Health, *Public Health and Medical Subjects No 4*, p. 203.

<sup>16</sup> E. O. Jordan, *Epidemic Influenza: A Survey* (Chicago, 1927), p. 227.

have suffered 18 to 20 million influenza deaths.<sup>17</sup> Consequently, the estimated world mortality figure has been raised to between 40 and 100 million influenza deaths.<sup>18</sup>

This adjustment has been due to the work of later historians and researchers collecting and analysing data from their own country, region or town, which, when combined with similar works, has contributed to a greater understanding of the influenza pandemic as a world event and the profound effects it had on so many communities. A comprehensive list of current mortality figures for the influenza pandemic of 1918-19 for countries around the world has been compiled by Johnson. This list shows Asia suffered most severely from the pandemic with a possible 36 million deaths, India suffering more than 50 per cent of these.<sup>19</sup>

#### Mortality in Britain

In Britain, mortality statistics for the civilian population as a whole during the outbreak were compiled by the respective RGs of Births, Deaths and Marriages for England and Wales and for Scotland, and presented as supplementary reports to their annual reports. Mortality estimates for males and females were made separately, as the war had modified the population considerably with so many men being away on active service.

The RG for England and Wales estimated that in 1918, there were 112,329 deaths from influenza, 53,883 males and 58,446 females. Deducting the 7,591 non-civilian deaths left 104,738 civilian deaths altogether in that year. During the 46 weeks from 23 June 1918 to 10 May 1919, the entire period during which the influenza pandemic was deemed to have been prevalent in Britain, this number had risen to a total of 151,446 deaths, 140,989 of those being civilians. However, the RG acknowledged in his report, that mortality attributed solely to influenza did not represent all of the deaths caused by it, as fatal complications, particularly affecting the heart and the

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<sup>17</sup> I. D. Mills, 'The 1918-1919 Influenza Pandemic: The Indian Experience', *Indian Economic and Social History Review*, 23/1(1986), p. 2; Patterson and Pyle, 'The Geography and Mortality of the 1918 Influenza Pandemic', p. 18.

<sup>18</sup> F. R. van Hertesveldt (ed.), *The 1918-1919 Pandemic of Influenza*, p2; Quinn, *Flu: A Social History of Influenza*, p. 149; Patterson and Pyle, 'The Geography and Mortality of the 1918 Influenza Pandemic', p. 20; Mills, 'The 1918-1919 Influenza Pandemic', p. 7; A. Reid, 'The effects of the 1918-1919 influenza pandemic on infant and child health in Derbyshire', *Medical History*, 49 (2005), p. 1; N. Johnson and J. Mueller, 'Updating the Accounts: Global Mortality of the 1918-1920 "Spanish" Influenza Pandemic', *Bulletin of the History of Medicine*, 76/1 (2002), p. 105; Johnson, *Britain and the 1918-19 Influenza Pandemic*, p. 82; C. J. L. Murray et al, 'Estimation of potential global pandemic influenza mortality on the basis of vital registry data from the 1918-20 pandemic: a quantitative analysis', *The Lancet* 368 (2006), p. 2211.

<sup>19</sup> Johnson, *Britain and the 1918-19 Influenza Pandemic*, pp. 78-81.

respiratory system, were not uncommon. Consequently, added to this figure were deaths from other causes brought about by influenza, such as pneumonia and bronchitis, giving a final total of 198,000 civilian deaths from the influenza pandemic and this was rounded up to 200,000.<sup>20</sup>

The difficulty of separating deaths from influenza and its related complications from those of other causes is evidenced by the fact that the RG produced three methods of calculating mortality rates for this purpose which led him to the final figure mentioned above. A description of these methods has been produced by Johnson and is summarised here.<sup>21</sup>

The first method was called the specific cause method in which the deaths for each quarter affected by the influenza pandemic were compared against the deaths for the previous five years, 1913 to 1917, for specific causes of death, namely pneumonia, bronchitis, organic heart disease and pulmonary tuberculosis or phthisis. The annual death rates from these causes over the five years in question were noted and the excess mortality from these causes which occurred during the pandemic was then added to the deaths from influenza to give an overall estimated pandemic mortality.

The second method was called the other causes method. This time the healthiness of 1918 was compared to that of the previous five years, considering other causes of mortality and not influenza or its complications. The assumption was then made that, excluding influenza, mortality in 1918 would have been in the same ratio between these other causes as it was for the previous five years. Any excess mortality could then be ascribed to influenza. Taking the average mortality from all these causes for the previous five years, expected mortality was then calculated which, when removed from actual mortality, left an excess which could be claimed as influenza related. Again this could be added to the recorded figure for influenza deaths and give an estimate for overall pandemic mortality.

The third method was called the 1918 improvement method. Here the assumption was made that, except for the influenza outbreak, the last two quarters of 1918 would have been as healthy as the first two quarters. Again, using the previous five years for comparison, the first two quarters of 1918 were calculated to have an overall average

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<sup>20</sup> RG, *Supplement to the Eighty-First Annual Report*, p. 3-7.

<sup>21</sup> Johnson, *Britain and the 1918-19 Influenza Pandemic*, pp. 135-136.

mortality rate of 88 per cent of that for the same period between 1913 and 1917. From this position expected mortality could again be calculated and compared to actual mortality, the excess of which could be regarded as the result of the influenza pandemic.<sup>22</sup>

Using these various methods and allowing for the 'uncertainties of the estimation'<sup>23</sup> the RG produced a final rounded figure of 200,000 civilian deaths that were attributed to the influenza pandemic and Figure 10 below shows his diagram of the weekly mortality for England and Wales throughout the whole period of the pandemic.

The RG for Scotland estimated Scottish losses to influenza using information given in death registers. These he recorded as 17,575 civilians, 2,876 of these or 16.4 per cent being attributed to influenza alone and 14,699 or 83.6 per cent being due to influenza in association with one or more other named causes.<sup>24</sup> However, consideration was not given to those victims who did not have influenza specifically recorded as a cause of death, thus, Johnson suggests the actual mortality for Scotland is more likely to be in the region of 22,000 which, when added to the estimated total for England and Wales, would give a mortality for Britain of around 225,000.<sup>25</sup>

A diagram including the mortality figures for Scotland was constructed by Johnson from statistics in the reports of both the RG for England and Wales and the RG for Scotland (Figure 11) and this allows a comparison to be made. The two figures clearly show the mortality peaks associated with the three waves of the influenza pandemic, the second peak in November 1918 indicating how much more serious this wave was than the other two. Figure 11 also indicates the greater severity of the Scottish pandemic experience.

In 1920, to facilitate the presentation and analysis of his figures and to chart the movement and severity of the three waves of the pandemic across all areas, the RG divided England into three sections, the north, the Midlands and the south; he also

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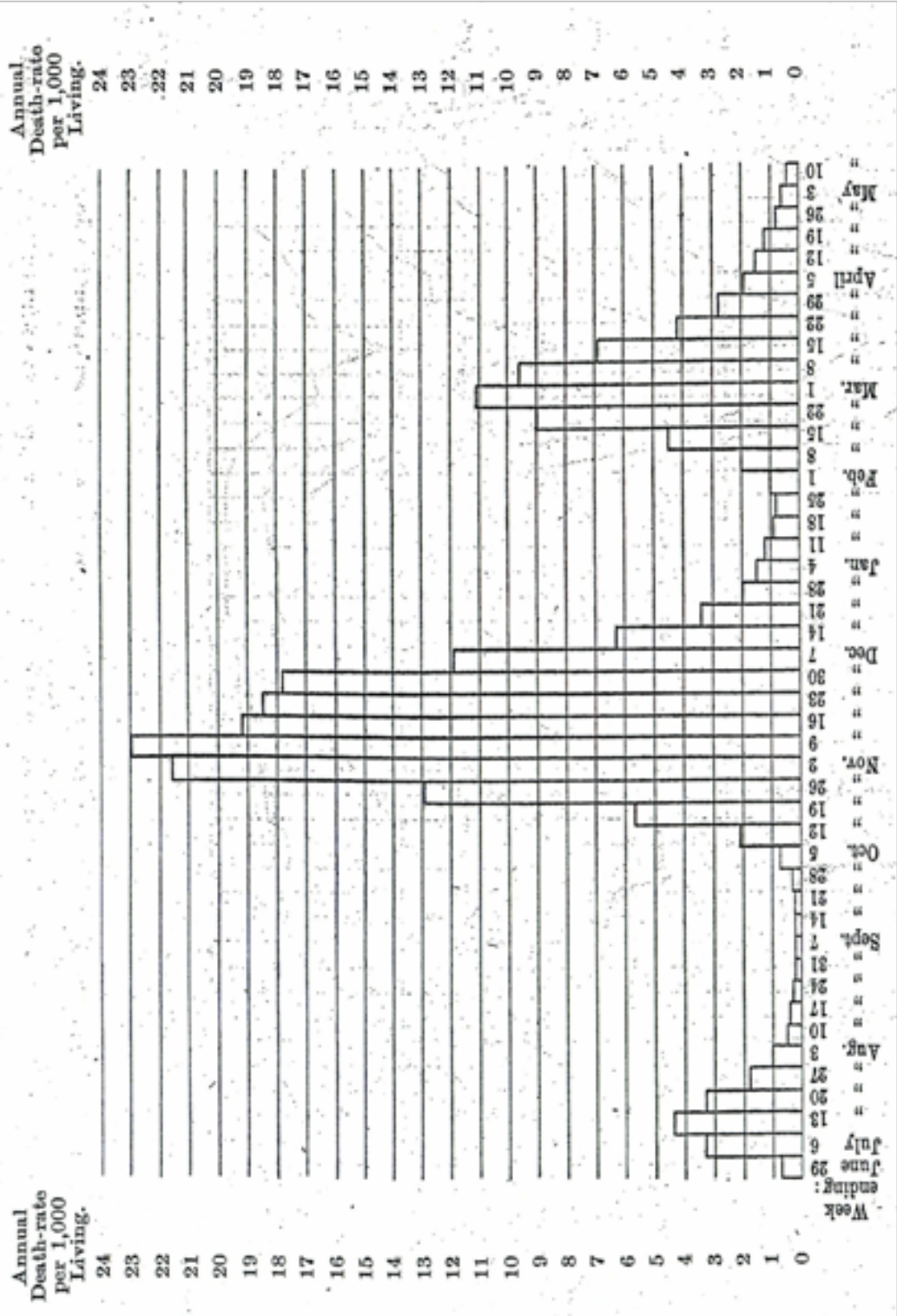
<sup>22</sup> RG, *Supplement to the Eighty-First Annual Report*, pp. 3-4.

<sup>23</sup> *ibid*, p. 7.

<sup>24</sup> RG for Scotland, *Report on the Mortality from Influenza in Scotland during the Epidemic of 1918-19*, p. 2.

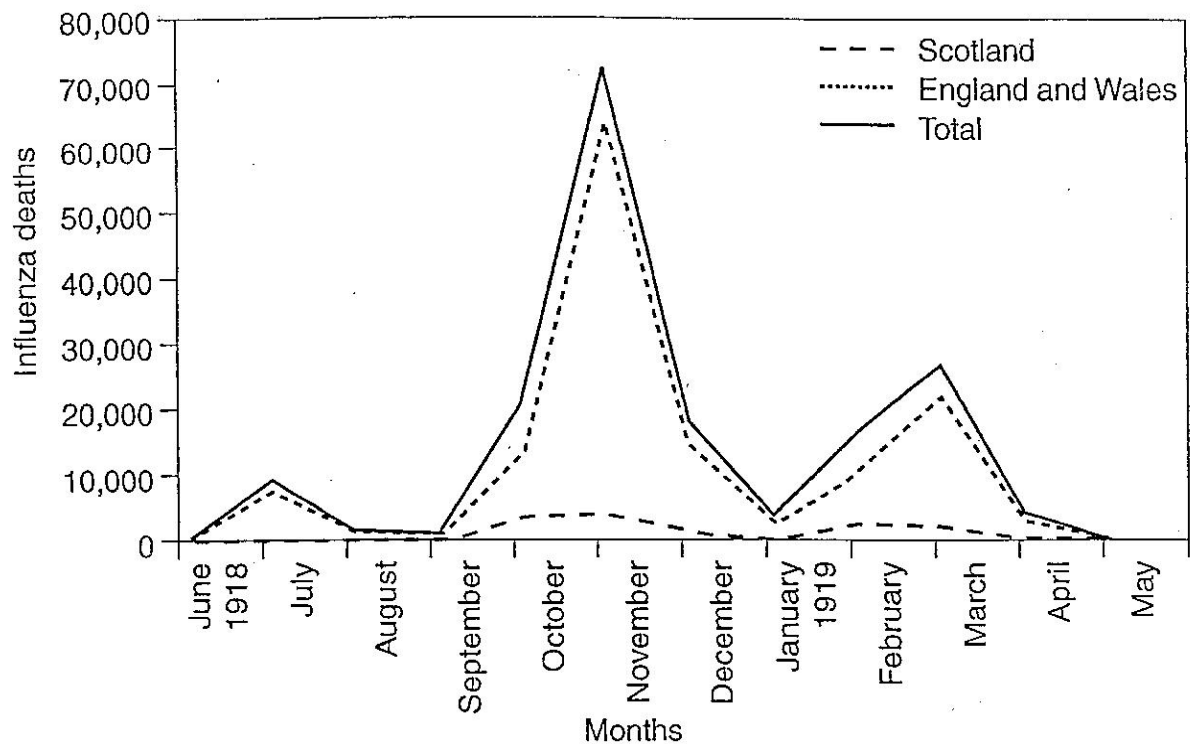
<sup>25</sup> Johnson, *Britain and the 1918-19 Influenza Pandemic*, pp 136-137.

Figure 10. Weekly Influenza Mortality in England and Wales 1918-19.



Source: RG, *Supplement to the Eighty-First Annual Report* P. 42.

Figure 11. Monthly Influenza Deaths in Scotland, England and Wales 1918-19.

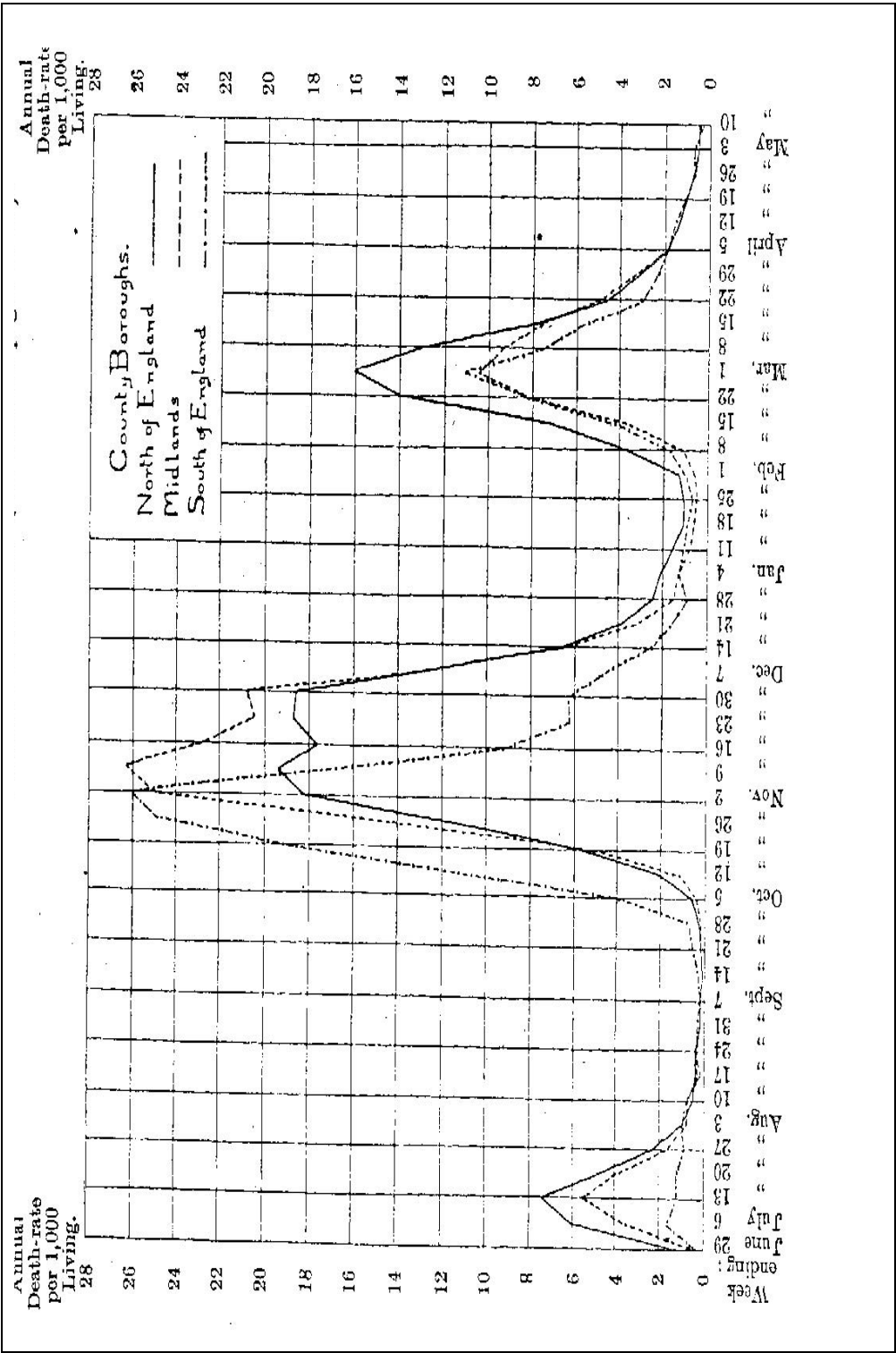


Source: Johnson, *Britain and the 1918-19 Influenza Pandemic*, p. 46.

differentiated between county boroughs, other large towns in excess of 20,000 population and the rest of the county which consisted of smaller urban settlements of less than 20,000 population and rural areas, with Wales having a separate section divided in the same way.

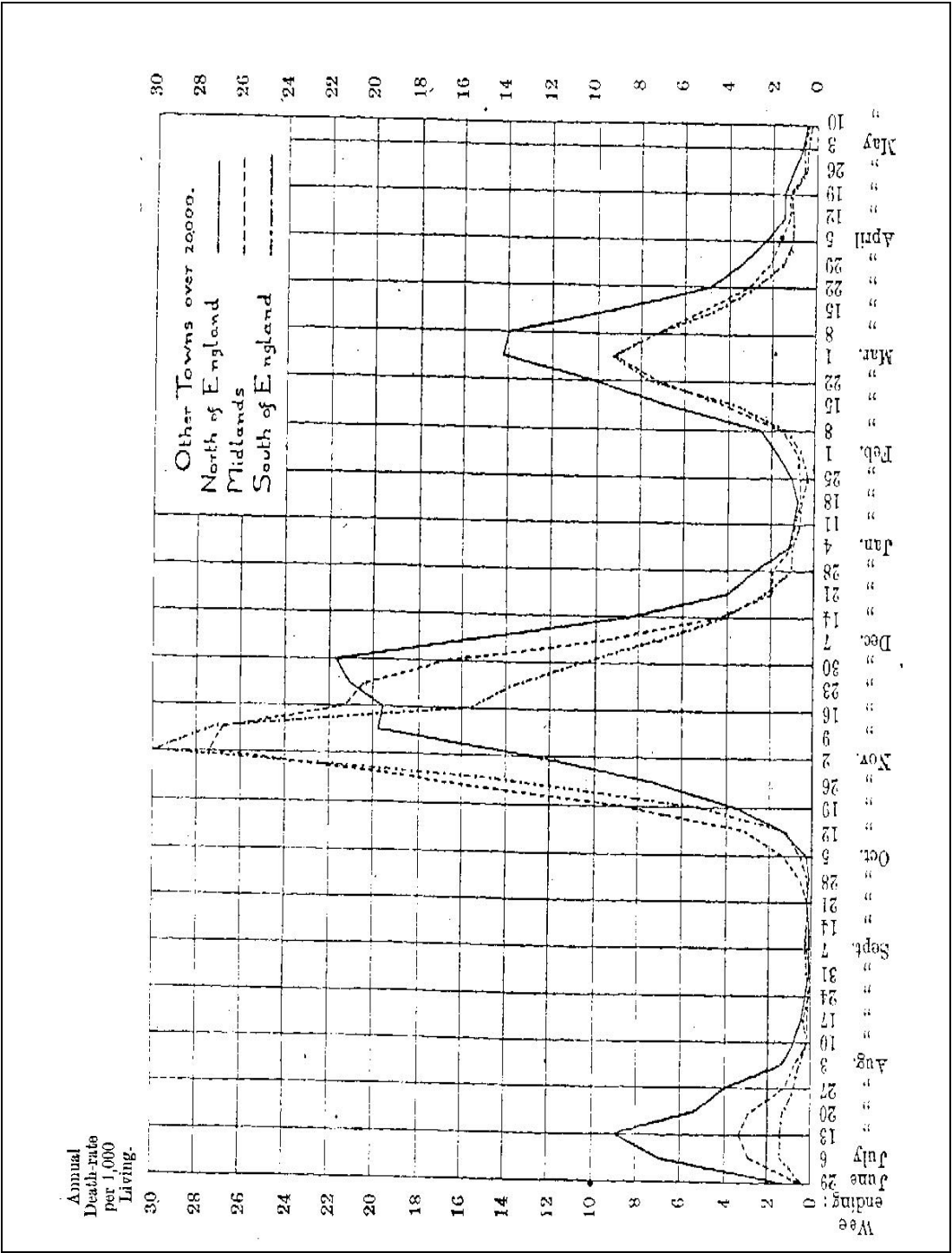
Using this method he was able to construct diagrams and tables to illustrate the effects of the influenza pandemic during the 46 weeks of its activity across the different administrative areas of England and Wales. The diagrams produced for the three divisions of England are of particular interest here as they allow comparison between the Midlands and the rest of England. Those for the county boroughs and the towns with populations exceeding 20,000 can be seen in Figures 12 and 13 below.

Figure. 12 Weekly Influenza Mortality for English County Boroughs 1918-19.



Source: RG, *Supplement to the Eighty-First Annual Report* diagram XII, p. 46.

Figure. 13. Weekly Influenza Mortality for English Towns Exceeding 20,000 Population 1918-19.



Source: RG, *Supplement to the Eighty-First Annual Report* diagram XIII, p. 46.

As an examination into the effects of influenza in rural areas is the subject of the next chapter, the diagram relating to this aspect will be presented then. The diagrams for the county boroughs and large towns, however, show that northern county boroughs suffered greater mortality than those of the Midlands or the south during the first and third waves but much less so in the second wave where the county boroughs of the Midlands and south appear to have suffered approximately equal levels of high mortality. In the first wave of influenza, mortality in the Midlands' county boroughs was much greater than that in the south but in the third wave they were again approximately equal. A very similar pattern is discernible in the diagram of the towns of over 20,000 population, although the Midlands' towns appear to have suffered lower mortality in the first wave than the Midland county boroughs.

In terms of the onset and decline of prevalence, the graphs indicate that the first wave of the pandemic appeared in the northern county boroughs first, quickly followed by outbreaks in the county boroughs of the Midlands and the south; it also lasted slightly longer in the north. The second wave appeared to erupt in southern county boroughs first followed approximately a week later by the Midlands and the north. However, it declined much more quickly in the south than it did in the north or the Midlands. The third wave appears to have started first in the north once again with the Midlands and the south approximately a week later, and with prevalence in the south declining before the north or the Midlands.

The large towns again followed a similar pattern, a particular point of interest being the very high peak of mortality experienced in the large towns of the south during the second wave of the pandemic in early November 1918, but with Midlands' towns suffering almost as severely in the same period and enduring a more prolonged period of high mortality at the end of November at a time when northern towns suffered a recrudescence of the epidemic.

The RG's comment that 'The North...suffered most at the commencement, as it did also throughout the whole course of the first wave of epidemic prevalence,'<sup>26</sup> can clearly be seen in the diagrams although in terms of the county boroughs the Midlands was not far behind. A further note of interest with regard to mortality rates in the first wave of the pandemic is the RG's reference to the fact that all the highest rates

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<sup>26</sup> RG, *Supplement to the Eighty-First Annual Report*, p. 12.

quoted related to areas in the north or north Midlands, in which he included Derby and Nottingham; Leicester, however, was not specifically mentioned.

The first wave of the pandemic was deemed to be over in England and Wales by the end of July 1918, although influenza deaths continued to occur in some areas, albeit at a lower level than had been experienced in previous weeks. Mortality rates began to rise again towards the end of September and the start of the second wave of the pandemic is judged to have started the week ending 28 September 1918. This time, as stated above, it was the county boroughs in the south which experienced the highest mortality rates. Again the RG comments that apart from the southern areas, the highest mortality rates were coming from the Midlands and this can be seen in the diagrams.

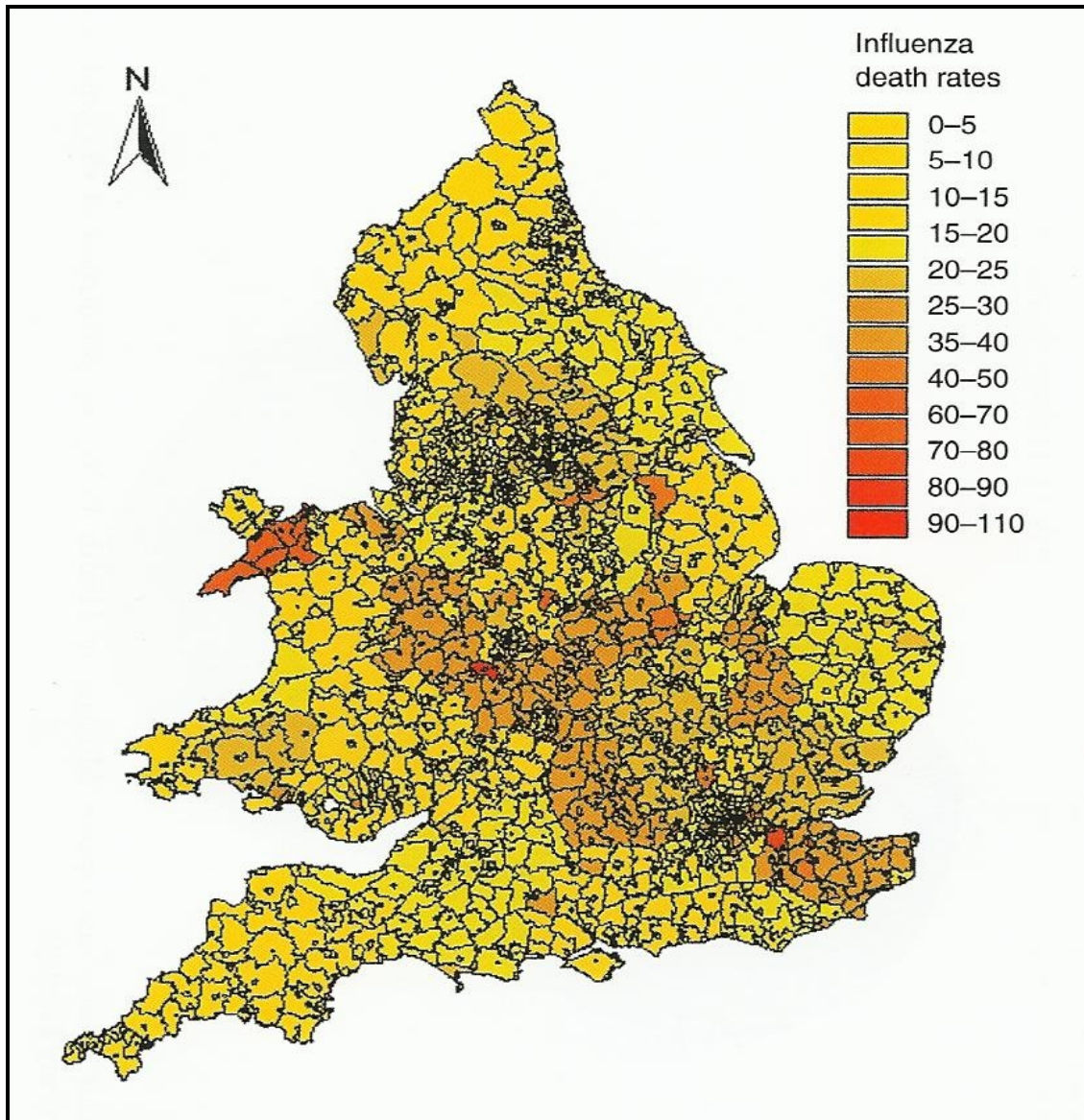
The week ending 9 November was taken as the culmination of the second wave of influenza even though northern towns did not reach their peak of mortality for another three weeks, and a project by Johnson to map the severity of the pandemic across the administrative areas of England and Wales gives an indication as to the extent the Midlands' region suffered in that culminating week (Figure 14).

It is at this point in his report that the RG acknowledges his tripartite division of England into north, Midlands and south, had not been entirely appropriate as it was clear that, in terms of how regions were affected by the three waves of the pandemic, the northern parts of the Midlands tended to follow the north of England and the southern parts of the Midlands followed the south of England. Consequently, he suggests that a simple division into north and south, with Birmingham as the central point, would have better represented what actually occurred and such a division would naturally imply that whichever half of the country was suffering the most from the effects of the influenza pandemic, counties somewhere in the Midlands would be enduring a similar experience.

Johnson, however, offers a different interpretation. He suggests that his mapping of the pandemic for 9 November 1918 does not indicate a north-south divide, but rather a line running from London and the south-east, through the Midlands and on to the north following the major communication routes, leaving East Anglia and much of the south and south-west of England with much lower mortality rates, these areas not

being as well connected to the rest of the country.<sup>27</sup> Considering the East Midlands' central position both in the country and in an extensive railway network, this offers a persuasive explanation for the high levels of influenza mortality which were experienced in the region.

Figure 14. Influenza Mortality in England and Wales for the Week Ending 9 November, 1918.

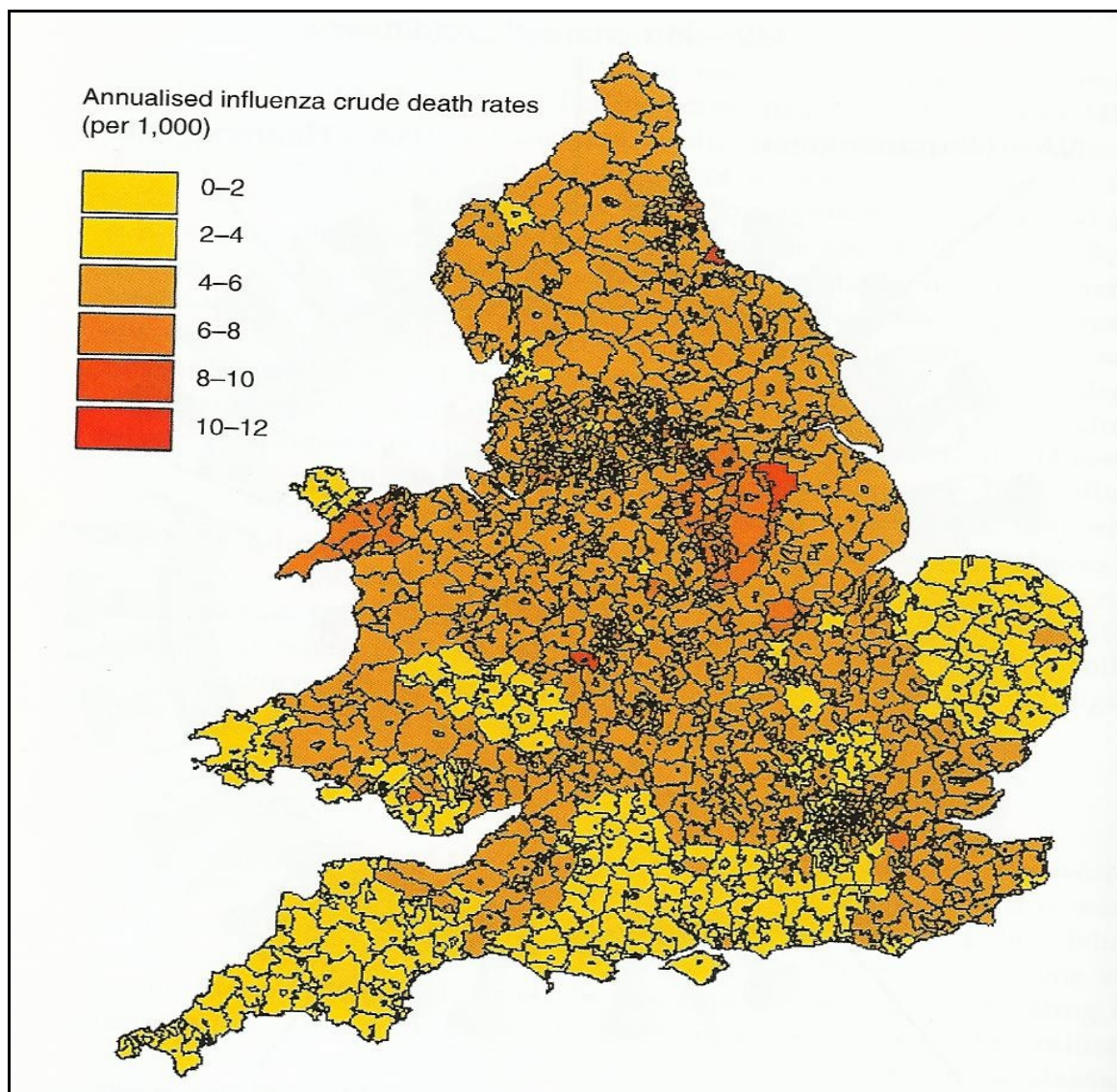


Source: Johnson, *Britain and the 1918-19 Influenza Pandemic*, Plate 3.

<sup>27</sup> Johnson, *Britain and the 1918-19 Influenza Pandemic*, p. 57.

By the end of January 1919, mortality rates started to climb once again heralding the start of the third and final wave of the influenza pandemic and as mentioned earlier, it was the county boroughs and large towns of the north which bore the brunt once more. Even so, it is clear that in each wave the Midlands as a whole suffered high levels of mortality. This is again supported by Johnson in his diagram mapping levels of mortality for the whole of the influenza pandemic across England and Wales (Figure 15).

Figure 15. Influenza Pandemic Mortality for England and Wales 1918-19.

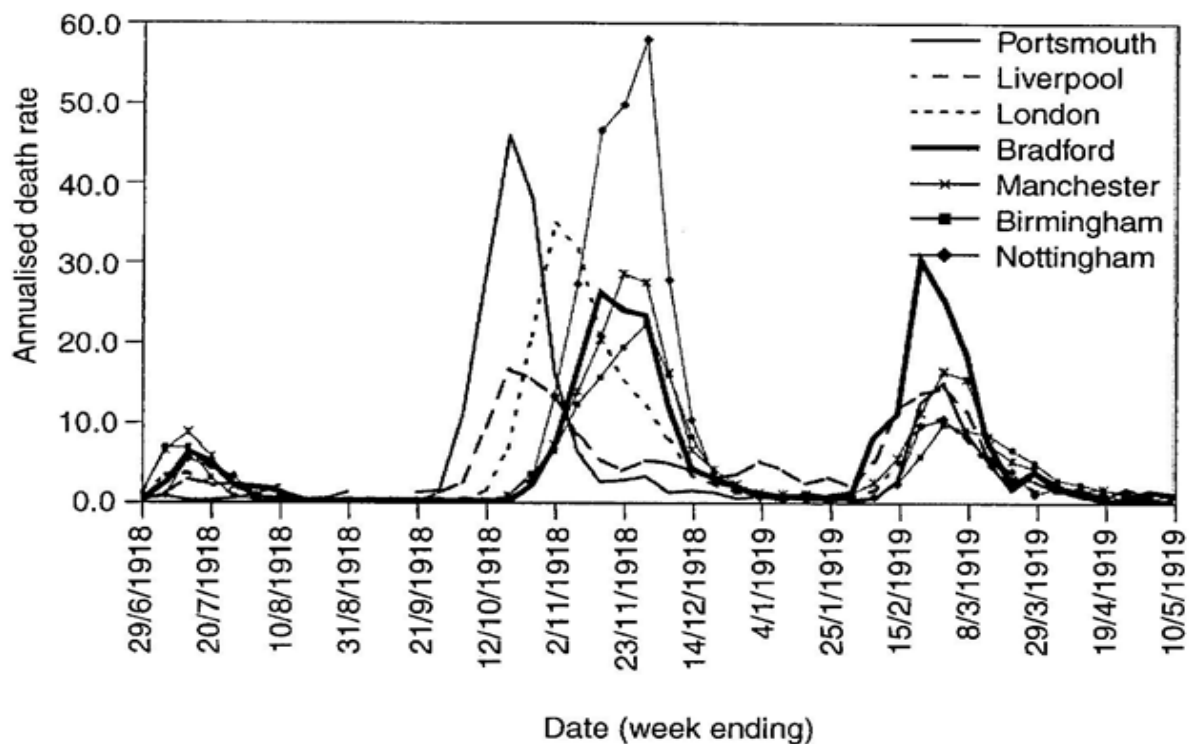


Source: Johnson, *Britain and the 1918-19 Influenza Pandemic*, Plate 2.

### Mortality in the East Midlands

A further diagram constructed by Johnson (Figure 16) using the RG's statistics is particularly relevant for this study as it indicates the level of mortality in Nottingham across the three waves of the pandemic as compared to other cities in both the north and south of England, three of which are ports and would be at the top of the urban hierarchies. However, the severity of Nottingham's mortality in the second wave can clearly be seen.

Figure 16. Influenza Mortality in Selected Cities 1918-19.



Source: Johnson, *Britain and the 1918-19 Influenza Pandemic*, p. 56.

The extent to which the county boroughs and large towns of Nottinghamshire, Leicestershire and Derbyshire suffered in comparison with those of the north, the south and Wales, can be further gleaned by an examination of the RG's statistics on their relative positions in the order of mortality across the two countries. There were 82 county boroughs and for each wave they were given a number from 1, indicating the highest mortality, to 82, indicating the lowest. Based on these positions they were then given an overall position for the whole pandemic. The same procedure was

used for the 161 large towns and for the remainders of counties, the latter of which will be discussed in chapter 3.

Tables 4 and 5 below show the positions of East Midlands' county boroughs and towns of over 20,000 population based on their recorded mortality during the pandemic.

Table 4: Mortality from Influenza in County Boroughs, 1918-19. Position in Order of Mortality in Each Wave and Overall.

County Borough	1 <sup>st</sup> Wave	2 <sup>nd</sup> Wave	3 <sup>rd</sup> Wave	Total
Nottingham	43	2	61	6
Leicester	37	10	23	6
Derby	49	32	54	47

Source: RG, *Supplement to the Eighty-First Annual Report*, Table X, p. 25.

Table 5: Mortality from Influenza in Towns of over 20,000 Population, other than County Boroughs, 1918-19. Position in Order of Mortality in Each Wave and Overall.

Town	1 <sup>st</sup> Wave	2 <sup>nd</sup> Wave	3 <sup>rd</sup> Wave	Total
Mansfield	56	63	144	90
Sutton-in-Ashfield	64	14	138	18
Worksop	95	3	159	13
Loughborough	137	19	80	29
Ilkeston	64	18	95	22
Chesterfield	44	9	53	8
Glossop	44	151	16	104

Source: RG, *Supplement to the Eighty-First Annual Report*, Table XI, p. 26.

These figures confirm the severity of Nottingham's mortality in the second wave, as indicated in Figure 15, but with Leicester quite close behind. Furthermore, as Leicester suffered higher mortality than Nottingham in both the first and third waves, this gave them both the equally high overall position of 6 out of 82. Derby's mortality levels, however, were rather less serious according to the figures used.

In comparison with the rest of England and Wales, therefore, Leicester and Nottingham do appear to have both suffered severely during the course of the influenza pandemic, with Derby suffering comparatively less so. Furthermore, all those county boroughs above or equal to Leicester and Nottingham were also either from the Midlands or the north of England. These were Barnsley 1, West Bromwich 2, South Shields 3, Sunderland and Wolverhampton equal 4 and Rotherham, Warrington and Burton-on-Trent equal 6.

With regard to the large towns in the three counties, it is interesting to note that it was Chesterfield in Derbyshire that suffered higher mortality levels than the large towns in the other two counties, with an overall position of 8 out of 161. Even so, a number of other towns across the region did record high influenza mortality in the severe second wave of the pandemic, notably Worksop and Sutton-in-Ashfield in Nottinghamshire, Ilkeston in Derbyshire and Loughborough in Leicestershire which lifted them to the high overall positions of 13, 18, 22 and 29 respectively.

Perhaps the most surprising statistic, however, is that of Glossop in Derbyshire which appears to have suffered remarkably little mortality in the second wave but much more seriously in the third wave. This is interesting when compared to Manchester. Glossop developed as a suburb of Manchester which also recorded its lowest mortality in the second wave.

Therefore, except for Glossop and Mansfield, the large towns in Leicestershire, Derbyshire and Nottinghamshire all appear in the top 30 out of the 161 in England and Wales in terms of their mortality. Those towns occupying the top 20 positions were again all from the Midlands and the north of England with the exception of two southern towns, reflecting the higher levels of mortality experienced in the south during the second wave of the pandemic.

Towns above Chesterfield were, Hebburn 1, followed by Jarrow, Kidderminster Wallsend, Gainsborough, Hartlepool and Bilston. Only Sutton-in-Ashfield at 18 overall, has the two southern towns above it, namely Chatham and Dartford placed 16 and 17 respectively. Thus while the RG's comment that, 'The northern parts of the country...suffered decidedly more, on the whole, than the southern,' is essentially

true, it would appear from the statistics presented that the Midlands suffered to an almost equal degree as the north.

The progress of the influenza pandemic through the East Midlands can also be charted by extracting the figures for the three counties from the RG's weekly returns which, when placed in diagrams, shows the rise and decline of the three waves of influenza both within each individual wave and throughout the whole period of its prevalence in the three locations. The results of this can be seen in Tables 6 and 7 below together with Figure 17 for the county boroughs and Figure 18 for towns of over 20,000 population.

These diagrams and tables also show that while some locations across the three counties reached their respective peaks of mortality at different times, several peaked at the same time, for example, Derby and Nottingham in the first wave and much of Nottinghamshire in the second wave. Reasons for this are unclear but may be associated with levels of contact along major communication routes. Table 8 below gives the mortality peak statistics for the three counties included in the RG's Report.

What these statistics highlight are the remarkable variations which existed in the way the influenza pandemic affected different communities even within and between neighbouring counties, a point emphasised by George Newman in his introduction to the Ministry of Health Report. For example, it shows that both Sutton-in-Ashfield and Mansfield in Nottinghamshire suffered the highest mortality peaks in the first wave although Nottingham's peak rate was much lower. In the second wave Chesterfield in Derbyshire, Sutton-in-Ashfield again and Leicester had the highest peak mortality rates showing that locations in all three counties suffered equally severely in this wave but at slightly different times with Leicester reaching its peak first, Chesterfield following two weeks later and Sutton-in-Ashfield two weeks after that. In the third wave Leicester suffered the highest peak mortality rate at the beginning of March but Glossop in Derbyshire, which had escaped remarkably lightly in the previous two waves, suffered a comparatively high peak rate as late as April by which time the influenza pandemic had almost disappeared from many parts of Britain.

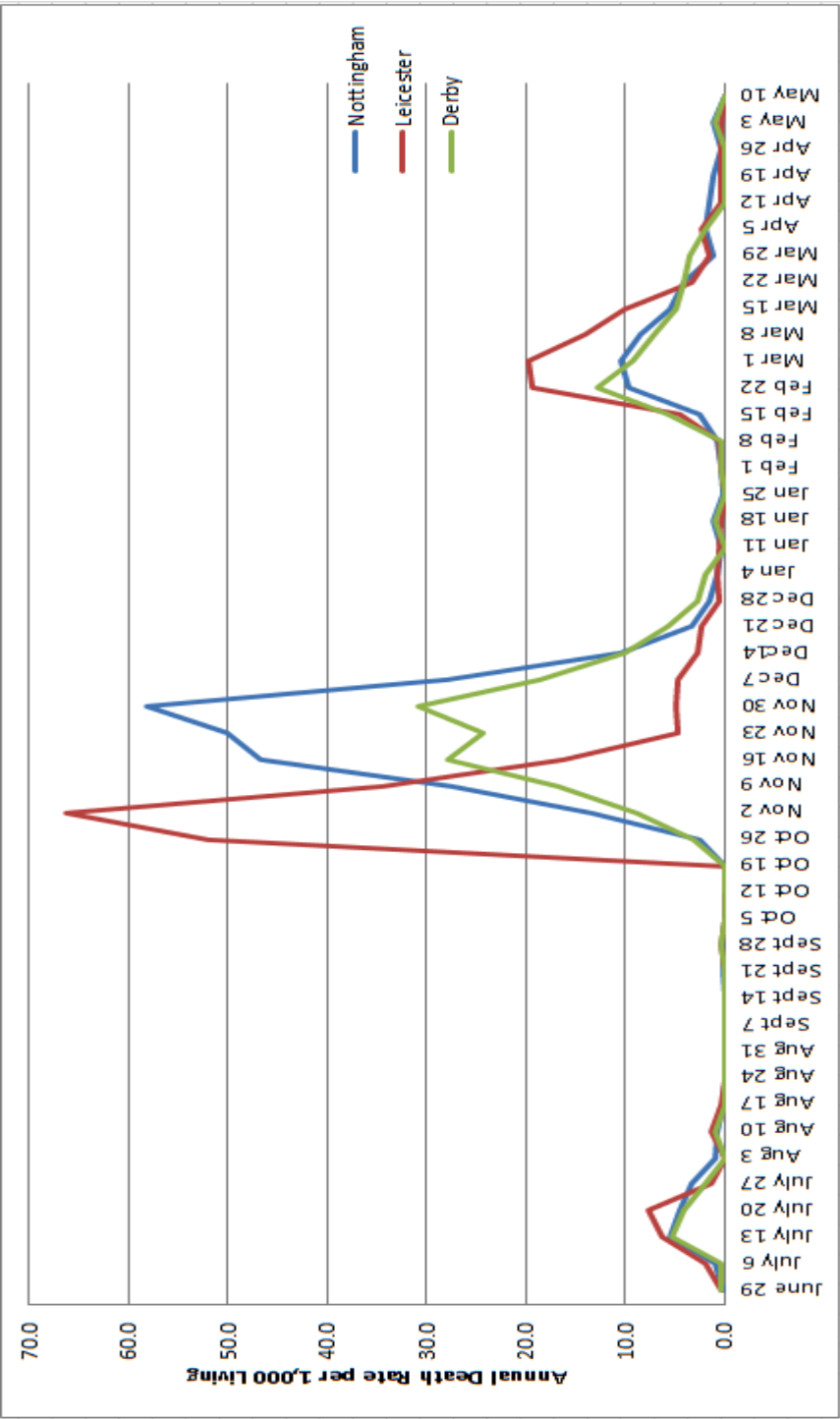
Furthermore, these figures show that some towns hit their peak of mortality twice in a single wave, as was the case with Ilkeston in Derbyshire and Worksop in Nottinghamshire in the first wave of the pandemic and Chesterfield in the third wave.

Table 6. Weekly Deaths and Death Rates for the County Boroughs of Nottingham, Leicester and Derby – June 1918 to May 1919.

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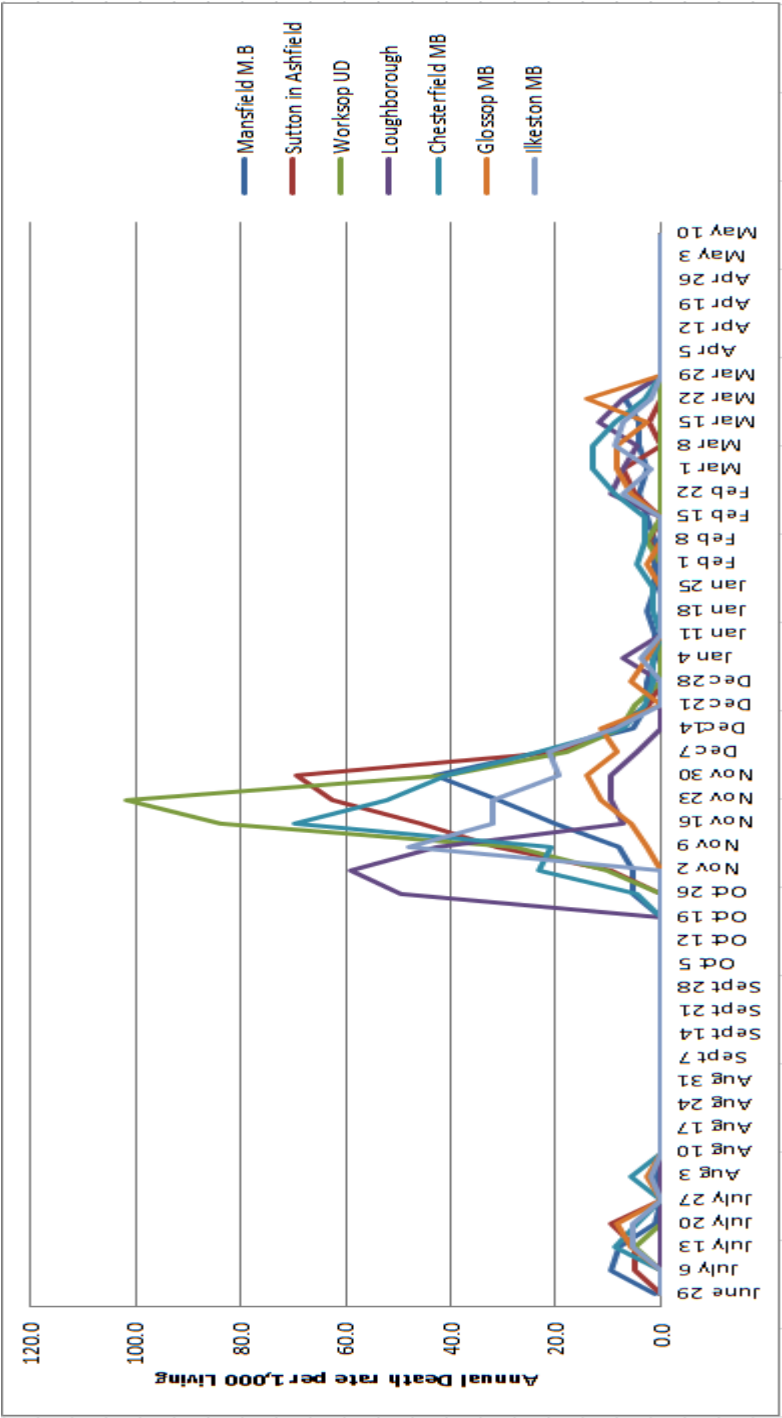
Source: RG, *Supplement to the Eighty-First Annual Report*, pp. 48-80.

Figure 17. Weekly Mortality in the County Boroughs of Nottingham, Leicester and Derby - June 1918 to May 1919.



Source: RG, *Supplement to the Eighty-First Annual Report*, pp. 48-80.

Figure 18. Weekly Mortality in Towns over 20,000 Population other than County Boroughs in Leicestershire, Nottinghamshire and Derbyshire - June 1918 to May 1919.



Source: RG, *Supplement to the Eighty-First Annual Report*, pp. 48-80.

Source: RG, *Supplement to the Eighty-First Annual Report*, pp. 48-80.

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Table 8. Mortality Peaks in the Counties of Leicestershire, Derbyshire and Nottinghamshire for Each Wave of the Influenza Pandemic 1918-19.

A. Influenza First Wave (23 June - 14 September 1918)

Date	Location(s)	Deaths per 1,000
6 July	Mansfield	9.4
13 July	Nottingham	5.5
	Derby	5.3
	Ilkeston	5.4 (x2)
	Worksop	5.1 (x2)
20 July	Leicester	7.7
	Sutton-in-Ashfield	9.6
	Glossop	8.5
	Ilkeston	5.4 (x2)
	Derbyshire	5.4
	Nottinghamshire	5.4
	Leicestershire	3.0
27 July	Worksop	5.1 (x2)

B. Influenza Second Wave (15 September 1918 –25 January 1919)

Date	Location(s)	Deaths per 1,000
2 November	Leicester	66.2
	Loughborough	59.1
	Leicestershire	35.0
9 November	Ilkeston	48.2
16 November	Chesterfield	69.7
30 November	Nottingham	58.2
	Derby	30.9
	Sutton-in-Ashfield	69.5
	Mansfield	43.1
	Glossop	14.1
	Nottinghamshire	48.6
	Derbyshire	29.1

### C. Influenza Third Wave (26 January – 10 May 1919)

Date	Location(s)	Deaths per 1,000
22 February	Derby	12.8
1 March	Leicester	19.8
	Nottingham	10.4
	Chesterfield	13.1 (x2)
	Sutton-in-Ashfield	7.2
	Leicestershire	9.6
8 March	Chesterfield	13.1 (x2)
	Ilkeston	8.9
	Nottinghamshire	10.7
	Derbyshire	10.5
15 March	Loughborough	11.8
22 March	Mansfield	6.7
12 April	Glossop	16.9

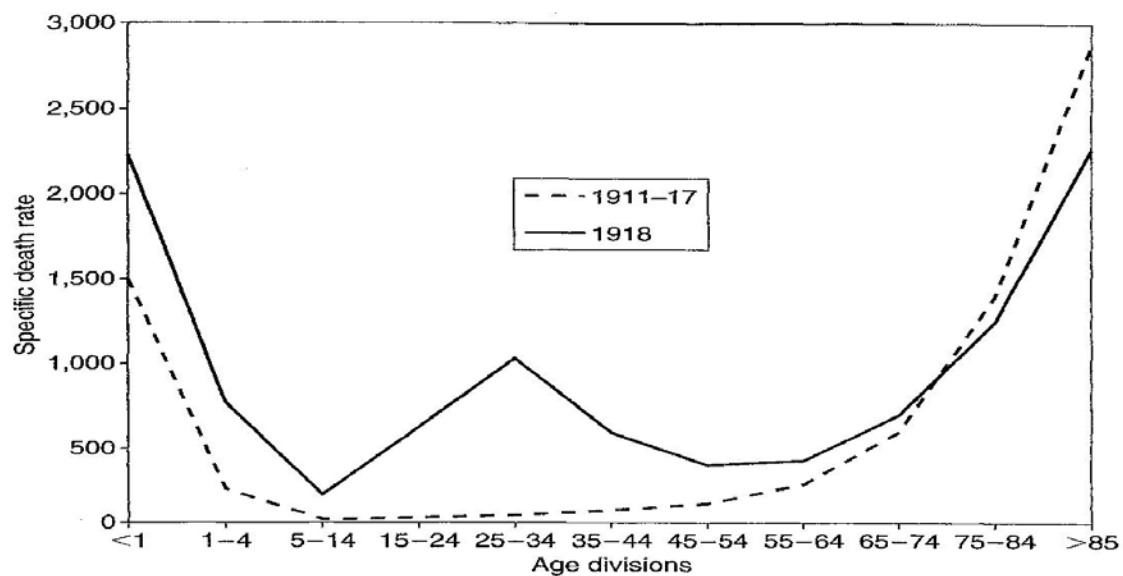
Source: RG, *Supplement to the Eighty-First Annual Report*, Tables VI – VIII, pp. 15-24.

#### Age related mortality

A further unique feature of the 1918-19 influenza pandemic, which is evident in an analysis of both the morbidity and the mortality figures, was the age range of the victims. Influenza is a regularly occurring infection across much of the world, appearing usually in the autumn and winter months. Although not thought to be serious it generally causes some deaths, usually amongst the weaker members of the population, for example, the very young, the elderly and those with impaired health, such as respiratory ailments. Plotted on a graph this typically gives a 'u' shaped curve with the highest incidence of mortality occurring at the two extremes, the youngest and the oldest. This time, however, it was different.

In 1918 it was active young adults who suffered the heaviest mortality, particularly those between 20 and 45 years of age. Plotted on a graph, this gives a 'w' shaped curve with, in this case, the highest incidences of mortality occurring, not just at the extremities but also in the middle. A good example of this is a graph produced to show the mortality rates from influenza and associated pneumonia in the USA, contrasting those between 1911 and 1917, showing the usual 'u' shaped curve and those in 1918 showing the additional peak in the centre (Figure 19).

Figure 19. Influenza and Pneumonia Mortality by age in the USA 1911-1918.



Source: Phillips and Killingray (eds), *The Spanish Influenza Pandemic of 1918-19*, p. 41.

This very distinctive age pattern of victims of the 1918-19 influenza pandemic has been discussed by writers in official documents as well as medical and historical texts although the reasons for it are still unclear. However, the most plausible theory advanced and the one which is most often quoted is that it was the result of the overreaction of the immune system as it attempted to fight the invading virus. Furthermore, recent experiments conducted in Canada on macaque monkeys support this view.<sup>28</sup>

The immune systems of healthy adults, between approximately 20 and 45 years of age, are generally much stronger than those of the young, the elderly or those with impaired health, resulting in a more potent response when fighting off infection. Normally this would give those within this age group a much better chance of surviving disease. However, in the case of the 1918-19 influenza pandemic, this may well have been what killed rather than what protected; a massive immune response to an unknown pathogen. Such a response is referred to as a cytokine storm, (known today as Acute Respiratory Disease Syndrome or ARDS), which, in a supreme effort to

<sup>28</sup> K. Smith, 'Concern as revived 1918 flu virus kills monkeys', *Nature*, 445 (2007), p. 237.

kill the infecting organism, causes tissue breakdown and floods the lungs with blood, fluids and dead cells resulting in complete lung failure and the death of the patient from lack of oxygen.

This extraordinary mortality pattern occurred in countries across the globe and evidence for it can be found in many articles and books on the 1918-19 pandemic.<sup>29</sup> In Britain, the reports of the RGs for England and Wales (1920) and for Scotland (1919) as well as the Ministry of Health report (1920) all give attention to this issue.

In his opening remarks on the subject, the RG for England and Wales said: 'The type of age distribution which had consistently characterised influenza mortality for many years suddenly and completely changed with the onset of the summer epidemic of 1918 and the new type then established continued to characterise the succeeding waves of the outbreak'.<sup>30</sup> The RG for Scotland made similar comments in his report on the effects of the pandemic, pointing out that the death of young adults between the ages of 20 and 40 was the most conspicuous feature of the distribution of mortality from the pandemic.<sup>31</sup> Figures 20 and 21 below illustrate this, particularly the high mortality of the 25 to 35 age group.

The Ministry of Health report put figures to this change by explaining that deaths for those from birth to 15 years increased during the influenza pandemic from 7 to 11 per cent up to 25 per cent, 15 to 35 year olds increased from 8 to 10 per cent up to 45 per cent while those from 35 upwards increased very little.<sup>32</sup>

In the East Midlands, the unusual age pattern of victims did receive some slight attention in the local press although there was still some confusion in people's minds as evidenced by the words of this Nottingham reporter, commenting on the situation unfolding in the second wave of the pandemic:

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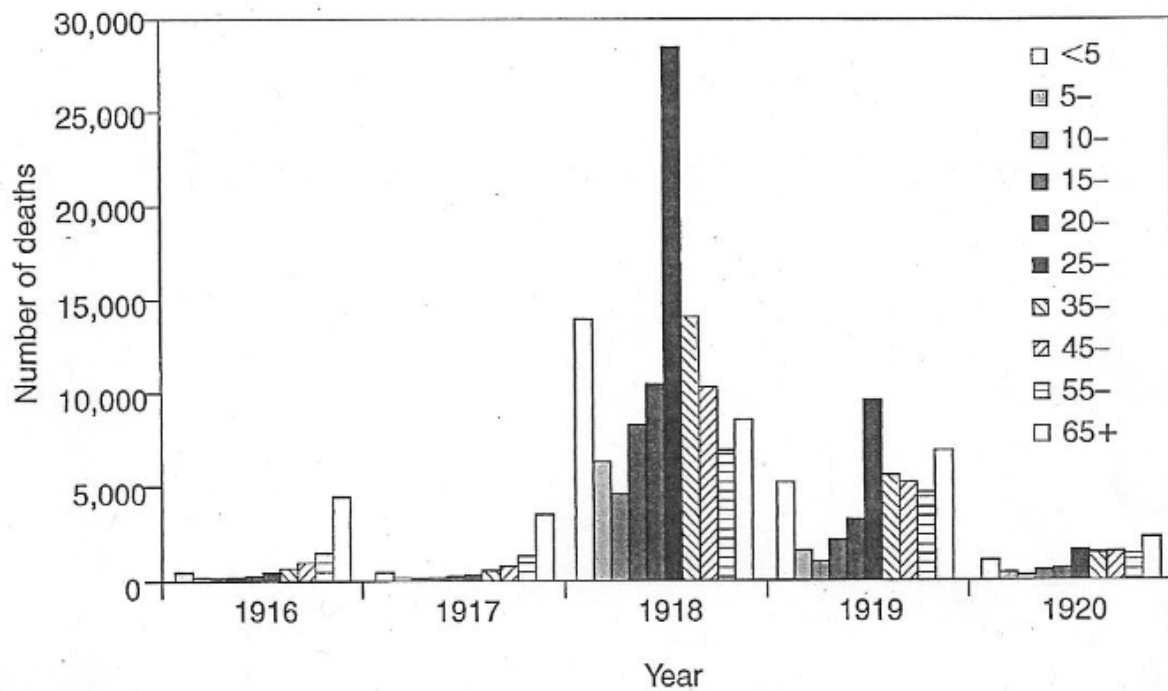
<sup>29</sup> See Phillips, *Black October*, p. 169; Rice, *Black November*, p. 223; Mills, 'The Indian Experience', pp. 17-24; van Hartesveldt (ed.), *The 1918-1919 Pandemic of Influenza* p. 5; Phillips and Killingray (eds.) *The Spanish Influenza Pandemic of 1918-19*, pp. 139-140; Johnson, *Britain and the 1918-19 Influenza Pandemic*, pp. 83-88; Crosby, *America's Forgotten Pandemic*, pp. 215-222; Ministry of Health, *Public Health and Medical Subjects No. 4*, pp. 40-44; RG, *Supplement to the Eighty-First Annual Report*, pp. 7-11; RG for Scotland, *Report on the Mortality from Influenza in Scotland during the Epidemic of 1918-19*, pp. 8-10.

<sup>30</sup> RG, *Supplement to the Eighty-First Annual Report*, p. 7.

<sup>31</sup> RG for Scotland, *Report on the Mortality from Influenza in Scotland during the Epidemic of 1918-19*, p. 8.

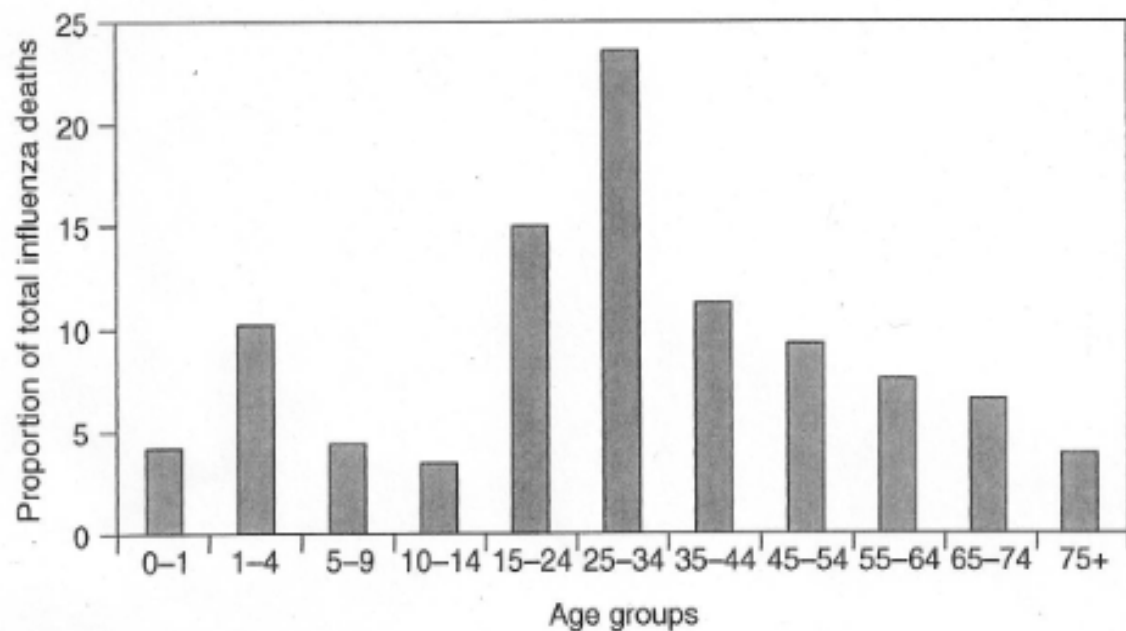
<sup>32</sup> Ministry of Health, *Public Health and Medical Subjects No. 4*, p. xiv.

Figure 20. Age structure of influenza mortality in England and Wales, 1916-20



Source: Johnson, *Britain and the 1918-19 Influenza Pandemic*, p86

Figure 21. Age structure of Influenza Mortality in Scotland 1918



Source: Johnson, *Britain and the 1918-19 Influenza Pandemic*, p85

While no age is immune from it, influenza finds most of its victims amongst the young and the old, the middle-aged escaping fairly lightly...only this morning a healthy young girl of 18... passed away after a couple of days illness... children and old people should avoid visiting other people's houses, as they are the most likely to catch and spread the infection.<sup>33</sup>

Whilst he was correct in stating that the young and the old are generally the victims of influenza, he appears to have missed the fact that it was a healthy young woman within the group considered to represent the prime of life who died. But this is perhaps understandable when even the MOH for Nottingham, Dr Philip Boobbyer, was advising old people to remain at home.<sup>34</sup>

By November 1918, however, with the second wave of the pandemic at its height, comments in local newspapers were raising the issue of the death of young adults. The Nottingham press, for example, stated 'The most appalling feature of the epidemic is that it is carrying off those who apparently are in the best of their manhood and womanhood.'<sup>35</sup> Three weeks later it observed '...the people are getting terrified, as apparently strong and healthy young men and women are carried off in a few days – or hours'.<sup>36</sup>

Nonetheless, even as the influenza began to subside, there was still a sense of disbelief that so many young people should have been taken by it as indicated by a comment in another Nottingham newspaper that '...the greatest number of deaths occurred among people in the prime of life, and among whom the death-rate is normally low'.<sup>37</sup>

An indirect reference to this anomaly appeared in the Derbyshire press in a statement by the MOH for Ilkeston, Dr John A. Watt, when he declared that during the week, nine people had died and these were mostly children and young adults. However, as was the case with Dr Boobbyer, he then goes on to give his advice to the public on general precautions which includes protecting old people from exposure to infection.<sup>38</sup>

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<sup>33</sup> *Nottingham Evening Post*, 28 October 1918, p. 2.

<sup>34</sup> *Nottingham Journal and Express*, 26 October 1918, p. 3.

<sup>35</sup> *Nottingham Local News*, 9 November 1918, p. 3.

<sup>36</sup> *ibid*, 30 November 1918, p. 1.

<sup>37</sup> *ibid*, 14 December 1918, p. 3.

<sup>38</sup> *Ilkeston Advertiser and Erewash Valley Weekly News*, 1 November 1918, p. 2.

While it is true that the elderly and the very young, specifically those under five years of age, did suffer high mortality rates during the influenza pandemic, it was the high incidence of mortality among that section of society that should have been the healthiest and the strongest that was so unexpected and so difficult to comprehend. However, in February 1919, at a meeting of the Medical Officers of Health Society of the North of England in Newcastle, Dr J. A. Fairer, Senior Assistant Medical Officer for Leicestershire formerly raised this issue. During the war, Fairer had served in the navy on a hospital ship and his report was based on the observations he had made during that time. He referred to the figures as 'very striking, and are even more striking when the age of the fatal cases is examined...In fifteen fatal cases...the average age incidence...being 26.8.'<sup>39</sup>

An indication of the age range of the military and civilian influenza deaths amongst East Midlands' citizens can be gleaned from the many sad announcements made in local newspapers. For some, however, this unique mortality pattern remained incomprehensible. In the Nottingham press, for example, during the third and final wave of the pandemic, a journalist still wrote: 'A curious feature of the epidemic in Middlesbrough is that the bulk of the victims are from 25 to 45 years of age, when their powers of resistance might have been thought to be at their maximum.'<sup>40</sup>

#### Mortality and gender

While the age pattern of influenza mortality in 1918-19 was most unusual, mortality patterns associated with gender appeared not to be, despite differences being reported in some locations. Rice states that, in the European population of New Zealand, 63 per cent of influenza related deaths were males<sup>41</sup> and Crosby also records considerably higher mortality figures for males than females in the USA.<sup>42</sup>

In Britain, the RG for Scotland reported a slightly higher influenza mortality rate for females than males, being 52.2 per cent and 47.8 per cent respectively but he commented that 'The small observed difference between male and female death-rates should not be accepted as a reliable indicator of influenza having been in fact more fatal in the female population than in the male.'<sup>43</sup> His reasons for this suggested

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<sup>39</sup> *Leicester Mercury*, 24 February 1919, p. 5; *Leicester Daily Post*, 25 February 1919, p. 3.

<sup>40</sup> *Nottingham Evening Post*, 25 February 1919, p. 2.

<sup>41</sup> Rice, *Black November*, p. 222.

<sup>42</sup> Crosby, *America's Forgotten Pandemic*, pp. 207-215.

<sup>43</sup> RG for Scotland, *Report on the Mortality from Influenza in Scotland during the Epidemic of 1918-19*, p. 9.

unreliability were that the figures were based on estimated populations only, due to the war and the length of time since the last census.

The RG for England and Wales made similar comments in his report on the pandemic. He pointed to the 'profound modification of the male civilian population' brought about by the war which made it difficult to ascertain with any accuracy whether the influenza pandemic had affected one sex more seriously than the other but he estimated that there had been 84,000 male civilian deaths and 100,000 female deaths.<sup>44</sup>

In Leicester, Dr Millard recorded that female deaths outnumbered male deaths 701 to 475. Jonathan Wilshire notes this being in the ratio 3:2, but also points to this being an artificial result due to the number of men being away on military service.<sup>45</sup> Johnson supports this view and stresses that, despite the variations indicated by some writers, there was no significant difference between the mortality rates of men and women and suggests that difficulties in reporting deaths from influenza, particularly during war time, may have resulted in inaccuracies.<sup>46</sup>

#### Influenza and pregnancy

However, the point at which the unusual age pattern of victims in the 1918-19 pandemic impacted most seriously upon female mortality was in the infection and death of women of child-bearing age, especially those who were or became pregnant at the time of the outbreak. Writing in 1918 for the American Medical Association, S. Strouse and L. Bloch explained:

A severe attack of influenza during the later stages of pregnancy is highly dangerous. Abortion, miscarriage and premature labour are frequently induced, and the occurrence of these mischances materially increases the mortality in pregnant women. The effect of influenza on the pregnant condition seems to be more serious than that of any other infection.<sup>47</sup>

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<sup>44</sup> RG, *Supplement to the Eighty-First Annual Report*, p. 7.

<sup>45</sup> J. Wilshire, *Leicester's Great Influenza Epidemic 1918-1919* (Leicester, 1986), p. iii.

<sup>46</sup> Johnson, *Britain and the 1918-19 Influenza Pandemic*, pp. 91-92

<sup>47</sup> Strouse and Bloch in Jordan, *Epidemic Influenza: A Survey*, p. 272.

In a chapter on the human cost of the influenza pandemic of 1918-19, Johnson, devotes a section entitled 'Woe unto them that are with child'<sup>48</sup> to this particular issue and supports Strouse and Bloch's statement by quoting figures taken from Sydney, Australia and from Paris. In Sydney, pregnant women admitted to influenza hospitals had a mortality rate of 26.7 per cent while at the maternity hospital in Paris, mortality was 46 per cent and worse if there were pulmonary complications. A similar situation was recorded in Norway.<sup>49</sup> Mills also notes that in Bombay, deaths due to premature birth trebled during the worst weeks of the pandemic with a 50 per cent increase in still births during September and October 1918.<sup>50</sup> While in the USA during the influenza pandemic, 26 per cent of pregnancies were interrupted in uncomplicated cases but 52 per cent in cases where there were pneumonic complications.<sup>51</sup>

Death during pregnancy was, therefore, a serious worldwide phenomenon linked to the influenza pandemic. In Britain, the RG for Scotland recorded 266 female deaths during pregnancy, while the RG for England and Wales noted that 2,198 pregnant women had died during the pandemic, a death rate of 5.3 per annum which he declared to be only a little higher than the 4.9 per annum calculated for all females in the same age group. From that he stated 'Pregnancy did not add appreciably to the risk of death from influenza, if we assume that the 2, 198 deaths reported included all the recognisably pregnant victims; but this assumption is very doubtful.'<sup>52</sup>

Recent research indicates that the RG was right to doubt the figures. Johnson, points out that these statistics could, in fact, be significantly higher as many women who died from influenza may have been pregnant but not have been recorded as such, particularly where pregnancy was in its early stages and there was no evacuation of the uterus.<sup>53</sup> Furthermore, the RG produced a diagram to show the mortality from influenza of females from birth to 75 years and above between 1847 and 1919 (Figure 22) and this makes clear the significant rise, when compared to previous years, in deaths of women aged 15 to 35 between June 1918 and May 1919.

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<sup>48</sup> Johnson, *Britain and the 1918-19 Influenza Pandemic*, p93, taken from *The Lancet*, 18 October 1919, p. 699.

<sup>49</sup> *ibid*, p. 94.

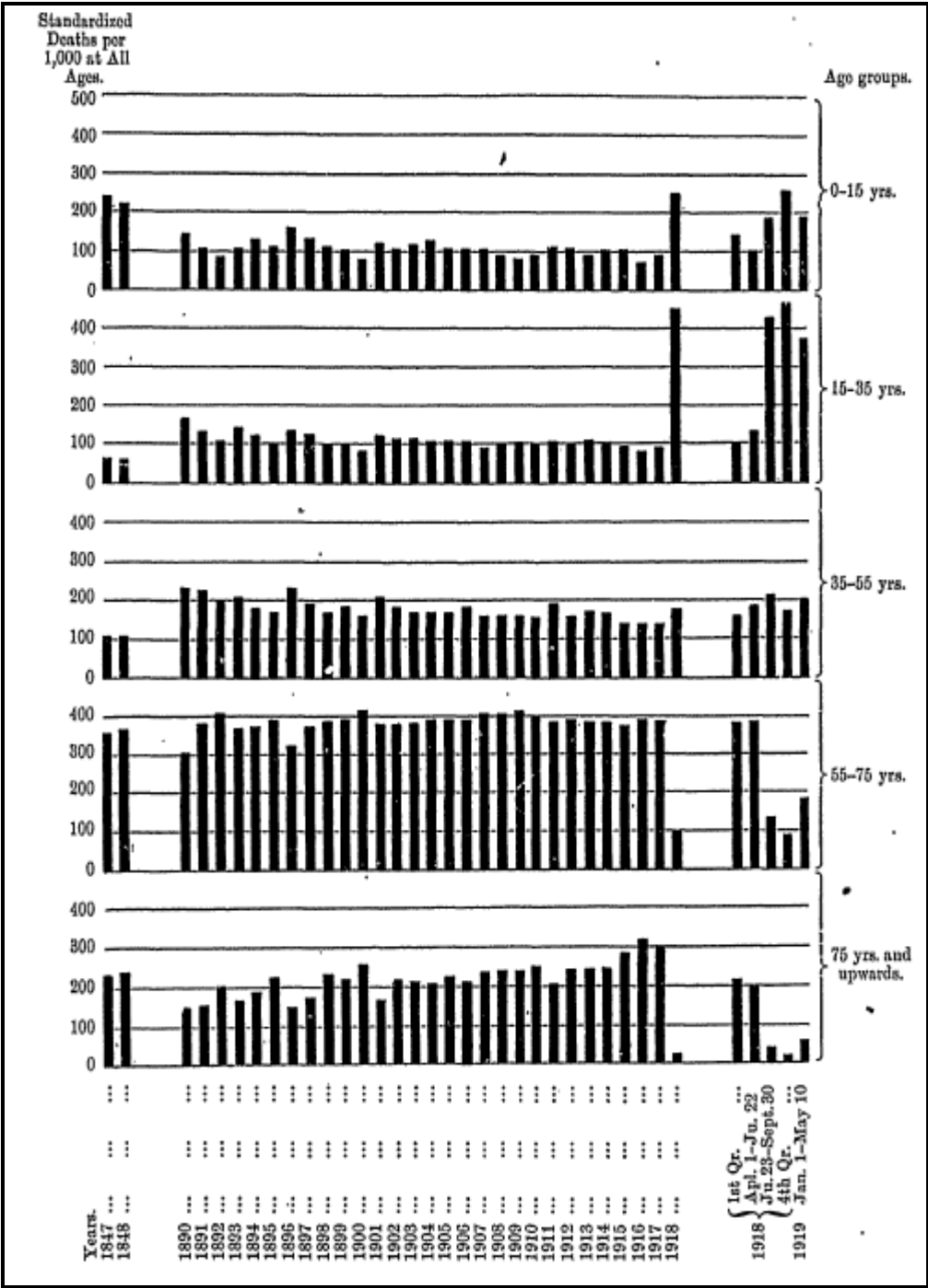
<sup>50</sup> Mills, 'The Indian Experience', p. 24.

<sup>51</sup> J. W. Harris in Reid, 'The effects of the 1918-1919 influenza pandemic on infant and child health in Derbyshire' p. 34.

<sup>52</sup> RG, *Supplement to the Eighty-First Annual Report*, p. 36.

<sup>53</sup> Johnson, *Britain and the 1918-19 Influenza Pandemic*, p. 94.

Fig 22. Age Distribution of Standardised Mortality from Influenza of females -1847 to 1919



Source: RG, *Supplement to the Eighty-First Annual Report*, Diagram I, p. 38.

An East Midlands' study carried out by Dr Alice Reid, investigating the effects of the influenza pandemic on infant and child health in Derbyshire, made reference to research carried out in the USA. With regard to susceptibility to infection Reid points out that pregnant women are at a particularly high risk of catching influenza towards the end of their pregnancy and, once infected, are then 50 per cent more likely to develop pneumonic complications and 50 per cent more likely to die from them than those women who are not pregnant.<sup>54</sup> Furthermore, influenza contracted in the first or second trimester of pregnancy brings with it an increased incidence of premature and still birth. Consequently, pregnancy during an influenza pandemic, particularly one as virulent as that of 1918-1919, could be fatal for many women, as the figures for 1918-19 indicate.

The plight of pregnant women was remarked upon by two East Midlands' women who responded to Collier's advertisement in the *Leicester Mercury* in 1973. Mrs Bishop from Melton Mowbray wrote: 'My own doctors wife took ill and as she was expecting her first baby she could not have it so they both died it was terrible... I was one of the lucky ones had just got over having a baby all around other expectant women died leaving a man with children to look after.' [sic] While Mrs Edith Carter of Leicester who lived near Market Harborough at the time wrote, 'Three girls I knew in our village were expecting their first babies, nothing could save a pregnant woman, they died.'<sup>55</sup>

Furthermore, those pregnancies which did result in a live birth were not necessarily ultimately successful. According to Reid, women dying of influenza after a recent birth would, in turn, greatly reduce the chances of the infant's survival, either through being infected itself or through the mother's inability to feed it.<sup>56</sup>

Local newspapers carried very few stories of this type. Although many births would have been attended in hospital, there would also have been many home deliveries. Those mothers and babies who died in hospital may be traceable through hospital records once they become available to view after 2018, but of those who died as a result of the influenza pandemic at home, few have found their way into the local press. Those that were found in Leicestershire and Nottinghamshire newspapers were the death of Mrs Jack Nelson of Mountsorrel who died the day after giving birth to a

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<sup>54</sup> Reid, 'The effects of the 1918-1919 influenza pandemic on infant and child health in Derbyshire' p. 32.

<sup>55</sup> Private Papers of Richard Collier, 63/5/1-7, IWM.

<sup>56</sup> Reid, 'The effects of the 1918-1919 influenza pandemic on infant and child health in Derbyshire' p. 34.

daughter; the baby survived<sup>57</sup>, and the death of Mrs Martin of Nuncargate, who was found dying in bed by neighbours, Mr Martin having already been found dead downstairs. Efforts to save her were in vain and the child at her breast died the following day.<sup>58</sup>

The theme of the increased dangers of pregnancy and birth during an influenza epidemic was also taken up by Reina James in her novel *This Time of Dying*. In her story, the expectant mother, Jen, is in labour with her sixth child and is being assisted by a neighbour, Sarah. A doctor has been called for but has not arrived. Jen is weak from influenza, her body rent by coughing and her face already blue. Unable to help herself the baby has to be pulled free by Sarah who, on seeing the purple skin of the baby boy, comments 'She's given him the flu.' By the following day Jen is dead, and the baby dies the day after without a doctor ever arriving.<sup>59</sup>

#### Susceptible populations

There were groups other than pregnant women and those within specific age bands who also suffered particularly severely during the pandemic due to an apparently enhanced susceptibility or lack of immunity. Accounts of this particular phenomenon come almost exclusively from outside of Europe and focus on indigenous populations in various countries around the world, such as Samoa, Alaska, South Africa and New Zealand and several historians have traced the results of exposure to the influenza pandemic on such populations.

Examining the experience of native communities in the American territories of Alaska, Samoa and certain Pacific islands, Alfred Crosby states that 'No peoples on earth suffered more severely during the influenza pandemic of 1918 than the aboriginal inhabitants of the small Pacific islands.'<sup>60</sup> He also makes reference to the ships that called at these islands carrying the infection with them. For example, the transport ship 'Logan' carried influenza to Guam where nearly all the native inhabitants caught it and over 800 died. Of the American sailors who were on the ship, most caught the infection but only one died.

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<sup>57</sup> *Loughborough Herald and North Leicestershire Gazette*, 8 November 1918, p. 8.

<sup>58</sup> *Nottingham Local News*, 30 November 1918, p. 1.

<sup>59</sup> R. James, *This Time of Dying*, (London, 2007), pp. 75-103.

<sup>60</sup> Crosby, *America's Forgotten Pandemic*, pp. 231-232.

A similar situation occurred in Tahiti following the arrival of the 'Navwa' from San Francisco where influenza was rife. Three thousand Tahitians caught influenza and 500 to 600 died within twenty-five days. Worst of all was the 'Talune' from New Zealand where the Maoris were suffering severely from influenza. It moored in the Fiji islands, where 5,000 people died, then Tonga, where 1,000 to 1,600 people died, and finally Apia in Western Samoa where, by early 1919, 8,500 inhabitants had died, some from starvation as normal systems broke down.

Alaska, according to Crosby, appeared to be much safer due to its climate. Being so far north its waterways were frozen for a large part of the year thus making it much easier for the inhabitants to keep themselves isolated from any agents of infection. Strict rules were laid down with regard to any ship coming to Alaska and all passengers and crew had to be examined for any signs of influenza before they embarked and again when they landed. Passengers were then kept in quarantine for 5 days before being allowed to move freely ashore. Despite these measures, when the 'Victoria' landed in Nome on 20 October 1918 with no apparent influenza cases on board, Crosby states, 'Within days an appallingly large proportion of the inhabitants of the settlement and its satellite villages of Eskimos (Inuit) were sick and dying.'<sup>61</sup>

Further south, the various Indian (Native American) populations also suffered severely from the influenza pandemic. Figures provided to the Ministry of Health in 1920 by the United States Public Health Service indicated that amongst those living in the eight mountain states, nearly 33,000 Native Americans were attacked by influenza and more than 3,500 or over 11 per cent died.<sup>62</sup>

In New Zealand, Geoffrey Rice describes a similar situation with regard to the Maoris, pointing out that they were 'seven times more likely than Europeans to die from the flu'.<sup>63</sup> He gives an estimated figure of 2,160 Maori deaths from influenza from a total population of 51,000 which gives a death rate of 42.3 per thousand.

Crosby suggests that isolated native communities, separated from the rest of humanity and, therefore, from the usual range of infections that occur annually, would be almost totally defenceless immunologically and so infection would spread rapidly

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<sup>61</sup> *ibid*, p. 244.

<sup>62</sup> Ministry of Health, *Public Health and Medical Subjects No. 4*, p. 321.

<sup>63</sup> Rice, *Black November*, p. 159.

throughout the population, meaning that there would be few left well enough to provide and care for the sick. Such a case was that of Labrador along the Atlantic coast of Newfoundland where, following the introduction of influenza by the mission ship 'Harmony', entire families of Eskimos died without any assistance ever arriving and their bodies were devoured by dogs.<sup>64</sup>

However, if lack of immunity caused by isolation was the main cause, then white rural communities would surely suffer higher mortality rates than their white urban neighbours and non-white urban communities would have greater immunological protection than their rural counterparts. The effects of influenza in rural communities will be considered in the next chapter, but the susceptibility of non-white urban communities to influenza does not seem to support Crosby's hypothesis entirely as, even in heavily populated areas, they still seemed more vulnerable to infection and generally suffered higher levels of mortality than their white European neighbours.

In India, a country with a large indigenous population as well as a considerable British presence both civil and military, Mills comments that the mortality level from influenza for low caste Hindus was 7.5 times higher than that for Europeans, death rates quoted being 8.3 per 1000 for Europeans and 61.6 for Hindus. Military figures show a similar though less extreme pattern with the death rate from influenza among Indian troops at 15.23 and among British troops at 8.81.<sup>65</sup> While in Brazil, South America, where influenza was introduced by the arrival of the ship, Demarara, 42 per cent more non-whites died than whites.<sup>66</sup>

Perhaps one of the most extreme examples, however, is that of South Africa where non-whites suffered significantly higher levels of morbidity and mortality than their European counterparts. In October 1918, Reuter reported that, 'the virulence of the disease amongst the non-white population was unprecedented', and that natives were being 'buried in batches hourly'.<sup>67</sup> Twelve days later an estimated mortality figure was reported: 'The approximate number of deaths from Influenza in Cape Town and suburbs from Oct. 1. To Oct. 3 inclusive was 5,000 of which it is estimated that 75 per cent were among the coloured people and natives.'<sup>68</sup> In December 1918, *The Times*,

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<sup>64</sup> Ministry of Health, *Public Health and Medical Subjects No. 4*, pp. 280-281.

<sup>65</sup> Mills, 'The Indian Experience', pp. 32-33.

<sup>66</sup> van Hertesveldt (ed.), *The 1918-1919 Pandemic of Influenza*, pp. 185-187.

<sup>67</sup> *Derby Daily Telegraph*, 7 October 1918, p. 3.

<sup>68</sup> *ibid*, 19 October 1918, p. 3.

reporting on the world death toll from influenza, commented that in Cape Town, 'the plague swept through the native areas like fire'.<sup>69</sup>

Howard Phillips cites the arrival in Cape Town in September 1918 of two troop ships, the Jaroslav and the Verone, as the source of infection. They had both docked in Freetown, Sierra Leone, one of the three sites identified as a point of origin of the second wave of influenza, and both had influenza on board amongst the returning troops and Labour Corps when they reached Cape Town.

As in other countries, once the infection had entered, it spread rapidly along communication routes. Within days the towns of Kimberley and Bloemfontein had been infected as well as the largely black, rural area of the Transkei from whence it travelled into the Transvaal and Natal. Phillips writes of dead bodies left lying in the streets for hours and corpses simply wrapped in blankets and buried in mass graves. The official figure for South Africa was 300,000 deaths in the space of six weeks, only 8 per cent of which were white. However, this figure was certainly inaccurate as the method of recording the deaths of blacks, where it existed at all, was haphazard according to Phillips.

An interesting contrast to this is Crosby's discussion of white immigrant communities in the USA, from Canada, Italy, Austria-Hungary, Poland and Russia with Italian Americans suffering very high mortality rates. Black Americans, however, despite desperate poverty and a history of much higher death rates from respiratory infections than whites, suffered less morbidity and mortality from the influenza pandemic of 1918-19. As yet there is no answer to this mystery beyond Crosby's suggestion that the black population, being more susceptible to influenza, contracted it in greater numbers during the milder first wave giving them a greater level of immunity when the virulent second wave occurred.<sup>70</sup>

With the exception of research conducted by S-E. Mamelund in Norway, published in 2003, there is currently no similar information on the mortality of ethnic groups living in Europe, including Britain, at the time of the influenza pandemic in 1918-19. Consequently, no comparison can be made regarding this issue at this time. There were, however, discrete communities living a more isolated life or separated from the

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<sup>69</sup> *The Times*, 18 December 1918, p. 5.

<sup>70</sup> Crosby, *America's Forgotten Pandemic*, pp. 228-229.

wider community in schools, hospitals, workhouses and similar situations and some of these will be examined in forthcoming chapters.

#### Military influenza deaths

Whilst establishing the number of civilian deaths from influenza and its complications is challenging, establishing the number of non-civilian deaths from influenza, particularly amongst troops on the battlefields of Europe, is almost impossible due to the confounding effects of war and the fact that so many soldiers were dying not only of wounds but also of various diseases. The use of gases on the battlefields, such as mustard gas, also caused considerable damage to respiratory organs, increasing the difficulty of specific diagnoses.

Furthermore, the release of such information would be of great advantage to 'the enemy' should it fall into their hands, as to know that an opposing force was being seriously disabled by infection may have a decisive effect on battle plans. Consequently, with little contemporaneous evidence in existence, no one to date has attempted to suggest a global figure for military personnel lost to influenza and such data that does exist in individual countries is likely to be open to question due to the difficulties of acquiring information of that kind during wartime as well as the efficiency of the processes involved.

Nevertheless, it is important to acknowledge that the death of so many young adults during the influenza pandemic of 1918-19 was not just a civilian problem. Military services the world over depend upon a plentiful supply of active young men and women for their survival and never more so than in wartime. In this respect, WWI was no different and thousands of young men from within the age group most at risk of heavy mortality during the pandemic were signing up or being conscripted to fight on both sides of the conflict. How many soldiers on active service actually died of influenza may never be known, but those who did would most likely have entered military records as casualties of war, rather than being added to the mortality statistics of victims of the influenza pandemic.

Certainly in Britain there was no equivalent record and analysis of military influenza mortality such as was compiled for the civilian population by the respective RGs. However, it was a matter of concern at the time and a question was raised in the

House of Commons by Viscount Woolmer in November 1918, the time of the second wave of influenza, regarding the extent of infection amongst British Army personnel in France and England and what was being done about it. Mr MacPherson, Under-Secretary of State for War, responded to the question by giving figures for hospital admissions and deaths from influenza and pneumonia amongst soldiers in England for September (October figures not being available) and such figures as he had for British soldiers in France for September and October. These figures are given in Tables 9 and 10 below.<sup>71</sup>

Table 9. Admissions to Hospital and Deaths from Influenza and Pneumonia Recorded for the British Army in the United Kingdom in September 1918.

	Admissions	Deaths
Influenza		
Officers	110	0
Other Ranks	2,791	18
Pneumonia		
Officer	20	0
Other Ranks	361	75

Table 10. Admissions to Hospital and Deaths from Influenza and Pneumonia Recorded for the British Army in France in September and October 1918.

	Admissions (September)	Deaths (September)
Pneumonia	92	24
	Admissions (October)	Deaths (October)
Pneumonia	2,702	1,044
Influenza	24,894	421

<sup>71</sup> Hansard, HC Deb 13 November 1918, vol. 110 cc2656-8; *Leicester Mercury*, 13 November 1918, p. 1.

Surprisingly, despite press censorship during war time and the need to maintain public morale, these figures were reported on the front page of the Leicester Mercury and on page 3 of the Nottingham Evening Post the same day.

However, with the end of WWI a much more revealing picture of the extent of the infection of British troops emerged with the publication in 1919 of the results of studies of influenza carried out in British military hospitals in France by the MRC during 1918. Table 11 shows the weekly admissions to the military hospital of influenza cases between May and August 1918, the period covering the first wave of the pandemic. This shows that in the BEF alone a total of 226,615 troops were hospitalised with influenza.

Table 11. Weekly Influenza admission to British Army Hospitals in France - May to August 1918.

British Expeditionary Force in France

Weekly Admissions: Epidemic of Influenza from Week Ending May 25, 1918 to Week Ending August 10, 1918.

25.5.18	1.6.18	8.6.18	15.6.18	22.6.18	29.6.18	6.7.18	13.7.18	20.7.18	27.7.18	3.8.18	10.8.18	total
11,001	10,624	16,186	29,880	40,471	46,275	31,693	14,344	10,086	5,675	4,966	5,414	226,615

Source: *Studies of Influenza in Hospitals of the British Armies in France*, 1918, p. 10.

Table 12 below shows the total number of admissions and deaths recorded from October 1918 to January 1919, the period covering the second wave of the pandemic, from Influenza and Broncho-pneumonia. It shows that by the end of the second wave of influenza, there had been a total of 93,670 cases of influenza and/or pneumonia in the BEF and 5,555 soldiers had died. Since many soldiers had been demobilised by the middle of January 1919 following the Armistice the previous November, the third wave of the pandemic was not recorded in military documents.

Table 12. Influenza in British Military Hospitals in France - October 1918 to January 1919.

Epidemic of Influenza (including cases diagnosed Broncho-Pneumonia). Total Admissions and Deaths from Week Ending October 12, 1918, to Week Ending January 18, 1919.

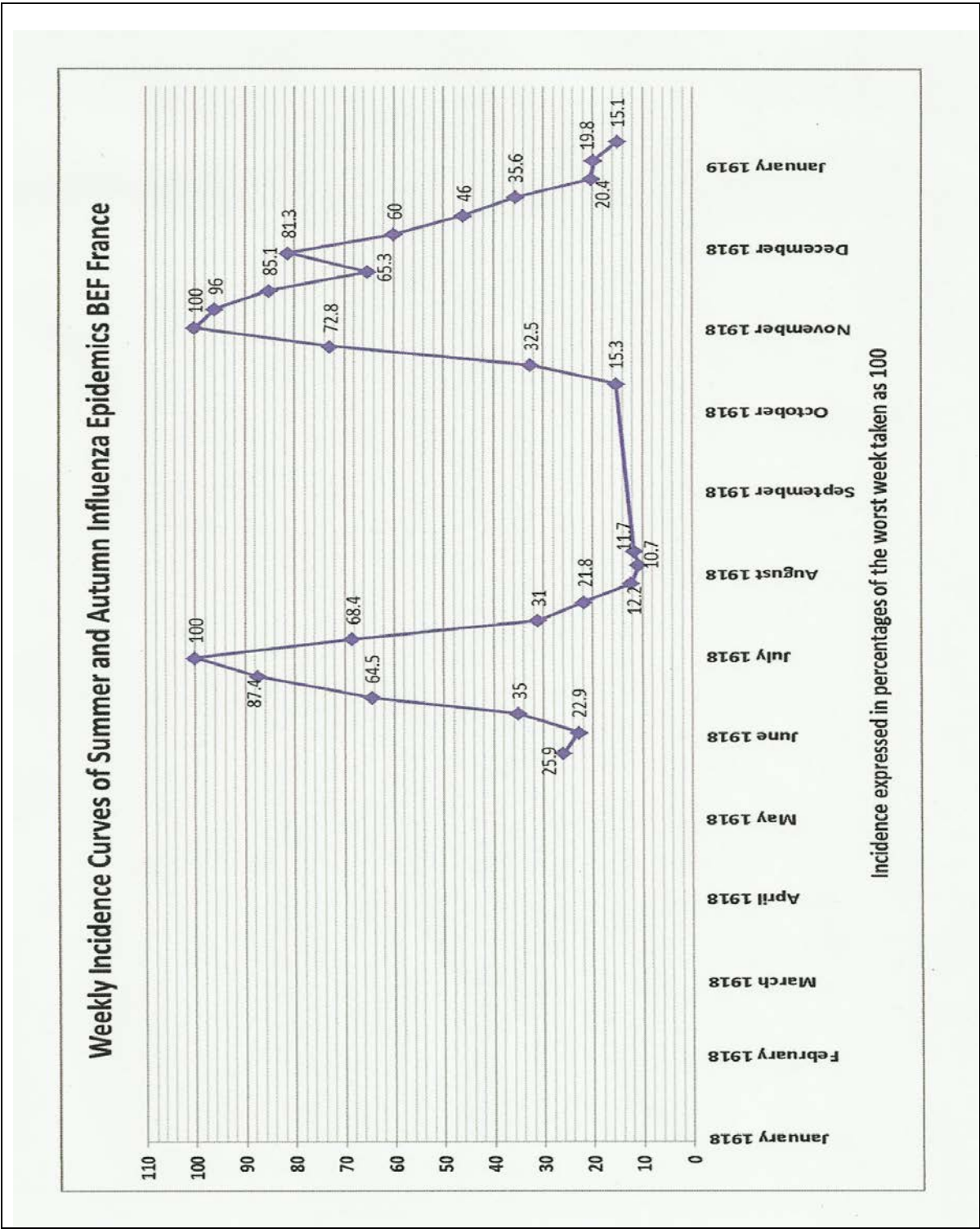
Week ending	Influenza		Broncho-Pneum.		Total		Weekly case mort.	Totals to date		Case mort to date
	NC	D	NC	D	NC	D		NC	D	
1918 Oct. 12	1,665	1	225	41	1,890	42	2.2	1,890	42	2.2
19	3,636	19	384	105	4,020	124	3.1	5,910	166	2.8
26	8,287	93	693	258	8,980	351	3.9	14,890	517	3.5
Nov. 2	11,306	308	1,029	457	12,335	765	6.2	27,225	1,282	4.7
9	10,846	507	1,006	484	11,852	991	8.4	39,077	2,273	5.8
16	9,407	421	748	412	10,155	833	8.2	49,232	3,106	6.3
23	7,339	337	720	344	8,059	681	8.5	57,291	3,787	6.6
30	9,400	327	634	274	10,034	601	6.0	67,325	4,388	6.5
Dec. 7	6,920	248	485	222	7,405	470	6.3	74,730	4,858	6.5
14	5,308	136	363	129	5,670	265	4.7	80,401	5,123	6.4
21	4,178	81	219	78	4,397	159	3.6	84,798	5,282	6.2
28	2,404	48	121	47	2,525	95	3.8	87,323	5,377	6.2
1919 Jan 4	2,348	28	100	28	2,448	56	2.3	89,771	5,433	6.1
11	1,767	30	97	40	1,864	70	3.8	91,635	5,503	6.0
18	1,925	29	110	23	2,035	52	2.6	93,670	5,555	5.9

NC = New Cases D = Deaths

Source: *Studies of Influenza in Hospitals of the British Armies in France*, 1918, p. 10.

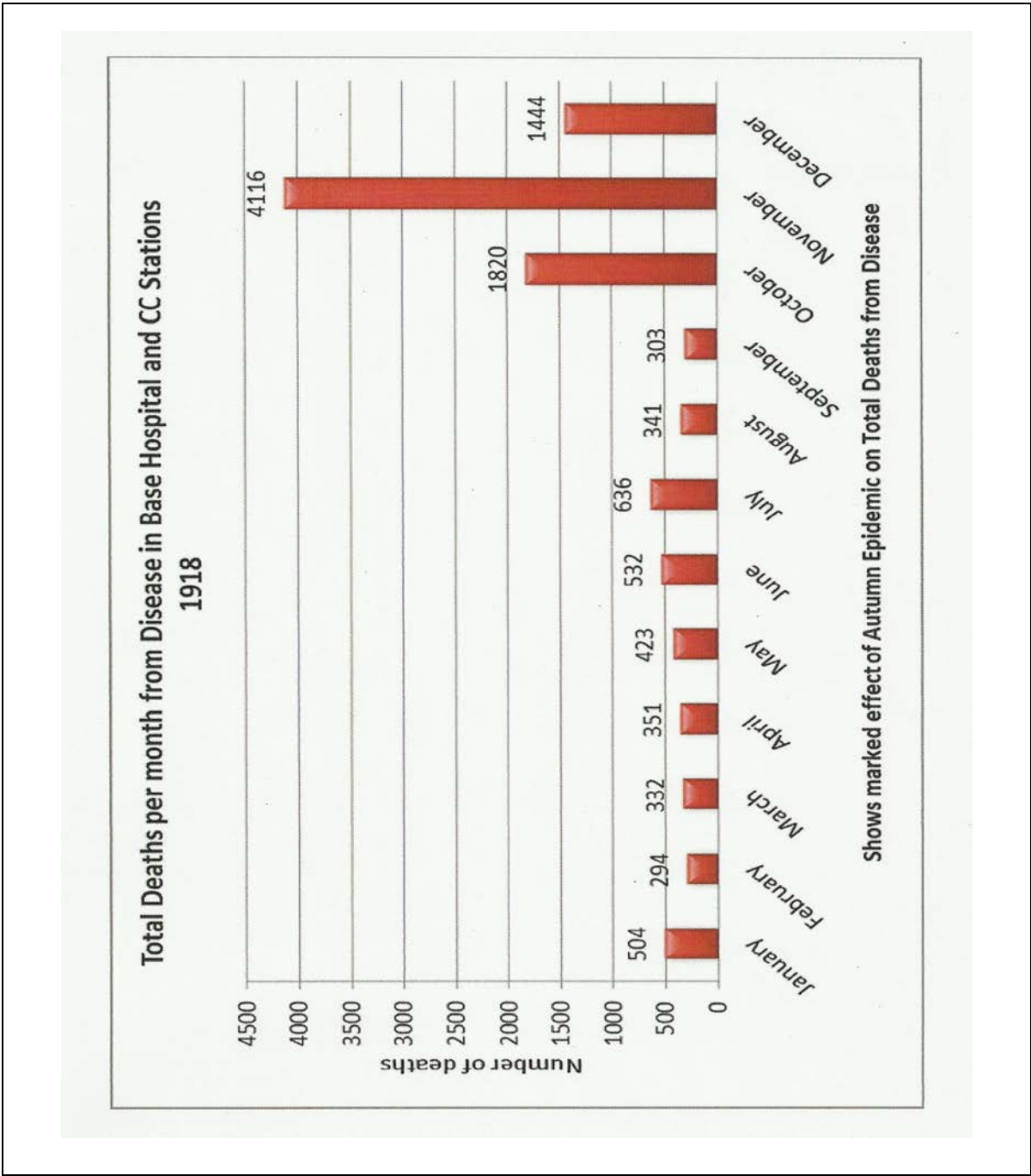
Figure 23 below shows the incidence of attack of influenza amongst the BEF in France between May 1918 and January 1919. When compared with Figure 24 which indicates the deaths per month from disease of soldiers in the base hospital and casualty clearing (CC) stations, it shows that although many soldiers were sick in the spring and summer months of 1918 there were relatively few deaths. However, during the second wave of the pandemic, again many soldiers were sick but this time the deaths in the hospital and clearing stations rose significantly.

Figure 23. Influenza in the British Expeditionary Force - May 1918 to January 1919.



Source: *Studies of Influenza in Hospitals of the British Armies in France*, p. 9.

Figure 24. Military Deaths from Disease in Base Hospital and Casualty Clearing Stations - January to December 1918.



Source: *Studies of Influenza in Hospitals of the British Armies in France*, p. 9.

Another valuable source of information on military deaths is the series of documents entitled *Soldiers Died in the Great War 1914-1918*, produced by the War Office in 1920, and covering all those who died in each regiment. Although influenza was not specifically cited as a cause of death, those who died from illness or accident were recorded in the lists as, 'd', rather than, 'k in a' for killed in action or, 'd of w' for died of wounds. The date and place of death were also indicated. Thus, it was possible to identify mortality that may have been due to influenza.

As the purpose of this study is to focus on the effects of the influenza pandemic on the East Midlands and its citizens, the documents for the Leicestershire Regiment and the Sherwood Foresters, were examined and specific data on soldiers who had died and which town they came from was extracted. Identifying the soldiers' home town was important as local regiments recruited across the country and after the Military Service Act of 1916, men would be sent to join any regiment in need of soldiers.<sup>72</sup>

This information was used to create Table 13 and Figure 25 below, to illustrate the level of non-combat mortality amongst men from the East Midlands in both regiments between January 1917 and January 1919. Covering this period allowed death rates for the year before the influenza pandemic to be compared to those when influenza was known to be prevalent, thus any significant rise in deaths during 1918 may be considered the possible result of influenza although this cannot be assumed.

Table 13. East Midlands' Soldiers who died in the Leicestershire Regiment and the Nottinghamshire and Derbyshire Regiment - January 1917 to January 1919.

The Leicestershire Regiment:

Jan 1917	F	M	A	M	J	J	A	S	O	N	D	Jan 1918	F	M	A	M	J	J	A	S	O	N	D	Jan 1919
3	13	13	10	8	5	12	5	5	4	3	7	5	2	5	2	16	15	31	5	21	78	47	6	1

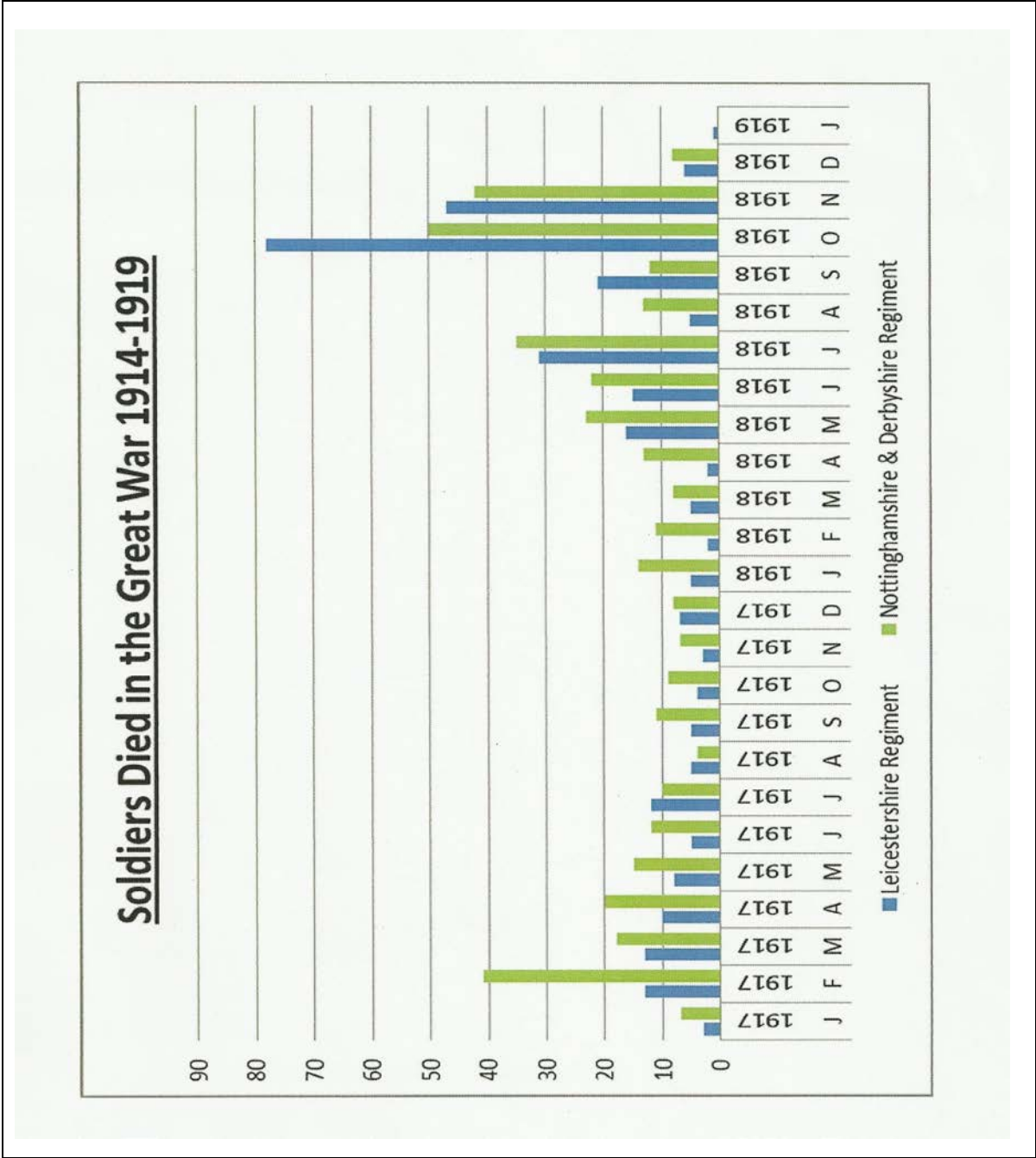
The Nottinghamshire and Derbyshire Regiment (Sherwood Foresters)

Jan 1917	F	M	A	M	J	J	A	S	O	N	D	Jan 1918	F	M	A	M	J	J	A	S	O	N	D	Jan 1919
7	41	18	20	15	12	10	4	11	9	7	8	14	11	8	13	23	22	35	13	12	50	42	8	0

Source: *Soldiers Died in the Great War 1914-19*, Parts 22 and 49.

<sup>72</sup> Why is my soldier not with a local regiment? <<http://www.1914-1918.net>>, accessed 24 May 2013.

Figure 25. East Midlands' Soldiers who died in the Leicestershire Regiment and the Nottinghamshire and Derbyshire Regiment - January 1917 to January 1919.



Source: Soldiers Died in the Great War 1914-19: Part 22, Leicestershire Regiment; Part 49, Nottinghamshire and Derbyshire Regiment.

As can be seen, the months of October and November, 1918, show significantly higher mortality levels for both regiments than in the same period the previous year and particularly so for the Leicestershire Regiment. This was the period when the virulent second wave of the influenza pandemic was at its height both in military and civilian populations. Other high points in 1918 were in May, June and July when the first wave of the pandemic was active. Whilst the Sherwood Foresters seemed to suffer slightly more than the Leicestershire Regiment during the first wave, the opposite is true in the second wave, particularly in October. It cannot be said conclusively that these figures are the result of the influenza pandemic. For example, the Sherwood Foresters suffered high mortality early in 1917, equivalent to that of November 1918, the cause of which is uncertain, nevertheless, the statistics are persuasive.

Further analysis of these figures also enabled the construction of Tables 14 and 15 which give a breakdown of the numbers of soldiers in each of the battalions of the Leicestershire and Nottingham and Derbyshire Regiments who suffered non-combat deaths, thereby indicating which battalions appeared to suffer most from the 'deaths' of its men and what proportion of the soldiers who died were from the East Midlands or from elsewhere.

The tables show that the Leicestershire Regiment lost a total of 322 men during the 2 years from January 1917 to January 1919, 234 of these being in 1918 as opposed to only 87 in 1917. While the Sherwood Foresters lost a total of 413 men, 251 in 1918 and 162 in 1917. Just over half of the total deaths were of men from the East Midlands in both cases.

The battalions suffering the highest number of deaths can also be seen, these being the 2<sup>nd</sup>, 6<sup>th</sup>, 7<sup>th</sup> and 8<sup>th</sup> battalions in the Leicestershire Regiment and the 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>, 13<sup>th</sup> and 53<sup>rd</sup> battalions in the Sherwood Foresters. Most of these battalions served in France during 1918 except for the Leicestershire 2<sup>nd</sup> Battalion which spent some time in the Middle East and the Sherwood Foresters' 13<sup>th</sup> and 53<sup>rd</sup> Battalions which were stationed in the United Kingdom.

Consequently, when cross referenced with known data about the location and prevalence of the influenza pandemic at those times, this would give an indication of the likelihood of at least some of the deaths being associated with the pandemic.

However, further research with named soldiers' families, if they can be located and are willing, may be the only way to establish if these men were, in fact, victims of the pandemic, especially as so many military medical records have now been destroyed.

A more complete picture of how many soldiers from the East Midlands (as well as other regions) may possibly have died as the result of the pandemic would also require a similar process to be carried out with the documents for the other regiments in the British army as many men from the East Midlands may have chosen to join other regiments or may have been sent there following conscription

Table 14.

Analysis of Number of Deaths in the Leicestershire Regiment 1917-1919

Total Deaths - Battalion		1917-1919		1917		1918		1919
		LND	other	LND	other	LND	other	LND/Other
1 <sup>st</sup>	19	13	6	4	2	9	4	0
2 <sup>nd</sup>	33	23	10	13	6	10	4	0
3 <sup>rd</sup>	19	14	5	2	3	12	2	0
1/4 <sup>th</sup>	4	4	0	1	0	3	0	0
2/4 <sup>th</sup>	13	2	11	0	1	2	10	0
4 <sup>th</sup> R	12	9	3	2	0	7	3	0
1/5 <sup>th</sup>	11	8	3	4	3	4	0	0
2/5 <sup>th</sup>	6	3	3	3	2	0	1	0
6 <sup>th</sup>	32	10	22	1	3	9	19	0
7 <sup>th</sup>	58	31	27	2	2	29	24	1 (other)
8 <sup>th</sup>	69	31	38	3	3	28	35	0
9 <sup>th</sup>	6	3	3	1	3	2	0	0
10 <sup>th</sup>	3	2	1	1	1	1	0	0
11 <sup>th</sup>	15	6	9	2	2	4	7	0
12 <sup>th</sup>	4	0	4	0	4	0	0	0
13 <sup>th</sup>	2	0	2	0	1	0	1	0
14 <sup>th</sup>	2	0	2	0	0	0	2	0
Depot	11	8	3	8	3	0	0	0
1 <sup>st</sup> Gar	3	1	2	1	0	0	2	0
Grand Totals	322	168	154	48	39	120	114	1

R = Reserve      Gar = Garrison      LND = Leicestershire, Nottinghamshire, Derbyshire

Table 15.

Analysis of Number of Deaths in the Nottinghamshire and Derbyshire Regiment 1917-1919

Total Deaths - Battalion		1917-1919		1917		1918		1919
		LND	other	LND	other	LND	other	LND/Other
1 <sup>st</sup>	39	21	18	10	4	11	14	0
2 <sup>nd</sup>	36	22	14	8	2	14	12	0
3 <sup>rd</sup>	24	13	11	3	3	10	8	0
4 <sup>th</sup>	10	5	5	2	2	3	3	0
1/5 <sup>th</sup>	10	6	4	4	2	2	2	0
2/5 <sup>th</sup>	16	9	7	3	0	6	7	0
5 <sup>th</sup> R	8	5	3	0	2	5	1	0
1/6 <sup>th</sup>	9	6	3	5	1	1	2	0
2/6 <sup>th</sup>	20	12	8	0	0	12	8	0
1/7 <sup>th</sup>	11	5	6	5	4	0	2	0
2/7 <sup>th</sup>	19	8	11	0	4	8	7	0
7 <sup>th</sup> R	7	0	7	0	0	0	7	0
1/8 <sup>th</sup>	17	10	7	5	1	5	6	0
2/8 <sup>th</sup>	10	6	4	5	3	1	1	0
9 <sup>th</sup>	12	7	5	5	4	2	1	0
10 <sup>th</sup>	21	9	12	4	4	5	8	0
11 <sup>th</sup>	12	6	6	3	3	3	3	0
12 <sup>th</sup>	9	7	2	3	0	4	2	0
13 <sup>th</sup>	24	10	14	1	6	9	8	0
14 <sup>th</sup>	1	1	0	1	0	0	0	0
15 <sup>th</sup>	13	5	8	1	3	4	5	0
16 <sup>th</sup>	11	8	3	5	1	3	2	0
17 <sup>th</sup>	11	4	7	4	2	0	5	0
20 <sup>th</sup>	5	1	4	1	4	0	0	0
21 <sup>st</sup>	1	0	1	0	1	0	0	0
51 <sup>st</sup>	3	2	1	1	1	1	0	0
52 <sup>nd</sup>	10	3	7	3	7	0	0	0
53 <sup>rd</sup>	26	14	12	4	7	10	5	0
Depot	8	5	3	1	1	4	2	0
1 <sup>st</sup> Gar	10	2	8	1	2	1	6	0
Grand Totals	413	212	201	88	74	124	127	0

R = Reserve      Gar = Garrison      LND = Leicestershire, Nottinghamshire, Derbyshire

With regard to regimental war diaries, although there was no reference to an influenza outbreak in the diaries of the Leicestershire Regiment, there was a brief reference to influenza in the Sherwood Foresters. This was in the diary of the 3<sup>rd</sup> Midland Infantry Brigade: 52<sup>nd</sup> Battalion, which served on the front lines in France, Belgium and Germany. However, it was at Welbeck Camp near Worksop in Nottinghamshire during July 1918 when the following comment was written: 'About this time quite an alarming epidemic of influenza broke out in camp. Steps to be taken to isolate the cases. There were no serious results.'<sup>73</sup>

Clearly this indicates the very contagious but less lethal first wave of the influenza epidemic which was infecting the camp. In another regimental diary, that of the 14<sup>th</sup> Cavalry Brigade: 1<sup>st</sup> Nottinghamshire and Derbyshire Yeomanry, Sherwood Rangers, which was Part of the Egyptian Expeditionary Force, there was reference to a very contagious disease breaking out during July and August and, although influenza was not mentioned by name, the description suggests that this may have been what it was. The commanding officer was concerned enough to log daily those officers and other ranks who were affected, whether they were admitted to hospital and when they returned to duty and details of this log can be seen in Appendix A. The commanding officer completed his diary for August 1918 with the following comments:

The first half of the month was spent at Ghoraniyeh Bridgehead. An exceptionally high percentage of men went sick during the month the majority of the cases being a form of high fever. From 1/8/18 to 14/8/18 at Ghoraniyeh 314 men reported sick, 86 were admitted to hospital; from 14/8/18 to 31/8/18 at Deiram 256 men reported sick 70 were admitted to hospital.<sup>74</sup>

Again this could possibly be the very contagious first or summer wave of influenza that is being described here. Vaughan, states that influenza first appeared in Egypt with the Egyptian Expeditionary Force in May 1918. However, it is possible that this is the influenza Vaughan is referring to as there is no reference to a similar outbreak of contagion in earlier diaries.

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<sup>73</sup> November 1917-July 1919, entry for 14 July 1918, WO 95/1626/11, London, TNA

<sup>74</sup> July 1918-August 1919, entries for August 1918, WO 95/4519, London, TNA

The above discussion has brought together information from a wide variety of international, national and regional sources, both official and unofficial, to enable a consideration of the levels of morbidity and mortality experienced by citizens of the East Midlands and to make comparison with experiences elsewhere in Britain and overseas. It has also explored possible levels of morbidity and mortality in part of Britain's military forces with particular emphasis on the Leicestershire Regiment and the Sherwood Foresters.

What this has shown is that, in global terms, there were many countries around the world that suffered much more extensively from the influenza pandemic than Britain, especially small, remote, island nations, countries in the developing world and those under colonial rule. The reasons for this are unclear as information is very limited and the effects of the pandemic seemed to vary across different locations, but levels of poverty and deprivation together with a lack of acquired or inherited immunity, particularly amongst non-white populations, may be involved and this will be examined in more detail in the next chapter.

In Britain, the north certainly suffered high levels of influenza mortality but so too did the East Midlands, with Nottingham and Leicester amongst the most seriously affected by the pandemic in England and Wales; Derby suffering rather less over the whole course of the outbreak. The towns in excess of 20,000 population in these three counties were affected to differing extents in each of the three waves of the influenza pandemic, with Worksop and Sutton-in-Ashfield in Nottinghamshire, Chesterfield and Ilkeston in Derbyshire and Loughborough in Leicestershire suffering high levels of mortality at various times during the pandemic's prevalence, while other towns, such as Glossop, seemed almost to have been bypassed. Overall, however, East Midland citizens, endured some of the highest mortality levels in the country.

With regard to the unique age pattern of the 1918-19 influenza pandemic, figures for age incidence in the East Midlands were only available for Leicester due to the survey undertaken in 1919 but they show that the experience here was very similar to that of the northern towns surveyed, with high mortality in the 18 to 45 age group. As this distinctive age pattern has been reported from countries across the globe and recorded in the RG's Supplement and the Ministry of Health's Report in 1920, announcements in the local press and in many modern accounts, it is clear that the

East Midlands' experience was in line with that of other regions across Britain and countries around the world.

Levels of influenza related mortality amongst pregnant women in Britain will not be open to investigation until medical records become available to view in 2018. The few newspaper reports quoted and the recollections of those correspondents of Richard Collier are currently all that is available. However, as the dangers of influenza infection in pregnancy are well known, it is probable that the experience of women in the East Midlands will also be in line with that of women in other countries where statistics have been made available.

With regard to non-white inhabitants of the East Midlands in 1918-19, Britain was at that time still at the head of an extensive empire and it is very likely that there were people of African and Asian heritage living in Britain, perhaps as domestics in wealthy houses or living and working in other situations. Although there was no mention of this in records and accounts consulted for this study, the release of medical records may again help to fill this gap and provide information for future research on this issue.

As to military mortality from influenza and its complications during the pandemic, data in the RG's report together with that from military hospitals in France produced by the MRC give an indication of the extent to which serving soldiers were affected. Naturally a percentage of these soldiers would have been from the East Midlands although actual statistics for soldiers from specific regions, may not be possible to obtain. However, the deaths of named soldiers in the Leicestershire Regiment and the Sherwood Foresters during the pandemic which were not due to battle were recorded by the War Office and approximately half of these were from the East Midlands. Furthermore, comments in regimental war diaries confirm that influenza was present amongst East Midlands' troops in England and possibly in Egypt in the summer of 1918.

Having considered some aspects of the morbidity and mortality of soldiers and of civilians in urban settings, the next chapter focuses on the experience of those living in small towns and rural areas where the influenza pandemic had fewer hosts to infect but where those hosts may have had weaker immunity due to their more isolated

lives. The issue of socio – economic status and its possible link to pandemic mortality will also be explored.

## CHAPTER 3

### Town and Country; Rich and Poor

In his book on the social history of influenza, Tom Quinn explains that as early as 1803 it was understood that influenza preferred a crowded urban setting. He cites the notes made by a Dr Callum in Ireland commenting on the influenza outbreak of that year, in which he observed that '...the disease was prevalent in cities and towns before reaching neighbouring villages, and that when they were infected country people generally seemed harder hit than townsfolk'.<sup>1</sup> Quinn goes on to say that this view was confirmed during the 1918-19 pandemic and it is almost certain that town-dwellers enjoy a greater immunity by their constant exposure to infectious disease, an immunity not given to country folk by virtue of their more isolated existence.

Rurality and its association with isolated living conditions was one of the many issues examined by politicians and medical scientists immediately following the influenza pandemic and by historical researchers in more recent times, in an effort to explain the virulence and spread of the disease and its impact on different communities. Another area of investigation was that of socio-economic status and whether low incomes and poor living conditions bore any responsibility for the shocking levels of morbidity and mortality associated with the outbreak.

This chapter will explore the inquiries and analyses conducted and views expressed on these issues in the media and in the official documents of the time as well as those in modern histories and research from Britain and elsewhere, to ascertain if these circumstances made rural or low status communities more susceptible to the disease than their wealthy urban neighbours. A comparison will then be made with the experience of similar communities in the East Midlands.

That epidemic disease, such as influenza, does appear to be prevalent in urban settings before spreading out to the surrounding, less populated rural areas, has been explored in the earlier discussion on diffusion by means of hierarchies and contagion and has also been noted by history researchers from a number of countries.<sup>2</sup> However, the issue of possible greater immunity from diseases for those living in

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<sup>1</sup> Quinn, *Flu: A Social History of Influenza*, p. 86.

<sup>2</sup> See McCracken and Curson in Phillips and Killingray.(eds.), *The Spanish Influenza Pandemic of 1918-19*, p. 126.

towns and cities as compared to those in the countryside due to their more regular exposure to infection is more complex than simply comparing crude death rates. This is because of the number of confounding factors involved,<sup>3</sup> such as levels of poverty, sanitation, general health, domestic overcrowding, housing, education, occupation and similar variables, combinations of which may be found in both urban and rural populations.

### Ethnicity

The validity of Quinn's comments in the European setting, will be explored later in this chapter, but in the global setting the issues surrounding differences in influenza mortality levels between rural and urban settlements often involved the additional confounding factor of ethnicity, particularly where lands had been subject to colonisation by European or other powers and where the native inhabitants or other ethnic communities were subjected to racism and exploitation.

There are many accounts from countries around the world of poverty-stricken ethnic communities, both rural and urban, living in deplorable conditions and suffering extraordinary levels of mortality in the influenza pandemic. South Africa is a good example of one country where the non-white population was severely affected by the infection and although it has already been noted that many non-white communities seemed to be naturally more susceptible to the infection than their white neighbours, it is also the case that most lived in extreme poverty. For example, Howard Phillips describes how the black population in the rural Transkei area died in their thousands leaving farms untended, resulting in serious implications for food production and distribution<sup>4</sup> Official figures reported 30,000 black deaths out of a population of one million living in the Transkei but Phillips states this was far from the true figure as there was no established method for registering black deaths at that time.

Furthermore, black urban populations in South Africa were no better off. Phillips states that living conditions in Cape Town, where 60 per cent of the inhabitants were non-white, were appalling, particularly around the docks. With the population expanding rapidly during the war years, inhabitants were 'crammed into overcrowded

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<sup>3</sup> S-E. Mamelund, 'Spanish Influenza Mortality of Ethnic Minorities in Norway 1918-1919', *European Journal of Population*, 19/ 83-102 (2003), p. 83.

<sup>4</sup> Phillips, *Black October*, p. 81.

and unsanitary houses and tenements'.<sup>5</sup> Influenza spread rapidly, killing over 4,300 people, 75 per cent of whom were non-white.

Even Bloemfontein, with its reputation for being 'the cleanest and healthiest city in the union'<sup>6</sup> and which prided itself on its lack of slums, still endured a severe attack of influenza during the course of which 1,291 people died according to official records, 398 white and 893 black.<sup>7</sup> Many black and coloured South Africans worked as servants in wealthy houses where living conditions were likely to have been better than most non-whites would have enjoyed, but they still suffered much heavier losses. This could be confirmation that certain ethnic communities appeared more susceptible to the infection than those of white European heritage or it could be an indication that servants lived in much less salubrious conditions than their employers, an issue also raised by Zylberman when discussing high levels of mortality amongst maids in Paris.<sup>8</sup>

In New Zealand, accounting for the high level of Maori mortality during the influenza pandemic, the full extent of which is still unknown, Geoffrey Rice echoes Quinn and Alfred Crosby when he suggests one reason for Maori mortality was that they were mainly rural and lived in small, remote settlements which isolated them from the annual round of infections which urban dwellers were exposed to and this reduced their immunity. However, he also makes reference to the lower standard of living of the Maori, many of whom still lived in traditional rush built dwellings (whare) with a beaten earth floor which could become damp after rain. He suggests that this, together with overcrowded sleeping conditions and poor diet and hygiene lowered their resistance to disease.<sup>9</sup>

Many reports of workers living in slum conditions on the margins of society and with little or no support can be found in other accounts. David McCreery describes the desperate living conditions of the indios of Guatemala, the dispossessed indigenous peoples of the country, who were used as cheap labour on the coffee plantations and were often blamed for the spread of diseases, including influenza. McCreery states a combination of poor nutrition, endemic disease and parasites together with the

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<sup>5</sup> Phillips, *Black October*, p. 11.

<sup>6</sup> *The People's Weekly*, 9 November 1918, Editorial, cited in Phillips, *Black October*, p. 58.

<sup>7</sup> *ibid.*, p. 68.

<sup>8</sup> P. Zylberman, in Phillips and Killingray (eds.), *The Spanish Influenza Pandemic of 1918-19*, p. 199.

<sup>9</sup> Rice, *Black November*, pp. 160-165.

brutality of forced labour and general wretchedness of their existence weakened them and made them particularly susceptible to the influenza virus.<sup>10</sup>

Virologist, Edward Kilbourne expressed similar views in describing conditions in Rio de Janeiro, Argentina, where the non-white population occupied the lowest extremity of the city's socio-economic structure and had suffered mortality from the influenza pandemic 42 per cent higher than that of the white population. He declared 'Poverty itself constitutes an added environmental burden and increases the risk of mortality.'<sup>11</sup>

Certainly some of the social practices and religious beliefs of ethnic groups were unhelpful but communities shunned by other, more privileged sections of society and denied basic health and social care, had little option but to rely on their own methods. Furthermore, Phillips records how the non-white population in South Africa was suspicious of the white community when they did try to help; some thought the white relief workers had actually come to kill them and the prospect of 'white' medicine and hospitals was totally rejected.<sup>12</sup> Many preferred to use traditional folk remedies which, bearing in mind the ineffectual nature of anything the white doctors could offer them, probably did just as much good. However, while in New Zealand the Maori remedy was largely a combination of herbs and prayer,<sup>13</sup> in South Africa, employing the services of a witch-finder to identify the ones to blame for the disaster was a more unfortunate tactic which increased as the death rate rose and resulted in some brutal attacks on innocent victims.<sup>14</sup>

In cases such as these, therefore, the high levels of mortality experienced would seem to be, at least in part, the combination of privations which the victims endured irrespective of whether they were in rural or urban settings. In such situations and particularly where victims lived in remote rural settlements isolated from the resources to be found in towns and cities or where they lived in the slum areas of towns where service providers would not venture, or where the price demanded for supplies was beyond their meagre means, sickness could easily be accompanied by

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<sup>10</sup> D. McCreery, in Hartesveldt (ed), *The 1918-1919 Pandemic of Influenza*, p. 172.

<sup>11</sup> E. D. Kilbourne, 'Epidemiology of Influenza' *The Influenza Viruses and Influenza*, (1975), cited in van Hartesveldt (ed.), *The 1918-1919 Pandemic of Influenza*, pp. 189-190.

<sup>12</sup> H. Phillips, *Epidemics*, (Ohio, 2012), p. 71.

<sup>13</sup> Rice, *Black November*, p. 165.

<sup>14</sup> Phillips, *Epidemics*, p. 77.

neglect and starvation if there was no one well enough in the family or community to provide care.

#### Rural protection

However, a study from New Zealand, conducted by Kirsten McSweeney et al and published in 2007, examined the possibility that rurality actually offered a degree of protection from the influenza pandemic of 1918, indeed, they refer to the fact that some communities managed to escape infection altogether by a combination of remoteness and regulations. Such an example was the island of St Helena in the Atlantic Ocean, which received no shipping during the pandemic and was one of the few places in the world known to have escaped infection.<sup>15</sup>

Their research focused on the European population only and used statistics taken from death certificates and the 1916 census. The areas investigated were cities (population in excess of 20,000), large towns (population over 2,000), small towns (population less than 2,000) and counties (rural areas). From their investigations they constructed the following table of results for the period October to December 1918.<sup>16</sup>

Table 16. Mortality Rates in Cities, Towns and Counties during the Influenza Pandemic in New Zealand (European only) - October to December, 1918.

Population grouping (N)	Deaths (N)	Population (N)	Mortality rate (per 1000 population per 3 months) **	Mortality rate ratio (95% CI)
Cities (4)	2616	404 916	6.5	1.96 (1.83-2.09)
Large towns (26)	1162	157 554	7.4	2.21 (2.04-2.40)
Smaller towns (85)	862	95 362	9.0	2.74 (2.51-2.99)
Counties* (97)	1213	367 358	3.3	1.00 (Reference)

\*These are counties exclusive of any towns associated with them.

\*\*For the 3-month period: October to December 1918.

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<sup>15</sup> Phillips and Killingray. (eds.), *The Spanish Influenza Pandemic of 1918-19*, p. 4.

<sup>16</sup> K. McSweeney et al, 'Was rurality protective in the 1918 influenza pandemic in New Zealand?' *The New Zealand Medical Journal*, 120/1256 (2007), p. 45.

The authors explain that this shows the mortality rate for the towns and cities was more than twice that experienced in the rural county areas but they add the cities had a lower mortality rate than the large towns and the large towns had a lower mortality rate than the small towns. They explain the low mortality rate of the counties by suggesting that rural dwellers may have been protected from infection due to much more limited person to person contact and restricted spread of infection from the towns to the countryside. However, they also suggest that the higher rates of mortality in the urban areas may reflect higher case-fatalities due to poverty. The surprising pattern of mortality between the cities and the large and small towns they suggest possibly represents better community and medical care and more resources available in cities than smaller urban settlements.

The authors acknowledge the limitations of their study as variables such as age, sex, socio-economic status and data relating to the Maori population were not taken into account. However, they do suggest a link between the Maori experience and the higher mortality rate of small towns; Maori settlements, being more like small towns than isolated farmsteads. Furthermore, a similar finding in Australia also supports the idea of rural protection. Kevin McCracken and Peter Curson, exploring the effects of 'Flu downunder', noted in their analysis of influenza mortality rates for New South Wales according to occupation, that those involved in primary production had the lowest rate.<sup>17</sup>

#### Occupational risk

The Australian result with regard to possible rural protection was part of a larger study focusing on the influence of socio-economic factors on influenza mortality in Sydney during the pandemic. In it McCracken and Curson describe how Sydney was becoming increasingly industrialised in 1919 which was transforming the way that the inhabitants lived and worked, the development of extensive tram and railway systems encouraging the emergence of suburbs which tended to cluster around railway stations and along the coast. They point out, however, that the poorer, working class citizens continued to dwell in old tenements in the inner city, 'notorious for their noxious living and working conditions', as opposed to the 'detached cottages' inhabited by the new middle-class.<sup>18</sup>

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<sup>17</sup> In Phillips and Killingray (eds.), *The Spanish Influenza Pandemic of 1918-19*, p. 124.

<sup>18</sup> *ibid*, p. 112.

They go on to highlight the possible higher risk of influenza infection posed by some occupations, such as those involving close contact with the public, by reference to the demand for extra pay by Sydney tram workers. The claim was rejected on the grounds that every section of the community was deemed to be under the same risk of attack, but McCormack and Curson argue that the risk was not equal for everyone as indicated by differences in incidence according to age and sex. They assert that some occupational groups suffered greater morbidity and mortality than others and that surveys conducted after the pandemic indicated that people working in shops and offices, banks, factories and on trams and railways suffered particularly badly. Furthermore, in addition to 'direct on-the-job risk factors',<sup>19</sup> they point to risks associated with poorly paid, low status jobs done by those at the bottom of the social ladder and the poor housing, diet, health and domestic overcrowding related to that.

Consequently, they turned to testing mortality differences through an analysis of a number of variables, including population density and crowding, population mixing and socio-economic status based on housing and occupational status, with the Standardised Mortality Rates (SMR) of the pandemic. The strongest associations they discovered were with the socio-economic factors and domestic density (persons per room) with the working class and particularly those employed in manual labour such as manufacturing and mining suffering the highest mortality rates.

In many countries, therefore, the issue of rurality and whether it offered communities protection from or increased the severity of influenza infection varied greatly, according to such factors as, the extent and effectiveness of communication networks, levels of available services and nursing care, and ethnicity and negative attitudes towards those of a different culture. Socio-economic status was also an intrinsic part of this picture and again, those with the lowest paid jobs and poorest standards of living were often from indigenous ethnic communities.

Nonetheless, studies conducted in New Zealand and Australia which primarily involved communities of white European heritage, did reveal some interesting points: the possibility that rurality may offer some protection against infectious diseases such as influenza by limiting or even preventing social contact; the likelihood that some jobs may be more conducive to influenza infection than others; and the possible greater

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<sup>19</sup> *ibid*, p. 124.

suffering experienced during the pandemic by the poor working classes living in crowded conditions in industrial towns.

#### Rurality in Europe

In Europe, the issue of the severity of the influenza pandemic being affected by the location and living standards of the victims tended not to be complicated by the question of ethnicity and the effects of colonial power. This is not to suggest that communities of different racial backgrounds were not present in Europe at this time, but that any statistics compiled referred only to indigenous populations.

Furthermore, in many European countries, as previously mentioned, details relating to the effects of the influenza pandemic were extremely difficult to obtain at the time either due to the war or other social or political upheavals. Russia, for example, was still suffering the effects of the civil war and countries such as Germany, Belgium and Austria were severely affected by WW1 so little information was emerging from those areas.

Nevertheless, the Ministry of Health report did include brief statements and some statistics relating to mortality in Europe and which communities had been badly hit by the influenza pandemic, although these focused on urban settlements, that is, named towns and cities. Consequently, though some reference to rural settings can be inferred when figures for whole countries are given, separate statistics were not provided, making any comparison of influenza mortality between urban and rural settlements impossible by means of this source.

Despite this, recent research has cast some light on these issues. For example, in an examination of the pandemic in Spain, Beatriz Echeverri records that 'The working classes were especially affected, in particular the two thirds of the population involved in agriculture.'<sup>20</sup> However, amongst the most significant recent research on the effects of both rurality and socio-economic status has been that conducted by S-E Mamelund of Oslo University, exploring factors which might have affected the impact of the influenza pandemic on specific communities (including ethnic minorities) in Norway, a neutral country largely unaffected by the war. In his Masters' thesis in 1998, in which he examined the diffusion of the 1918-19 influenza pandemic across Norway,

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<sup>20</sup> In Phillips and Killingray (eds), *The Spanish Influenza Pandemic of 1918-19*, p. 174.

Mamelund concluded that urban and coastal areas and areas well served by communications networks suffered much more severely during the pandemic than did rural, isolated and inland areas.<sup>21</sup>

In 2002, Mamelund went on to examine the impact of the pandemic on two rural, ethnic minority communities in Norway, one, known as the Sami or Lapps, and the other, the Finnish immigrants known as the Kven. Both communities worked mainly in farming and fishing, although 10 per cent of the Sami were still nomadic reindeer herders, moving between winter and summer grazing in the mountains and along the coast.

Mamelund's results revealed that the Kven suffered a level of influenza mortality approximately equal to the majority Norwegian population whereas the Sami suffered significantly more. From this he concluded that the Kven had the advantage of inherited (from their Finnish ancestors) or acquired immunity due to their tendency to associate more freely with mainstream society, whereas the isolated, nomadic existence of the Sami, which allowed for little wider social contact, made them a 'virgin soil population' especially vulnerable to influenza infection if exposed.<sup>22</sup>

In comparing the findings of Mamelund with those of McSweeney et al and McCracken and Curson, results would, therefore, seem to suggest that rurality may only offer protection if the separation from others can be maintained until the danger has passed, in other words, act as a kind of quarantine. If not, then any possible benefits are likely to be forfeit unless some immunity has been gained through, for example, exposure to the usual round of seasonal infections through a sufficient level of social contact.

#### Social class in Europe

In 2005, Mamelund examined the generally accepted idea that the influenza pandemic of 1918-19 attacked all classes of people without exception and was 'remarkably democratic in its victims'.<sup>23</sup> To do this he studied two parishes in the capital of Norway, Kristiania (Oslo), with very contrasting socio-economic populations. The parishes were Frogner to the west of the capital, the district where the 'industrial elite'

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<sup>21</sup> Cited in Johnson, *Britain and the 1918-19 Influenza Pandemic*, p. 59.

<sup>22</sup> Mamelund, 'Mortality of Ethnic Minorities in Norway 1918-1919', p. 97.

<sup>23</sup> S. M. Tomkins, 'The Failure of Expertise: Public Health Policy in Britain during the 1918-19 Influenza Epidemic', *Social History of Medicine*, 5/453-54 (1992), p. 446.

had resided since the mid-nineteenth century in order to avoid the industrial pollution and shabby, cramped dwellings of the working classes in the inner-city, and Grønland-Wexels to the east where a largely poor working-class community lived.<sup>24</sup> He further notes that the average income for Frogner residents was more than six times higher than that of the Grønland workers.

To establish the difference in the effect of the influenza pandemic on these two communities Mamelund included a number of variables in his study, which were, age, marital status, social class, of which he identified three, described as bourgeois, middle class and working class, and size of the apartment lived in in terms of number of rooms. The final variable he held to be an indicator of income since the larger the apartment the higher the rent and the social class variable he used as an indicator of education.

The outcome of his study showed that influenza mortality was 19 to 25 per cent lower in the upper two social classes than it was in the working class with the number of rooms in the living space being particularly significant; those with two, three and four roomed apartments benefiting by 34, 41 and 56 per cent lower mortality respectively than those living in a one-roomed apartment.

Overall, Mamelund reports that mortality from the influenza pandemic of 1918-19 was 49 per cent higher in Grønland-Wexels, which he describes as 'one of the most deprived parishes in the Norwegian capital in 1918' <sup>25</sup> as compared to Frogner which was one of the wealthiest. His explanation for this included reference to poor diet which, he argued, weakened the immune system and made victims more susceptible to influenza and its complications. He also cited other respiratory diseases which impaired lung function such as bronchitis, asthma and cystic fibrosis which were prevalent amongst poor workers and increased the risk of a fatal outcome from influenza infection.

Furthermore, he noted that greater wealth brought with it more opportunity to take time off once infected and to remain convalescent until fully recovered, thereby reducing the chance of relapse and serious secondary infections. Wealth also

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<sup>24</sup> S-E. Mamelund, 'A socially neutral disease? Individual social class, household wealth and mortality from Spanish influenza in two socially contrasting parishes in Kristiania 1918-19', *Social Science and Medicine*, 62 (2006), p. 925.

<sup>25</sup> *ibid*, p. 935.

provided the means to invest in private insurance and health care. Consequently, Mamelund argues that the influenza pandemic was not classless but affected the poor much more than the wealthy.

More recently, Caitriona Foley, researching the impact of the influenza pandemic in Ireland, expressed very similar views. Acknowledging that wealth did not prevent influenza infection and that people from all social classes could be affected by it, she, nonetheless, states that 'The flu presented a powerful picture of social inequality when it came to sickness and death and class differences were an unmistakable factor in mortality trends'.<sup>26</sup> Supporting Mamelund's findings, Foley concurs that the wealthy had the means to pay the necessary fees for the swift attention of doctors and nurses and take whatever time they needed for rest and recuperation. The poor, however, had no alternative but to continue to work despite illness.<sup>27</sup>

Considering influenza mortality levels in Dublin, she notes that death rates for the 'professional and independent class' rose by only 5 per cent, whereas they rose by between 20 and 25 per cent for the middle classes and the artisans and shopkeepers and almost 30 per cent for the 'general service class'. She further states that influenza deaths in the workhouses in 1918 increased by more than 30 per cent while deaths across all classes increased by only 7.9 per cent.<sup>28</sup> Foley also comments on the incidence of starvation in Ireland amongst the poor, when there was no one well enough to care for the sick.

### Rurality in Britain

These findings would seem to be in contrast to the British experience, at least according to official reports produced in 1920. Issues surrounding the impact of the influenza pandemic on rural communities and on socio-economic factors were investigated and reported on both by the RG and the Ministry of Health.

The RG addressed rural and urban differences in mortality by dividing his statistical analysis into three sections, the county boroughs and large towns, (examined in the previous chapter), and finally the remainder of counties which included the small towns and villages and the rural areas of which there were 61.

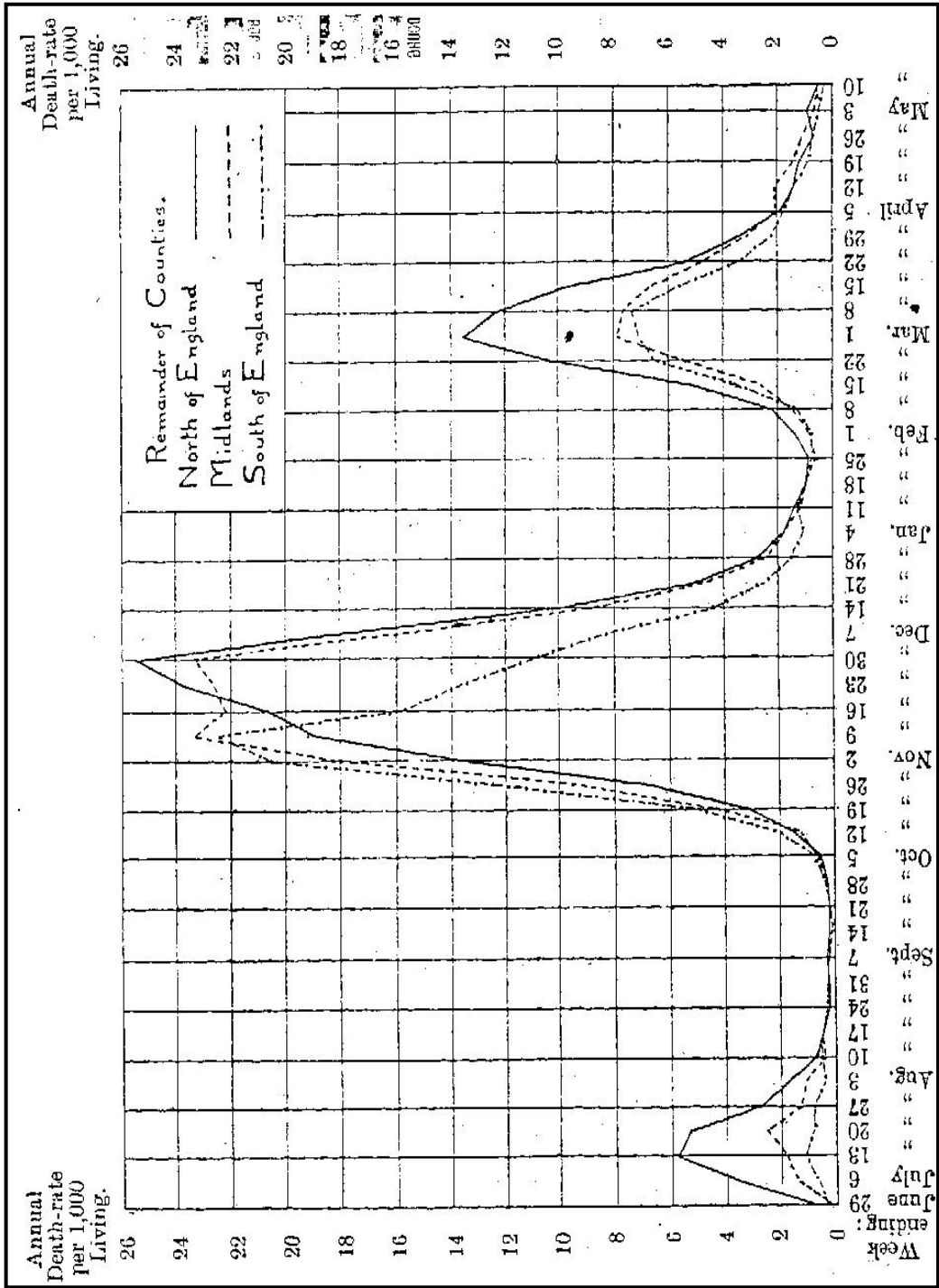
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<sup>26</sup> Foley, *The Last Irish Plague*, p. 44.

<sup>27</sup> Ibid, pp. 41-42

<sup>28</sup> Ibid, pp. 43-44; See also M. I. Milne, *The 1918-19 Influenza Pandemic in Ireland: a Leinster Perspective* (Trinity College, Dublin PhD thesis, 2011), pp. 94-97.

Figure 26. Weekly Influenza Mortality for English Administrative Counties Excluding Towns with Populations Exceeding 20,000 and County Boroughs 1918-19.



Source: RG, *Supplement to the Eighty-First Annual Report*, diagram XIV, p. 47.

Figure 26 above shows the progress and severity of the influenza pandemic throughout the less populated areas of England. When compared with Figures 12 and 13 (pp. 81-82) which chart the pandemic in the county boroughs and the larger towns, the small towns and rural areas in England appear overall to have suffered from the influenza pandemic to a similar extent as the larger administrative areas in terms of levels of mortality and wave duration. It also shows that a second wave recrudescence which occurred in November 1918 was much more marked in rural areas in the Midlands than in the north or south.

This can be seen in the death rates for all three classes of administrative area throughout the three waves of the influenza pandemic, shown in Table 17 below. They also indicate that the rural areas started to suffer significant mortality about a week after the county boroughs and large towns, confirming both Quinn's comments at the beginning of this chapter and those of the RG, that it was the towns that suffered first while, 'the counties as usual lagged behind.'<sup>29</sup>

Table 17. Annual Mortality per 1,000 living for Administrative Areas in England and Wales during Each Wave of the Influenza Pandemic 1918-19.

First Wave.				Second Wave.				Third Wave.			
Week ending.	County Boroughs.	Other Towns.	Counties.	Week ending.	County Boroughs.	Other Towns.	Counties.	Week ending.	County Boroughs.	Other Towns.	Counties.
July 6 ...	2.0	1.8	0.6	Oct. 19 ...	6.8	7.9	—	Feb. 22 ...	5.7	3.3	2.9
" 13 ...	1.8	1.7	1.3	" 26 ...	7.3	7.3	6.6	Mch. 1 ...	4.2	3.5	3.8
" 20 ...	1.4	1.8	1.1	Nov. 2 ...	8.9	7.8	8.0	" 8 ...	4.5	3.8	3.6
" 27 ...	1.0	1.5	0.6	" 9 ...	7.2	8.1	7.9	" 15 ...	3.7	3.2	3.1
Aug. 3 ...	0.8	1.3	0.6	" 16 ...	7.6	9.6	7.0	" 22 ...	2.7	2.8	4.9
" 10 ...	0.6	1.4	0.5	" 23 ...	6.9	7.3	8.3	" 29 ...	—	2.1	2.5
				" 30 ...	8.1	6.8	8.2				
				Dec. 7 ...	6.8	6.1	—				

Source: RG, *Supplement to the Eighty-First Annual Report*, diagram XII, p. 27.

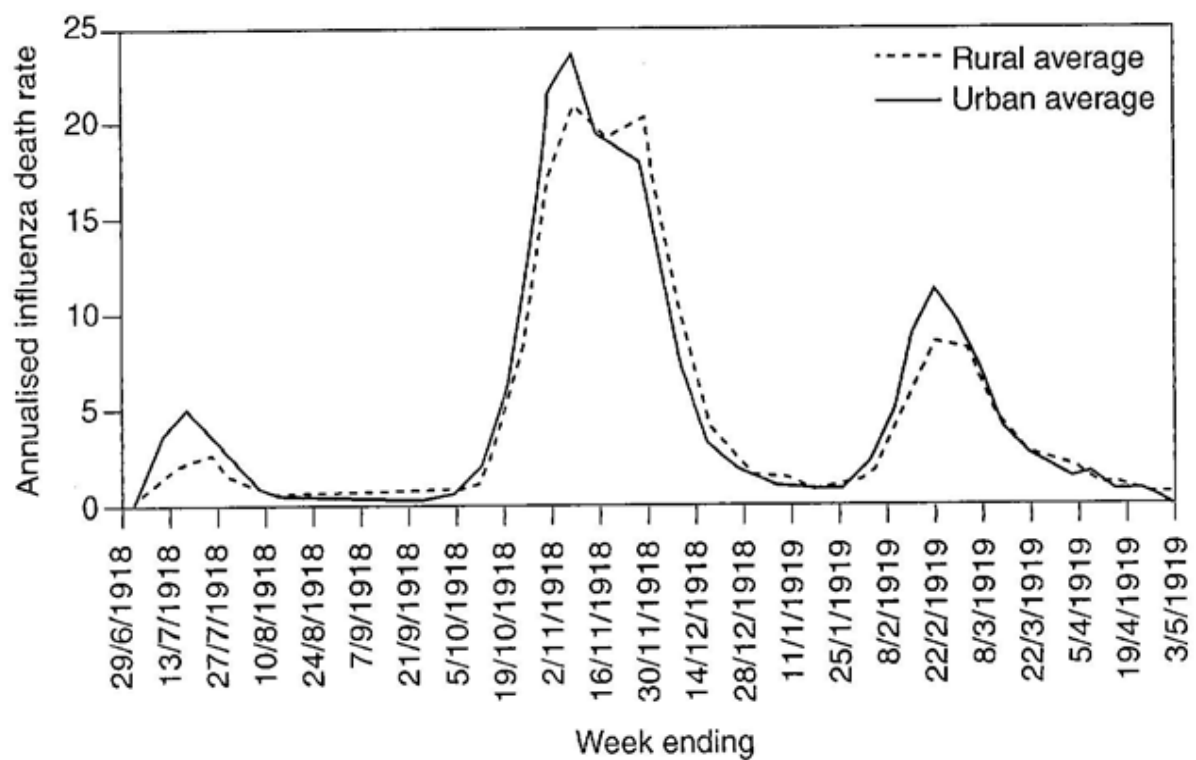
The second wave recrudescence of influenza is particularly noticeable in the counties column but also present to a less marked degree in the urban areas although the

<sup>29</sup> RG, *Supplement to the Eighty-First Annual Report*, p. 18.

urban areas suffered it first. Furthermore, in the third wave, the death rates indicate that the rural areas experienced quite a high peak about a month after the county boroughs and at a time when the other two classes of area were seeing a marked decline in mortality.

A simplified diagram produced by Johnson (Figure 27) using the averages of the RG's figures shows even more clearly how the rural and urban areas compared in their experience of the influenza pandemic and how little overall difference there appears to have been between them.

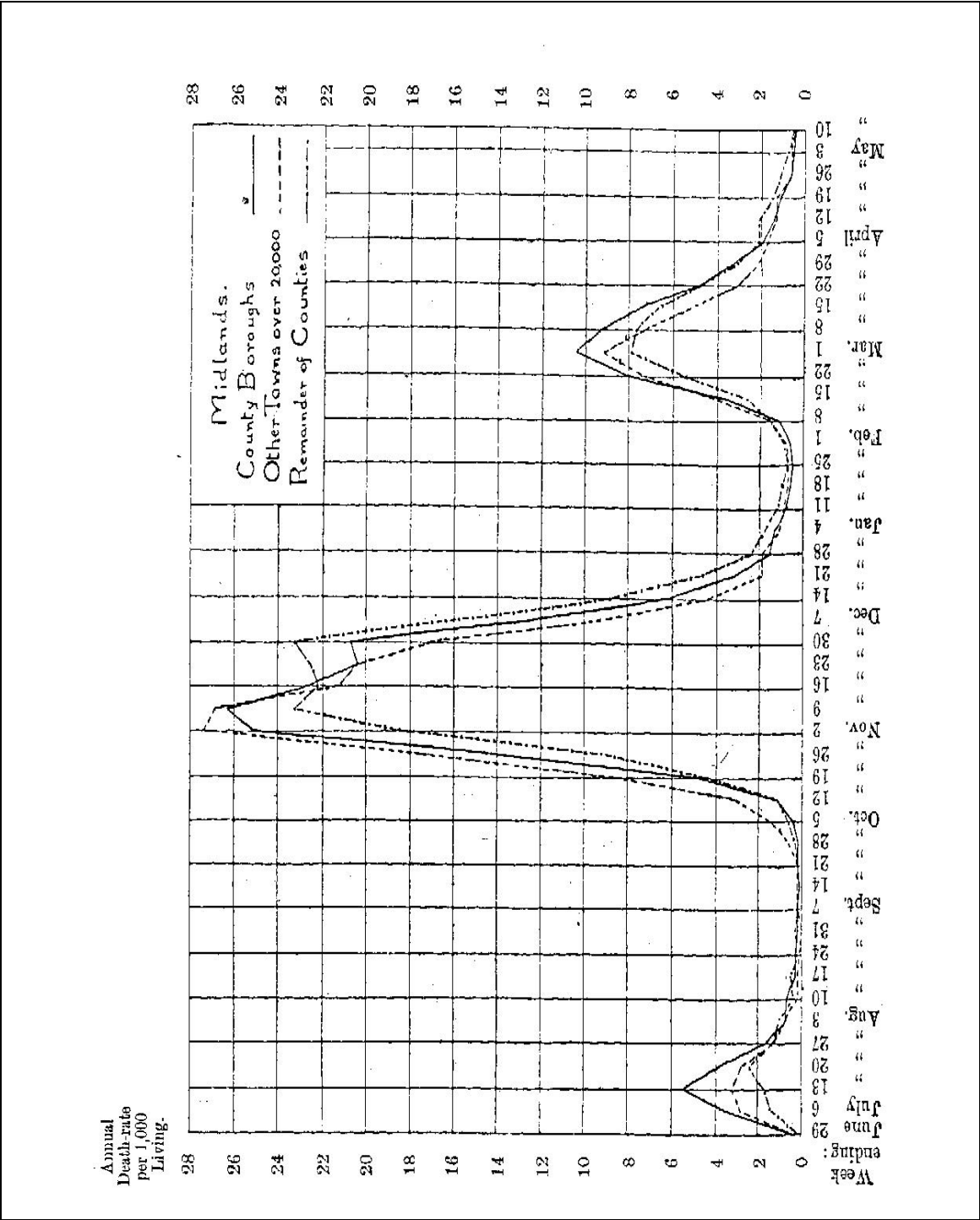
Figure 27. Urban and Rural Influenza Mortality in England and Wales 1918-19.



Source: Johnson, *Britain and the 1918-19 Influenza Pandemic*, p. 62.

Narrowing the focus to look just at administrative areas in the Midlands, (Figure 28 below), again the same picture emerges in relation to the severity of the pandemic in

Fig. 28. Weekly Influenza Mortality for Administrative Areas in the Midlands 1918-19.



Source: RG, *Supplement to the Eighty-First Annual Report*, diagram VIII, p. 43.

urban and rural environments, with the county boroughs and large towns suffering generally higher mortality peaks in all three waves but with the rural areas suffering a very distinct recrudescence in the second wave leading to quite a high double peak.

Thus overall and allowing for regional variations, the Midlands' experience was in line with that of much of the rest of England with regard to rural and urban influenza mortality which again would appear to support the RG's statement that 'the rates for all classes of area throughout the whole epidemic were much the same'.<sup>30</sup>

#### Rurality and the East Midlands

Looking just at the mortality statistics for the counties of Nottinghamshire, Leicestershire and Derbyshire in Tables 6 and 7 (pp. 91 and 94.) and the mortality peaks in Table 8 (pp. 95-6.), these show that the rural areas of Nottinghamshire and Derbyshire reached their mortality peaks after the county boroughs in the first and third waves, as might be expected. However, in the second wave urban and rural areas in all three counties reached their peaks at about the same time and, indeed, the rural and urban areas of Leicestershire reached their peaks at about the same time in all three waves. This can also be seen by comparing Figures 17 and 18 (pp. 92- 93.) with Figure 29 below.

As already stated, the effects of the influenza pandemic of 1918-19 varied a great deal from place to place for reasons which are difficult to determine. Why there were points at which infection peaked throughout rural and urban areas in the three counties at the same time is not possible to say with any certainty but it suggests influenza was spreading through different administrative areas simultaneously. The answer may again lie in the East Midlands' position at the centre of an extensive railway network. Established in the mid-19<sup>th</sup> century it included many branch lines connecting towns and villages both to each other and to larger urban centres within the counties and beyond, prompting an entry in the *Victoria County History* for Leicestershire that 'the whole of the centre part of the county was fairly well served with railways'.<sup>31</sup>

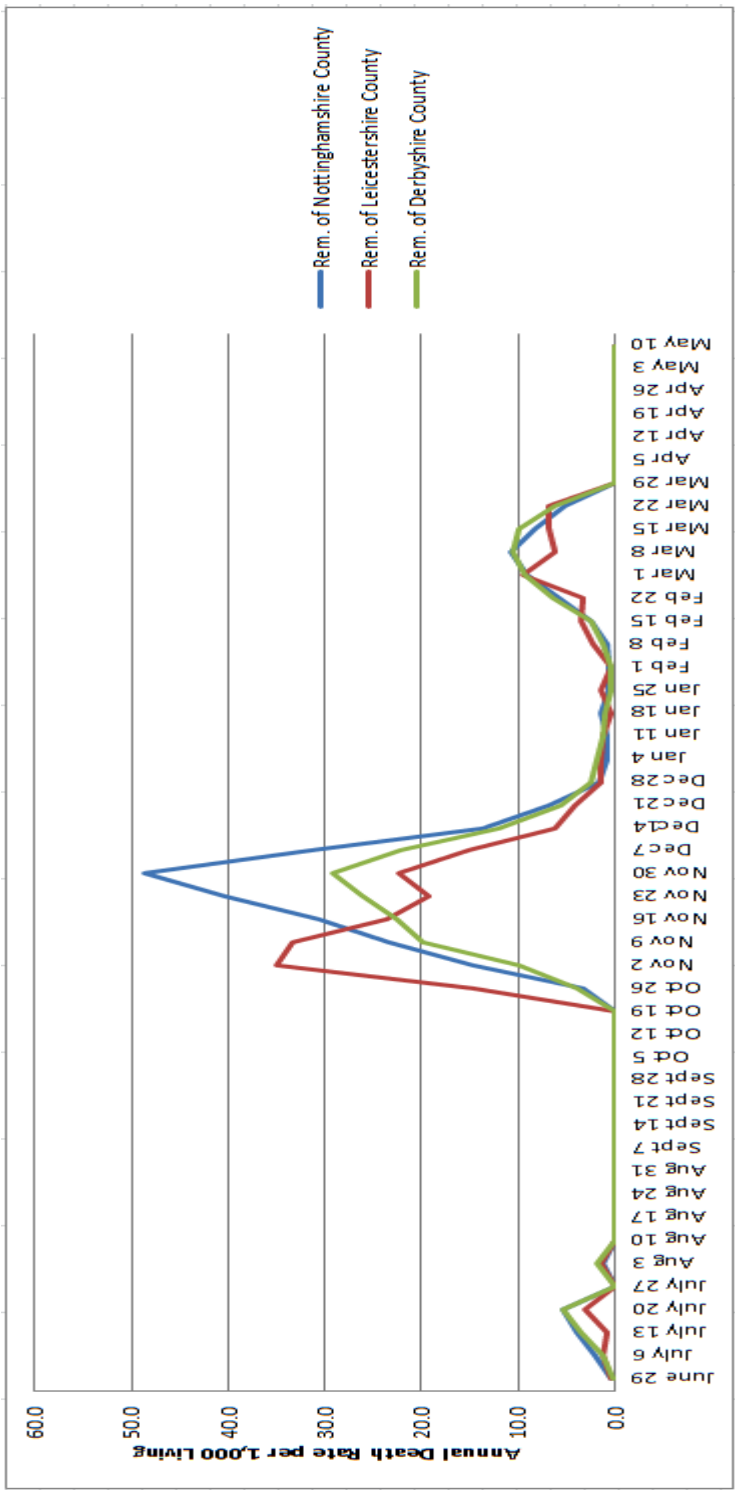
Consequently, the level of contact between urban and rural communities within the region which this allowed, may be one explanation for this apparent anomaly and this

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<sup>30</sup> *ibid*, p. 12.

<sup>31</sup> W. G. Hoskins and R. A. McKinley (eds.), *Victoria County History of the County of Leicester* (London, 1969), vol. 3, p. 120.

Figure 29. Weekly Influenza Mortality in the Remainder of Counties of Leicestershire, Nottinghamshire and Derbyshire - June 1918 to May 1919.



Source: RG, *Supplement to the Eighty-First Annual Report*, pp. 48-80.

would seem to be supported by Gerardo Chowell et al who state that the timing of the pandemic waves in England and Wales was quite synchronous as compared to many other countries, such as the United States, due to 'strong population mixing and the small geographical extent of the region'.<sup>32</sup>

As with the county boroughs and large towns, the RG arranged the remainder of counties according to their position in the country with regard to their level of mortality in the three waves of the pandemic, 1 being the highest. Positions for Nottinghamshire, Leicestershire and Derbyshire are shown in Table 18 below.

Table 18. Mortality from Influenza in the Remainder of Counties 1918-19. Position in Order of Mortality in Each Wave and Overall.

Remainder of County	wave 1	wave 2	wave 3	Total
Nottinghamshire	10	2	24	3
Leicestershire	18	4	21	9
Derbyshire	6	21	14	14

Source: RG, *Supplement to the Eighty-First Annual Report*, Table XI, p. 27.

This shows that the counties were placed high in the national rankings with Derbyshire 6 in the country in the first wave of the pandemic, Nottinghamshire and Leicestershire 2 and 4 respectively in the second wave and all three placed in the top 25 per cent in the country overall. The only remainder of county areas above them in overall position were again from the north and Midlands, plus two from Wales, these being Rutland 1, Caernarvonshire 2, Flintshire 4 Yorkshire West Riding 5, Staffordshire 6, Yorkshire North Riding 8 and Shropshire equal 9 with Leicestershire. Worcestershire, Cumberland and Lindsey in Lincolnshire were placed above Derbyshire.

Taken together, therefore, with the corresponding data in Tables 4 and 5 (p. 88), for the county boroughs and the large towns, the experience of Nottinghamshire, Leicestershire and Derbyshire, both in the urban and in the rural setting seems to

<sup>32</sup> G. Chowell et al, 'The 1918-19 influenza pandemic in England and Wales: Spatial patterns in transmissibility and mortality impact', *Proceedings of the Royal Society, Biological Sciences*, 275 (2008), p. 507.

have been amongst the most severe in England and Wales and certainly on a par with counties in the north of England. Despite variations in the severity of the mortality experienced in some places in different waves of the pandemic, the overall picture is one of high mortality across the region, particularly in Leicestershire and Nottinghamshire.

However, the high position of Rutland, Cumberland and parts of Yorkshire, Lincolnshire and Wales is perhaps surprising given the more rural nature of their environment with fewer large urban centres from which infection could spread. Recent research on the issue of variations in transmissibility and mortality of the influenza pandemic between urban and rural settings by Chowell et al, would seem to offer a different interpretation of the RG's statistics and observation that urban and rural areas appeared to have suffered to a similar extent.<sup>33</sup>

Using data from the RG's 1920 report and concentrating just on the second and third waves of the influenza pandemic in England and Wales, the association between influenza death rates, transmissibility and certain geographical and demographic indicators in cities, towns and rural areas was explored, including such factors as population size and density and levels of urbanisation. Demographic information for these areas was then retrieved from the 1921 census and from this data weekly and cumulative death rates for each geographic unit and pandemic wave were calculated.

This research revealed that although some rural areas had quite large populations, the population density, which is the ratio of population size to surface area, was, on average, 14 times lower than that in towns and cities. Furthermore, when analysing the overall patterns of rural and urban areas, it was seen that urbanisation had a profound effect on death rates, with urban areas experiencing a 30 to 40 per cent higher death rate per capita than rural areas for both the second and third waves of the influenza pandemic, prompting the headline in the *Daily Telegraph*, 'To escape flu-move to the country'.<sup>34</sup> Since, according to Johnson, the pattern of urbanisation in Britain had already been established by 1918, with almost 80 per cent of inhabitants living in urban centres by 1911, so by the findings of Chowell et al, many areas in

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<sup>33</sup> Chowell, et al, 'The 1918-19 influenza pandemic in England and Wales', pp. 501-509.

<sup>34</sup> R. Highfield, 'To escape flu-move to the country', *Daily Telegraph*, *Science News*, 19 December 2007.

Britain, including the East Midlands, would appear to have been destined to suffer a high death rate.<sup>35</sup>

One caveat to this finding, however, was that the highest death rates were recorded for rural areas with the lowest populations and this was consistent through both second and third waves of the pandemic. In other words, death rates calculated for small populations in rural areas were disproportionately large, whereas death rates across towns and cities varied very little and thus were found to be independent of population size. Consequently, remainder of county areas containing small rural communities returned a higher death rate than might be expected.

Specific details on the death rates in rural areas in the East Midlands during the influenza pandemic beyond those included in the RG's report are few. Dr Sidney Barwise, MOH for Derbyshire, did include the number of deaths from influenza and pneumonia for the rural districts in his annual report for 1918, but made no reference to population sizes, thereby making it impossible to apply the findings of Chowell et al to this information at this time.

Despite the apparent parity of experience between the towns and the county areas, press coverage of the pandemic, both national and provincial, tended to concentrate on the effects of the influenza outbreak in urban centres, this being where the majority of people lived and thus where the ravages of the disease appeared to be most obvious and most alarming. Even so, the plight of the villages was recorded in some provincial newspapers, especially those which had a wide circulation or were specifically directed towards farming and village life. In Leicestershire, for example, the weekly *Leicester Journal*, recorded the tragic deaths of villagers in Hathern, Sileby Long Watton, Frisby-on-the-Wreake Wymeswold and other local villages, and the *Melton Mowbray Times* covered events in villages such as Harby, Burton Lazars, Scalford, Wartnaby and many others.

In the *Leicester Daily Post* in October 1918, the Mayor of Leicester commented that, 'Even the countryside does not escape the scourge'.<sup>36</sup> The *Leicester Evening Mail* reported the death of a prominent farmer, Walter Abell, of Sutton Cheney, in

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<sup>35</sup> Johnson, *Britain and the 1918-19 Influenza Pandemic*, p. 62.

<sup>36</sup> *Leicester Daily Post*, 30 October 1918, p. 2.

November 1918,<sup>37</sup> and in December on delays in farm work due to a combination of poor weather and influenza amongst farm workers.<sup>38</sup>

Similarly, the *Nottingham Evening Post* reported on the spread of influenza in Bakewell and the surrounding high-lying villages in November 1918, notably Youghreave where there were more than 100 cases. It also reported on the death from influenza of two land girls in Nottinghamshire. By March 1919, during the third wave of influenza, the *Post* again reported on a severe outbreak of influenza in Derbyshire's Peak District and also on a shocking situation in the Nottinghamshire village of Kinoulton where 'almost every family has some of its members afflicted' and where five members of the Cox family had died leaving only two orphaned children remaining.<sup>39</sup>

In Derbyshire it was the weekly *Matlock Visitor* that reported on the plight of Kirk Ireton which, in November 1918, it described as the worst stricken village in the area as 'There is not a house without someone a victim of the disease.'<sup>40</sup>

Personal correspondence can also offer some insights into country life during the influenza pandemic. For example, Edith Corton of Leicestershire recalled her experiences in a letter to Richard Collier in 1974: 'My sister and I decided to join the Land Army. We stayed in a cottage near Market Harborough. During the last week of October 1918 ... I got the flu ...in nearby villages called the Laytons 17 people died.'<sup>41</sup> Thus, there is evidence in the local press and other sources that, as Chowell et al explain, some rural communities were seriously afflicted by the pandemic. However, overall the numbers affected were not on a scale comparable with urban areas.

#### Socio-economic factors in Britain

With reference to the impact of socio-economic factors on the course of the influenza pandemic in Britain, the RG also attempted to address this issue in his 1920 supplement. To do this he focused only on the London boroughs and looked at general health through the annual general death-rate figures for 1911 to 1914 and wealth indicated by the number of indoor domestic servants recorded in those

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<sup>37</sup> *Leicester Evening Mail*, 2 November 1918, p. 1.

<sup>38</sup> *Ibid*, 14 December 1918, p. 5.

<sup>39</sup> *Nottingham Evening Post*, 12 March 1919, p. 3.

<sup>40</sup> *The Matlock Visitor*, 2 November 1918, p. 4.

<sup>41</sup> Private Papers of Richard Collier.

boroughs in the 1911 census. He noted that the lowest mortality in 1918-19 was returned by Kensington which was not indicated as one of the healthiest boroughs and the highest by St Pancras which was not one of the unhealthiest boroughs. He concluded, therefore, that influenza mortality was not differentiated according to which areas were the healthiest and that 'The mortality of the late epidemic fell almost alike on the sanitary just and on the unjust.'<sup>42</sup>

Commenting on the influence of wealth he pointed out that Kensington and Hampstead had the lowest mortality rates and these were the two wealthiest boroughs in London based on the number of indoor servants to population. However, Chelsea, which was the next wealthiest borough, returned the highest mortality rate next to St Pancras which was also not one of the poorest boroughs. Consequently, he concluded that wealth had as little impact on mortality rates during the influenza pandemic as health.

The Ministry of Health conducted its own national inquiries into the circumstances of the influenza pandemic and the persons affected. As noted in chapter 2, block surveys were conducted in a number of towns, one of which was Leicester, and amongst the information sought, was details relating to conditions which may have influenced death rates, particularly age, sex, domestic overcrowding, occupation and prior general health of the victims. The amount of information acquired varied from place to place but few conclusions were reached.

The Leicester inquiry, for example, aimed to establish the number of rooms in the 1061 houses visited and the number of people per room together with the age, sex and occupation of the occupants and the course and outcome of the illness of any victims of influenza and the care they received. There was an intention to enquire into the previous health of influenza sufferers but this was abandoned due to the amount of extra time it would have involved. Similar inquiries were conducted in Manchester, South Shields, Newcastle-upon-Tyne, Wigan and Blackburn and there were also reports compiled on the health of chemical and iron workers in the north of England and Wales during the pandemic.

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<sup>42</sup> RG, *Supplement to the Eighty-First Annual Report*, p. 29.

An interesting feature in the Leicester report is the admission that some homes visited were 'closed' and, consequently, they were ignored. Furthermore, the question about medical attention appears to have been treated with some suspicion by those being interviewed, especially where the care of children was concerned, which led those conducting the inquiry to believe the information they were given on this issue was not entirely accurate. This may indicate that the details obtained and included in the report should be treated with some caution. It is possible that some people were reluctant to be interviewed by government officials about their lifestyle and their experience of influenza which may have accounted for some of the 'closed' houses. It may also be that questions were not answered entirely truthfully due to embarrassment or fear of possible censure. Added to this may also be the uncertainty of memory and the difficulty of recalling details accurately.

Nonetheless, the only conclusions that were arrived at other than those referring to age and sex were that the density of domestic populations had little significance with regard to influenza incidence and mortality but that immunity to the second wave was conferred upon those who had suffered in the first wave, a benefit also noted in the Newcastle-upon-Tyne inquiry. Thus, in a lecture delivered in 1919 to the Royal Institute of Public Health by Dr Thomas Carnwath, Medical Inspector for the LGB, on the topic of the Lessons of the Influenza Epidemic 1918, he stated that: 'The disease does not appear to have affected specially any class or section of the community. Rich and poor suffered alike. Inquiry in some towns shows that the epidemic not infrequently started in the well-to-do districts and only later involved the poorer and less prosperous areas'.<sup>43</sup>

Prior to these conclusions, however, the press reporting on the pandemic at the time blamed poor living conditions for the virulence of the infection and clamoured for better sanitation and a central body to take charge of health care. In October 1918, *The Times* insisted that people with low resistance to disease were living in 'insanitary houses' and asserted that they had:

frequently insisted upon the need for more thorough cleansing of our cities, the more efficient removal of refuse from houses and the more careful washing of streets...The real meaning of the present calamity is that steps must be taken

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<sup>43</sup>.Carnwath, 'Lesson of the Influenza Epidemic 1918', p. 146

to make somebody answerable for the nation's health. It will then be possible to bring home neglect and lack of foresight to those responsible for them.<sup>44</sup>

The notion that dirt and dust were causing the pandemic, particularly in urban areas, and that things just needed to be cleaned up to gain control of the infection was not uncommon even in countries outside of Britain. For example, in France, in Marseille and Lyon, there were demands for cities to be thoroughly cleaned as it was believed the piles of rubbish and other filth in the streets, together with overflowing privies were both causing and spreading the infection.<sup>45</sup> Whilst that certainly contributed to the outbreak and spread of diseases such as cholera and typhoid, the influenza of 1918 was a more complex infection that behaved in ways which were beyond anything previously experienced. Nonetheless, the outcry against the condition of urban housing, streets and roads and, in the case of Britain, the need for an authority to be responsible for health, were issues which needed to be addressed at that time.

Despite this, notices of the deaths of prominent, wealthy citizens often appeared in the press alongside those of citizens at the opposite end of the social spectrum. In Leicestershire, for example, during the second wave of the pandemic, the death was reported of 23 year old Mrs Cynthia Fielding Johnson, wife of Colonel Thomas Paget Fielding Johnson of Newlands in Rothley, after only a few days illness.<sup>46</sup> The colonel's father had been High Sherriff of Leicester and his grandfather was a noted Victorian industrialist and philanthropist in the county.<sup>47</sup> Another high profile death was that of Mrs Norma Lang, wife of the Bishop of Leicester.<sup>48</sup>

Many other notable national and international influenza victims were recorded. For example, in Britain, composer Sir Hubert Parry, actor Sir Charles Wyndham and the brother and son of popular author Sir Arthur Conan Doyle,<sup>49</sup> all died as the result of influenza, whilst overseas, members of royal houses, such as the Sultan of Turkey, the King of Spain and the Empress of Austria also contracted the infection.<sup>50</sup> American President Woodrow Wilson and British Prime Minister David Lloyd George

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<sup>44</sup> *The Times*, 28 October 1918, p. 6.

<sup>45</sup> van Hertesveldt (ed.), *The 1918-1919 Pandemic of Influenza*, p. 49.

<sup>46</sup> *Leicester Daily Post*, 5 November 1918, p. 3.

<sup>47</sup> Stoneygate Conservation Area Society Newsletter, December 2010, <<http://www.stoneygateconservation.org>>, accessed 25 July 2013.

<sup>48</sup> *Leicester Daily Post*, 19 October 1918, p. 2.

<sup>49</sup> Wilson, *Myriad Faces of War*, p. 651; Honigsbaum, *Living with Enza*, p. 88.

<sup>50</sup> *Leicester Mercury*, 3 July 1918, p.1; Davies, *Catching Cold*, p. 56.

caught it and were fortunate to recover.<sup>51</sup> This gives the impression that, as Carnwath stated, no particular class or section of society suffered more than any other. Howard Phillips, however, suggests that it was the 'disproportionate coverage that such prominent deaths received in the press' that served to conceal the fact that social class was, in fact, a significant factor in influenza mortality and that the issue was not who caught it, but who died from it 'through a lack of adequate nursing and rest.'<sup>52</sup>

For modern researchers, therefore, the issue of socio-economics and its relationship to influenza mortality in 1918-19 has proved a rich though challenging area of investigation largely because of the number of possible variables which were perhaps not considered in 1920 but which may have had a bearing on mortality levels within different communities. Consequently, as indicated, historians are now questioning more closely the idea that the influenza pandemic was indiscriminate in its choice of victims.

In his book on the influenza pandemic in Britain, Niall Johnson discusses a project, very similar to that of McCracken and Curson in Sydney, Australia, to investigate possible links between socio-economic status and influenza mortality in Britain and this was set up with the assistance of the University of Cambridge's Group for the History of Population and Social Structure.<sup>53</sup> It involved the creation of a database which linked the annualised mortality rate for the influenza pandemic for all 335 administrative areas in England and Wales identified in the RG's report to specific factors including infant mortality for 1911 to 1918, together with the structure of male and female populations and their occupations for which the 1911 and 1921 censuses were used.

Initial analysis indicated a number of relationships worthy of further investigation, particularly in connection with what were referred to as staple and service occupations, two of four 'occupational environments' identified by the Cambridge Group into which each administrative area had been classified, the other two being agricultural and light. From this finding, six variables, focusing on the percentage of the male population which worked in those two environments together with males

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<sup>51</sup> Crosby, *America's Forgotten Pandemic*, pp. 152 and 172.

<sup>52</sup> H. Phillips, 'The Recent Wave of "Spanish" Flu Historiography', *Social History of Medicine*, (2014), p. 11.

<sup>53</sup> Johnson, *Britain and the 1918-19 Influenza Pandemic*, p. 102.

working in occupations referred to as 'ships and boats', the proportion of domestic servants per 1,000 households (1911 census), infant mortality (1911 census) and population density (1922 census), were identified for further analysis, as they were felt to be indicative of social class, existing health conditions, crowding, risk of infection, place in the urban hierarchy and proximity to points of entry of the disease. Analysis of these factors was run and re-run several times and the final outcome revealed a slight connection to social class.

These findings appear to be similar to those achieved by McCracken and Curson in Australia, who commented that although wealth did not actually confer protection against influenza, there did appear to be a social gradient to the pandemic in which those persons on the bottom rungs of the social ladder suffered more than their more affluent neighbours.<sup>54</sup> Mamelund's research in Kristiania (Oslo) and Foley's research in Ireland also support this view.

#### Socio-economic factors in the East Midlands

As for living conditions in the East Midlands in the mid-nineteenth century, these were certainly not amongst the best. For example, J. V. Beckett describes Nottingham as 'a notorious slum' and quotes a government report which describes the city as 'hardly to be surpassed in misery by anything to be found within the entire range of our manufacturing cities'.<sup>55</sup>

Beckett goes on to explain that Leicester fared a little better due to having more space at its disposal and, as a consequence, developed fewer slum areas whereas Derby at this time was referred to as 'a most comfortable town'.<sup>56</sup> Furthermore, due to industrial developments and slum clearance the three towns, by 1900, were described as 'one of the most comfortable urban areas of the country'.<sup>57</sup> Nevertheless, evidence suggests that it was not comfortable for everyone.

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<sup>54</sup> In Phillips and Killingray (eds.), *The Spanish Influenza Pandemic of 1918-19*, pp. 123-124.

<sup>55</sup> J. V. Beckett, *The East Midlands from AD 1000* (Harlow, 1988), p. 225.

<sup>56</sup> *ibid*, p. 227.

<sup>57</sup> *ibid*, p. 246.

According to C. H. Lee, 'Infant mortality is one of the most basic measures of well-being in society.'<sup>58</sup> Thus it is regarded as a prime indicator of social maladies such as poor sanitation, high-density living and poverty. Lee also links it to industrialisation.<sup>59</sup>

Just prior to the start of the First World War, Sir Arthur Newsholme, reporting on the incidence of child and infant mortality in England and Wales in his annual report to the LGB in 1913, cited towns in Nottinghamshire as having some of the highest rates and in grouping the 241 urban areas identified into ten groups, 1 having the highest infant mortality rate and 10 the lowest, Nottingham, Chesterfield and Ilkeston all appeared in group 1, with Glossop and Leicester in group 3, Mansfield in group 4, Derby in group 6 and Loughborough in group 7. He cited poverty, overcrowding and lack of hygiene and sanitation as amongst the prime causes.<sup>60</sup>

Furthermore, in her research into infant mortality in Nottinghamshire, Leicestershire and Derbyshire between 1890 and 1910, Dr Denise Amos described Nottingham and Leicester as the 'quintessential industrial towns'<sup>61</sup> the principal industries being textiles in Nottingham, especially lace and hosiery, hosiery and boot and shoe manufacture in Leicester and heavy engineering in Derby, particularly in connection with the railways.<sup>62</sup> In describing the living conditions in the three towns just prior to WWI, Amos echoes Newsholme, referring to poor housing, cramped living conditions and dreadful sanitation, commenting that the pail system remained in use in Nottingham until 1920 and in Derby until 1926; Leicester having begun the conversion to water closets in the 1890s.

Amos goes on to identify the worst areas for housing and overcrowding in the three towns. In Nottingham the north-west, the north-east and the south-east of the town are cited; in Leicester the Newton, St. Margaret's, Wyggeston and Latimer districts where some houses still had soil floors and in Derby the King's Mead, Bridge and Castle districts.<sup>63</sup> The living conditions in these slum areas reflected the fact that they were home to poorly paid workers who could only afford the lowest rents and who

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<sup>58</sup> C. H. Lee, 'Regional Inequalities in Infant Mortalities in Britain 1861-1971, Patterns and Hypotheses', *Population Studies*, 45 (1991), p. 64.

<sup>59</sup> *ibid*, p. 63.

<sup>60</sup> A. Newsholme, *42<sup>nd</sup> Annual Report of the Local Government Board 1912-13: Supplement containing a Second Report on Infant and Child Mortality*, (1913), pp. 13-15.

<sup>61</sup> D. Amos, 'Infant Mortality in Three East Midland Towns: Similarities and Differences, 1890-1910', (2012) p. 35, <<http://www.nottshistory.org.uk>>, accessed 23 July 2013.

<sup>62</sup> *ibid*, pp. 6-8.

<sup>63</sup> *ibid*, pp. 28-29.

often had to work from home because of the need to care for children. Indeed, in a report by the Factories and Workshops Inspector in 1906, in reference to Nottingham, it was stated: 'In the summertime it is possible to see in the courts and back yards of the slum districts heaps of lace at almost every door.'<sup>64</sup>

It would appear, therefore, that only four years before the outbreak of WWI, all three county boroughs and several towns in the region had high levels of poverty, with the poor quality housing, domestic overcrowding, poor sanitation and high infant mortality rates associated with the impoverished working classes living in industrialised, urban environments, little improvement of which would have occurred before the extreme social and financial repercussions of waging a war had come to an end.

It is then perhaps understandable that by 1918 and with the influenza pandemic in its second wave, the living conditions of the working classes had become an election issue in the region. Arthur Hayday, Labour candidate for West Nottingham, addressed a meeting in the Woollaton Road Schools on 27 November in which he declared:

...the influenza scourge had proved how bad the general housing conditions of the masses of the toilers really were. Mortality had been far heavier amongst the workers than any other section of the community, for the simple reason that so many of the poorer people were herded together in wretchedly built and badly ventilated dwellings.<sup>65</sup>

Furthermore, in research on mortality in England and Wales during the Influenza Pandemic of 1918-19, Dora Pearce et al point out that 'Areas experiencing higher rates of all-cause mortality in earlier years typically experienced higher mortality from pandemic influenza,' a situation which they attribute to 'social disadvantage'. They go on to state that 'Pandemic mortality in other European cities was also exacerbated by overcrowding and poverty.'<sup>66</sup> Consequently, If those on the lower rungs of the social and economic ladder did suffer more severely from the effects of the influenza pandemic as recent research suggests, then clearly, many of the inhabitants of the industrial towns of the East Midlands would be included in that cohort.

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<sup>64</sup> Annual Report of the Chief Inspector of Factories and Workshops, Reports and Statistics, Cd3036 (1906), cited in Amos, 'Infant Mortality in Three East Midland Towns', p. 13.

<sup>65</sup> *Nottingham Daily Express*, 28 November 1918, p. 3.

<sup>66</sup> D. C. Pearce et al., 'Understanding mortality in the 1918-1919 influenza pandemic in England and Wales', *Influenza and Other Respiratory Viruses*, 5/2 (2011), p. 89.

## Mining

With regard to the question of influenza and occupation, McCormack and Curson did raise the issue of higher risk for those working in close contact with the public and other historians, including M. I. Milne, have also highlighted this aspect of socio-economic status as having an impact on influenza mortality.<sup>67</sup> The issue of work and how businesses and industry were affected by the pandemic will be explored in detail in chapter 6. However, a number of writers have cited mining in particular as an occupation which seemed to be associated with higher levels of influenza morbidity and mortality, thought primarily to be due to its tendency to impair lung function.<sup>68</sup>

Research conducted by John Brundage and Dennis Shanks into deaths from bacterial pneumonia during the influenza pandemic of 1918 has confirmed that certain occupational groups were particularly susceptible to the secondary infections which killed so many, in particular, those working in enclosed and crowded settings such as hospitals, troop ships and mines.<sup>69</sup> The explanation submitted for this was that the influenza virus, once it had invaded a host's respiratory system, induced what they describe as an 'aberrant immune response' which caused 'degradation or destruction of virtually all physical and immune defences of the lower respiratory tract',<sup>70</sup> thus allowing colonising bacteria commonly found in the human upper respiratory tract, either the patient's own or that of another person who had been in close proximity, to invade and cause secondary infection in the form of pneumonia. It was this process, according to Brundage and Shanks' findings, that was responsible for the largest proportion of pandemic mortality as opposed to the direct effects of a hypervirulent virus.<sup>71</sup> They add that the only way to have avoided this situation was to impose strict individual isolation or quarantine on those affected.

Miners, therefore, because of their working environment, constituted a discrete population and as such, were unable to escape close contact with their fellow miners (many of whom may already have been infected by influenza) and the resultant germ laden atmosphere they were working in below ground. Where miners had returned to work before being fully recovered due to financial necessity or the demands of the

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<sup>67</sup> Milne, *The 1918-19 Influenza Pandemic in Ireland*, pp. 192-193.

<sup>68</sup> Crosby, *America's Forgotten Pandemic*, p. 227; Andrews, 'Influenza in Vancouver', (1977), pp. 24-25; Mamelund cited in Johnson, *Britain and the 1928-19 Influenza Pandemic*, p. 105.

<sup>69</sup> J. F. Brundage, and G. D. Shanks, 'Deaths from Bacterial Pneumonia During the 1918-19 Influenza Pandemic', *Emerging Infectious Diseases*, 14/8 (August 2008), pp. 1193-1199.

<sup>70</sup> *Ibid.*, p. 1198.

<sup>71</sup> *Ibid.* p. 1197.

war, or where they were in the early stages of infection, the susceptibility of their respiratory tracts to the colonising bacteria which would have filled the air around them would have virtually ensured secondary infection and the prospect of death from pneumonia.

Brundage and Shanks also refer to data from cases around the world and comment, for example, on the 'sharply higher death rates' among Australian and American civilian miners and military tunnelers as compared to other workers of the same age.<sup>72</sup> As mining was a major occupation in many parts of Britain and particularly in the East Midlands, this would have impacted significantly on levels of influenza morbidity and mortality in the region as well as on the productivity of an essential industry in war time.

This chapter has focused on two main issues, those of rurality and socio-economic status, and the extent to which these factors had a bearing on the levels of mortality suffered by different sections of the community. This has brought together primary and secondary data from many countries around the world, as well as the findings of more recent research. To quote Alfred Crosby, 'The factors at work in this pandemic were so numerous and the ways in which they cancelled or gained power from one another are so obscure that very few generalities can be drawn.'<sup>73</sup> Nevertheless, whilst acknowledging these difficulties and the variety of outcomes experienced in different locations, some patterns do emerge.

In a number of countries outside of Britain and mainland Europe, the non-white population did seem to have a particular susceptibility to the influenza virus irrespective of whether they lived in urban or rural environments. This could have been caused by a lack of inherited or acquired immunity, the practice of traditional cultural beliefs and lifestyles, deficiencies in diet, sanitation or medical and nursing care, or a combination of these things. However, their socio-economic status was generally so low that extreme poverty and neglect together with the racism, exploitation and indifference often practised by those in power undoubtedly had a significant impact on the devastating mortality they suffered.

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<sup>72</sup> Brundage and Shanks, 'Deaths from Bacterial Pneumonia During the 1918-19 Influenza Pandemic', p. 1195.

<sup>73</sup> Crosby, *America's Forgotten Pandemic*, p. 64.

Furthermore, the belief that populations of white European heritage have a greater immunity to infections such as influenza, possibly through the constant exposure and extensive social contact experienced in populous urban settlements, also appears to have some validity according to research carried out by Mamelund, although even amongst European communities, evidence suggests poverty and low social status strongly influenced levels of influenza mortality, particularly in industrialised urban environments.

In addition, the possibility that rurality might offer some protection from infection by limiting social contact has also been indicated according to research by Mamelund in Norway and McSweeney et al in New Zealand, although being able to maintain isolation from others throughout the danger period would seem to be important for that to succeed.

In England and Wales, the RG's contention that rural and urban communities suffered comparable levels of influenza mortality has been challenged by Chowell et al, who argue that, despite the disproportionately high death rates recorded for very small rural communities, rural areas in general did not actually suffer the extremely high levels of mortality experienced in many urban areas, suggesting once again that rurality may have offered some protection.

However, as highlighted by Johnson and by Chowell et al, Britain, unlike many countries, is very compact with no great distances between urban and rural settlements, particularly since the development of the railway network, so the avoidance of social contact for the majority of the population would have been very difficult. Consequently, it is also likely that rural populations would have been exposed to most seasonal infections shortly after they appeared in urban centres and have developed similar levels of immunity. In addition, their less densely populated environment may have allowed for the isolation of the sick much more easily if infection did occur.

With regard to socio-economics, the extent of urbanisation and industrialisation in Britain meant that a considerable proportion of the population lived and worked in cramped, high-density environments where poor housing and sanitation and infectious diseases were facts of everyday life. Thus, for a great many people, when illness

struck, proper medical care and nursing and the time to recover fully before returning to work were luxuries they could not afford and this would have severely affected levels of influenza mortality amongst those of low social status.

The East Midlands, therefore, possessed many of the conditions raised in this discussion as most likely to result in a high influenza mortality rate. As a communications hub at the centre of the country's railway system with links radiating out to London and major towns and cities both to the north and south as well as a host of towns and villages throughout the region, it would not only have been a vital link in the chain of swift and effective dissemination of infection, but would also itself have been exposed to a constant stream of potentially infected passenger traffic using its services.

Furthermore, as a major urban and industrial centre with a comprehensive range of goods and service industries, including extensive mining operations, it provided high risk employment for a great many of its citizens, including a large population of urban poor, living in badly maintained tenements and slum housing, and employed in jobs, such as mining, conducive to primary influenza infection and secondary pneumonic complications. Thus there is persuasive evidence that the high positions occupied by East Midlands' towns in the RG's tables of mortality are the result of these factors and account for the severity of the region's experience of the 1918-19 influenza pandemic.

Whether rich or poor, living in a large town or a country village, when the influenza virus struck, the main concerns were how to care for the sick and how to cope with burying the increasing number of dead. These issues will be explored in the next chapter.

## CHAPTER 4

### Care of the Sick; Burial of the Dead

'This funny new disease simply knocks you into a cocked hat.'

'It seems to be a plague...something out of the Middle Ages. Did you ever see so many funerals, ever?'<sup>1</sup>

So ran the conversation between Miranda, reporter for the Daily Clarion, and Adam, her soldier boyfriend home on leave, in Katherine Anne Porter's poignant short story written in 1936, *Pale Horse, Pale Rider*, on the horrors of the 1918-19 influenza pandemic. Porter's story came from the personal experience of not only living through that period and seeing the effects it had on so many, but also of being a victim of it and coming close to death herself, as did millions of others around the world.

This chapter focuses on the levels of health care that were available for the civilian victims of influenza, both those who were cared for at home and those who had to be removed to hospital. It also considers what provision was made for the burial of those who died. These were the things, according to Sandra Tomkins, which were at the heart of a successful response to the suffering generated by the pandemic.<sup>2</sup>

In caring for the sick, the main issues to be considered are, the availability of trained doctors and nurses to provide care both in hospitals and out in the community, hospital accommodation and treatment for severe cases, and the assistance offered by volunteers and other agencies wherever it was needed. For the burial of the dead the main issues under consideration are the work of undertakers, gravediggers and associated trades and their ability to cope with the sudden rise in funerals, particularly during the second and most deadly wave of the Influenza pandemic, when mortality rates rose sharply and there was heavy demand for graves, coffins, wreaths and funeral services.

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<sup>1</sup> K. A. Porter, *Pale Horse, Pale Rider* (New York, 1967), p. 126.

<sup>2</sup> Tomkins, 'The Failure of Expertise', p. 443.

## Health care in Britain before 1948

In Britain in 1918, thirty years before the founding of the National Health Service, access to the services of a doctor or hospital care was limited. Those with the financial resources paid for private health care, but for the rest it was not readily available. In 1911 chancellor Lloyd George had introduced the National Health Insurance scheme whereby flat-rate subscriptions were paid by employers and their workers. The benefits to this scheme included limited free care from a panel doctor who received a capitation fee for each panel patient treated. Unfortunately this system only provided for the person subscribing and not for their dependants. The very needy were provided for by the Poor Law and the infirmaries in workhouses. For others there were voluntary charity and corporation institutions but according to Virginia Berridge:

Britain's health care system, pre-1948, did not work well. It was a patchwork of institutions which were not accessible according to need. The two primary deficiencies were lack of access to hospital care and lack of access to health care for dependants – the families of working men. Many of these had no form of health cover and had to use self-medication or medicines bought over the counter from the local pharmacist.<sup>3</sup>

In his book on hospitals, Brian Abel-Smith describes the medical resources available in England on the eve of WWI in 1914. He noted that for a population of 36 million there were 24,000 doctors and about half that number of trained, practising nurses. In terms of hospital accommodation he states that there were 45,000 beds in 800 voluntary hospitals, a further 40,000 beds in hospitals run by public authorities such as smallpox, fever and military hospitals and 120,000 beds in the 700 Poor Law institutions in the country but these he points out were not suitable for the acutely sick.<sup>4</sup>

Abel-Smith goes on to explain how, with the start of the war and the appearance of military casualties, civilian needs were considered less important and hospital beds were increasingly given over to military use, as were entire buildings in some hospitals. A number of Poor Law institutions were also taken over entirely by military

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<sup>3</sup> V. Berridge, *The NHS: what can we learn from history?* <<http://www.historyextra.com>>, accessed 19 April 2011.

<sup>4</sup> B. Abel-Smith, *The Hospitals 1800-1948* (1964), p. 252.

authorities for the sole use of wounded servicemen, for example, the North Evington Poor Law Infirmary in Leicester and the Bagthorpe Infirmary in Nottingham.<sup>5</sup> Consequently, by the end of 1915, with provision for civilian sick continuing to be eroded, 90,000 hospital beds were reserved for military use and 70,000 of them were occupied.<sup>6</sup>

Added to this problem, many doctors in civilian practice had been called up for military service. This meant that even without the influenza pandemic, health services for civilians were under great pressure but in the face of an additional crisis they were in danger of collapse. As explained by Sir Auckland Geddes, Minister of National Service:

In order to provide medical officers for the armed forces, the medical profession in Great Britain had to be depleted during the war to an extreme extent... Moreover...since the outbreak of war, the armed forces have claimed practically all the newly-qualified men who are normally available to restore the civil wastage in the profession... Even before the epidemic, a week rarely passed without some instances occurring in which some district had become wholly unprovided for by reason of the death or breakdown of the sole remaining practitioner.<sup>7</sup>

F. R. Van Hartesveldt comments on this point, adding some significant statistics. He points out that by January 1918, less than six months before the first wave of the influenza pandemic appeared in the civilian population in Britain, 12,720 British doctors, over 52 per cent of those working in the medical profession, had been taken into military service. Consequently, in some locations, there was only one doctor to 5,000 civilians. He also points out that matters were made worse in the spring of that year by a surprise German offensive which caused the conscription age for doctors to be raised to over fifty. This meant that those doctors left in civilian practice were generally more elderly and did not have up-to-date training.<sup>8</sup> So the resources

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<sup>5</sup> *ibid*, pp. 258-259.

<sup>6</sup> *ibid*, p. 260.

<sup>7</sup> Memorandum to the War Cabinet, 'Demobilisation of RAMC Medical Officers', 4.12.1918, CAB/24/71, London, TNA.

<sup>8</sup> F. R. van Hartesveldt, 'The Doctors and the 'Flu': The British Medical Profession's Response to the Influenza Pandemic of 1918-19', *International Social Science Review*, 85/ 1 (2012), pp. 33; Wilson, *The Myriad Faces of War*, p. 651.

available for the care of the civilian sick in 1918 when the first wave of influenza struck were not only unequally distributed but were also wholly inadequate.

The first wave of influenza arrived in Britain, according to official records, in June, in itself an unusual event, influenza normally appearing in the cold autumn and winter months.<sup>9</sup> Although not thought to be particularly serious at the time, it proved to be extremely contagious and unexpectedly lethal, as admitted by George Newman, Chief Medical Officer at the new Ministry of Health:

In the summer epidemic the civilian population appears to have escaped comparatively lightly, although it is now evident that in the aggregate the death roll was considerable...from June 22<sup>nd</sup> to August 10<sup>th</sup> 1918, the number of deaths attributed to influenza numbered 4,894 or 29.3 per 100,000 population. These figures...take no account of deaths from pneumonia in which influenza was not also mentioned...the case mortality was low, and probably for this reason and the fact that long familiarity with the non-pandemic form of the disease had bred contempt of its killing power, the outbreak aroused less anxiety in the public mind – both lay and professional – than subsequent experience showed to be its due.<sup>10</sup>

More recent re-assessment of mortality from the influenza pandemic shows Newman's figures to be well short. Tomkins points out that the summer or first wave of the pandemic, despite its apparent mildness, actually claimed 19,000 victims in Britain and equalled the mortality of the epidemics of the 1890s.<sup>11</sup>

The speed with which the pandemic spread meant that local chemist shops quickly sold out of popular remedies such as quinine, cinnamon and eucalyptus oil.<sup>12</sup> But as self-medication proved insufficient the need for proper medical care and the services of a doctor became urgent. However, with the war still in full flow, services were already seriously stretched and help was often difficult to find. By July, the East Midlands' press was commenting on queues outside surgeries in the region: 'At Derby

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<sup>9</sup> Address by Sir Arthur Newsholme, 'Discussions on Influenza,' *Proceedings of the Royal Society of Medicine*, 1918, p. 10.

<sup>10</sup> 'Ministry of Health, *Memorandum on Prevention of Influenza*, p. 2.

<sup>11</sup> Tomkins, *Britain and the Influenza Epidemic of 1918-1919*, p. 32.

<sup>12</sup> *Nottingham Evening Post*, 6 July 1918, p. 2.

medical queues have made their appearance, patients assembling outside the surgeries of doctors to await their turn for a supply of medicine.'<sup>13</sup>

In the Leicester press, the report of the death of a woman showed how quickly the disease could overtake a victim: 'A doctor was stopped in the street by a woman who said she was suffering from influenza and while he was talking with her she collapsed and died almost immediately.'<sup>14</sup>

As the summer progressed, some thought the crisis had passed. In Leicestershire, for example, it was announced that 'Influenza is now definitely on the downgrade.'<sup>15</sup> But as the autumn approached and a second wave of infection loomed the mood changed. In Loughborough, at a town council meeting, MOH, Dr Blackham, declared that another epidemic threatened.<sup>16</sup> When it arrived it was clearly very different to the first wave of influenza in the summer, particularly with regard to the serious complications which accompanied it, such as pneumonia: 'In the fall of 1918... the rate of infection was lower than during the first wave, but the virulence and rate of complications were much higher, thus making the need for hospital care greater because fewer sufferers of influenza could get by on their own.'<sup>17</sup>

#### Hospitals in the East Midlands

By October 1918, the issue of medical care for the sick had become critical as levels of infection rose alarmingly, including within the medical profession, and lack of hospital accommodation and trained staff to care for civilians became serious. Leicester hospitals were reported to be badly affected.

The influenza epidemic in Leicester shows no sign of abatement, and various public institutions are affected, notably the Poor Law Infirmary, where there is a large increase of admissions, many of the cases of illness being acute, and a long list of nurses on the sick-list. At one time, 28 members of the nursing staff were off duty, and at the present time about a score are affected, whilst one nurse succumbed. During the week ending Saturday last 11 patients died,

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<sup>13</sup> *Nottingham Daily Express*, 10 June 1918, p. 1.

<sup>14</sup> *Leicester Evening Mail*, 10 July 1918, p. 1.

<sup>15</sup> *Loughborough Monitor and News*, 11 July 1918, p. 4; *Leicester Journal*, 12 July 1918, p. 4.

<sup>16</sup> *Loughborough Monitor and News*, 10 October 1918, p. 2.

<sup>17</sup> van Hartesveldt, 'The Doctors and the 'Flu', p. 33.

chiefly from pneumonia following the influenza. The staff at Gilroes Isolation Hospital is also depleted.<sup>18</sup>

This resulted in some patients whose needs were not as urgent having to make way for influenza sufferers.

The medical officer regrets that it is necessary to restrict the accommodation for tuberculosis cases at Gilroes, but in view of the present urgent need no other course could be followed than to release beds for influenza and pneumonia cases. He hopes, however, it may soon be possible to revert to normal facilities for tuberculosis cases. In order to release nurses for the epidemic, it may be necessary to close temporarily the children's hospital on Anstey Lane.<sup>19</sup>

A similar situation occurred at Groby Road Hospital in Leicester. With 23 cases having been admitted within two days, 'It has been decided to reduce the accommodation for scarlet fever cases... and this will liberate both nurses and beds at the hospital. There is urgent need for more hospital accommodation... many applications have had to be refused.'<sup>20</sup> At the time only women and children were being admitted to the hospital but the extra space allowed for the admittance of men.<sup>21</sup>

Across the county, hospital authorities were also making special provision for influenza victims: 'At a special meeting of the Melton and Belvoir Hospital Committee on Tuesday... It was decided to set apart two wards of the hospital for the reception of severe cases of influenza.'<sup>22</sup>

One Leicester hospital which did not make provision for influenza patients was the Royal Infirmary which concentrated its resources on military needs: 'The Royal Infirmary also considered the proposal of giving similar help, but found it impracticable owing to the increasing demand upon the accommodation of the institution for wounded soldiers.'<sup>23</sup>

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<sup>18</sup> *Leicester Mercury*, 25 October 1918, p. 7.

<sup>19</sup> *ibid*, 1 November 1918, p. 7.

<sup>20</sup> *Leicester Daily Post*, 4 November 1918, p. 3.

<sup>21</sup> *ibid*, 6 November 1918, p. 3.

<sup>22</sup> *Lincoln, Rutland and Stamford Mercury*, 8 November 1918, p. 3.

<sup>23</sup> *Leicester Evening Mail*, 29 October 1918, p. 1.

The situation in Nottingham and Derby with regard to hospital beds and staffing seems to have been less urgent according to local press reports which had less to say on these issues. Even as influenza cases increased, reports remained brief and generally more positive than those of Leicester, which could indicate that resources in Nottingham and Derby were either sufficient to cope with the extra demands placed upon them or were perhaps more effectively organised. There may also have been a desire not to alarm the public with the idea that the people and places they would turn to in their need, were themselves unable to cope with the crisis. Even so, the Nottingham press did make a brief comment that nearly all hospitals in the town at that time had influenza cases amongst staff.<sup>24</sup>

One organisational measure which was taken in Nottingham to deal with the emergency was described by the MOH, Dr Philip Boobbyer, in his summary of annual health reports.

Annesley House (No. 95 Queen's Walk), which till the end of October had been used as a War Crèche, was at once fitted up as an emergency influenza hospital, and speedily filled with stranded patients at all stages of the disease, and in all conditions – many delirious and dying... All the hospitals of the city were united, at this time, in the good work of succouring the people in their unexampled distress.<sup>25</sup>

Reports confirm that the Nottingham General Hospital and The Nottingham Isolation Hospital at Bagthorpe were also providing for the most serious cases of influenza, the latter having set aside a block of 36 beds for influenza victims.<sup>26</sup>

In the Derby press, no indication of special measures was given and no reference to the state of hospitals and their staff during this second wave of influenza until December 1918 when it was reported:

The medical officer has reported to the House Committee of Derby Board of Guardians that the pressure on the wards has been excessive owing to the epidemic of influenza...some of the less severe cases had been warded in the

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<sup>24</sup> *Nottingham Evening Post*, 28 October 1918, p. 2.

<sup>25</sup> P. Boobbyer, *Summary of Annual Health Reports for the Period 1916-1928*, pp. 79-80.

<sup>26</sup> *Nottingham Daily Express*, 15 November 1918, p. 3; *Nottingham Evening Post*, 15 November 1918, p. 2.

schools and attended by the matron and her staff. Twelve of the nurses had been ill, but the nursing had been carried out exceedingly well under extraordinary difficulties...<sup>27</sup>

The following week, a more solemn story did appear in the Derby press, the death of the Matron of Holbrook convalescent home, although the inference was clearly that, those infirm staff infected invariably recovered and this was a tragic exception.

A victim of the influenza scourge...Miss Sarah Holland, Matron of the Derbyshire Royal infirmery Convalescent Home Holbrook, died on Wednesday after six days illness... It is the first fatal case concerning the Derbyshire Infirmary staff, 50 of whom have been affected by the epidemic, while as many as 20 were suffering at one time.<sup>28</sup>

#### Treatment

Little is said in contemporary writings about the kind of treatment given to patients in hospital. In his book on the social history of influenza, Tom Quinn makes reference to the 'open air' treatment, originally pioneered by Dr Leonard Hill in London, which was provided for many influenza victims in 1918. It was a treatment which became established in a number of countries outside Britain, notably in parts of the USA, Denmark and Italy, but Quinn points out that although it helped to reduce temperatures it did little to reduce the escalating mortality rate.<sup>29</sup>

Quinn also refers to one hospital influenza treatment as being particularly bizarre, that of placing patients on 'soaking wet beds and sprinkling them regularly with cold water to keep them completely sodden'; he gives no further details, nor reveals in which hospitals this treatment was being used.<sup>30</sup> However, this appears to be based on the popular Victorian hydrotherapy remedy known as the 'Malvern Water Cure', which was first offered in England at Malvern Spa in 1842 and was used as a treatment for a wide variety of ailments. Research by J. W. Harcup in the 1990s, showed that cold water applied in this way, stimulates the immune system and results in a dramatic increase in white blood cells. Whether this was helpful in overcoming influenza is not known and as immune system over-reaction is thought to have been a probable cause

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<sup>27</sup> *Derby Mercury*, Friday 13 December 1918 p. 5.

<sup>28</sup> *ibid*, 20 December 1918, p. 2.

<sup>29</sup> Quinn, *Flu: A Social History of Influenza*, p. 139.

<sup>30</sup> *ibid*, p. 139.

of so many deaths in younger adults during the pandemic, it may possibly have been a dangerous therapy if used.<sup>31</sup>

Certainly fresh air was very much favoured by the MOHs in both Leicester and Nottingham. In Nottingham, Dr Bobbyer was particularly vocal on the benefits of fresh air for the healthy as well as the sick and used it as a specific treatment for influenza patients. He declared, 'The little hospital at Queen's Walk, although quite full of bad cases, is a striking object lesson of the value of fresh air treatment, as all the patients are doing well under the open air regime.'<sup>32</sup>

He was critical of the fact that some people just would not 'see sense' on this issue:

Poor people living in small houses will persist in keeping the doors and windows closed, and consequently poison themselves in this way when the weather is cold.

A remarkable instance was seen at the Queen's Walk Influenza Hospital the other day. A patient was admitted, accompanied by his sister, but when the sister saw the windows of the ward open and a free circulation of the air, she refused to allow the man to remain, on the grounds that he would 'catch his death of cold after being in a warm room' and took him home again. Quite intelligent people are found to be guilty of this error.<sup>33</sup>

In Leicester, Dr Charles Millard explained at a conference in the town hall that no prescriptions could usefully be made out to deal with influenza, but 'the great thing was fresh air'.<sup>34</sup> However, although this was advice he regularly issued to the general public in press reports, there is no evidence to date that it influenced treatment in Leicester hospitals.

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<sup>31</sup> J. W. Harcup, *The Malvern Water Cure* (Malvern, 1992); pp. 19-34. Victorian Pharmacy (1996) Lion Television production for the BBC, episode 1

<sup>32</sup> *Nottingham Evening Post*, 25 November 1918, p. 2.

<sup>33</sup> *Nottingham Daily Express*, 23 December 1918, p. 3.

<sup>34</sup> *Leicester Mercury*, 31 October 1918, p. 3.

Despite the conviction of the MOHs, many people remained unconvinced by the fresh air treatment. Boobyer complained that he was 'unable to persuade several public bodies, including the tramway authorities, to adopt open-air treatment to the full'.<sup>35</sup>

Further doubts were also expressed in the Nottingham news when it was reported that despite numerous severe cases in the city, no members of either the city or the county police force had so far been affected. The writer commented that regardless of the beneficial effects fresh air was supposed to have, there were many people who spent a great deal of their time in the open air who were nonetheless amongst the victims.<sup>36</sup>

A similar sentiment was expressed in Leicester at a meeting of the Board of Guardians to discuss the situation at the Poor Law Countesthorpe Cottage Homes where 140 children and all but one teacher were down with the infection. Mr Holland asserted that 'fresh air did not mean everything apparently'.<sup>37</sup>

An even more curious situation in London was reported in the Leicester press, of 500 employees of the London Omnibus Company who were all away with influenza whilst workers on the underground railway remained largely unaffected.<sup>38</sup>

Interestingly, Dr J. A. Fairer, Senior Assistant Medical Officer for Leicestershire, in a conference of medical officers in the north of England referred to earlier, gave his observations on cases he had attended during his military service. He declared that the whole treatment for influenza was generally unsatisfactory and that the essential course of action for patients was bed rest and the use of nasal douches and gargles. No mention was made of the importance of fresh air.<sup>39</sup>

#### Special facilities

For those serious enough to require hospitalisation, a common approach in Britain, including the East Midlands, was to set aside wards exclusively for influenza patients. However, this was not as extensive as the measures being taken in other countries. Tomkins refers to the British response as being 'sharply at variance' with that of other

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<sup>35</sup> *Nottingham Evening Post*, 25 November 1918, p. 2.

<sup>36</sup> *Nottingham Daily Express*, 30 October 1918, p. 1.

<sup>37</sup> *Leicester Mercury*, 30 October 1918, p. 5.

<sup>38</sup> *ibid*, 23 October 1918, p. 1.

<sup>39</sup> *Leicester Daily Post*, 25 February 1919, p. 3.

developed countries such as Australia, Canada and the United States and speaks of its 'quiescence' in comparison to the efforts mounted elsewhere. In certain other countries, special facilities were set up specifically for influenza victims. She quotes the examples of Vancouver in Canada where an emergency hospital was built and Ballarat in Australia where a stadium was converted to accommodate the sick.<sup>40</sup>

In New Zealand too, Geoffrey Rice states that numerous schools and colleges and even a mansion in Auckland were converted into temporary influenza hospitals, largely staffed by volunteers.<sup>41</sup> In the East Midlands, apart from the conversion of the crèche in Nottingham and the setting aside of wards in certain hospitals, few other special arrangements appear to have been made for influenza patients despite the high levels of morbidity and mortality in the region.

Furthermore, in her article criticising Britain's public health policy during the influenza pandemic, Tomkins asserts that wartime circumstances were not enough to explain this deficiency as countries as seriously affected by the war as Britain made strenuous efforts to provide extra hospital facilities for influenza sufferers and, despite the severe shortage of doctors and nurses, also managed to staff them. Tomkins suggests the reason for this apparent inertia was largely due to public attitudes and expectations. She points to the public desire for reassurance that this was only influenza and so could be dealt with quite satisfactorily by the facilities already in place, thus no additional arrangements were deemed to be necessary.<sup>42</sup>

Certainly there was criticism at the time of the medical response in Britain to the pandemic which highlighted the differences between the military and voluntary hospital systems and the inability of the latter to provide care for all citizens in a properly organised and co-ordinated way. In particular, in February 1919, during the course of the third wave of influenza, Sir Napier Burnett delivered a paper on 'Hospitals in Relationship to the State' to a meeting of medical professionals in Newcastle-upon-Tyne, during which he drew attention to the inadequacies of the voluntary hospital system in treating the victims of influenza, due to a lack of proper facilities and a diverse range of treatments. He called upon the government to finance civil hospitals and to 'exercise a co-ordinating control over the whole system'

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<sup>40</sup> Tomkins, *Britain and the Influenza Epidemic of 1918-1919*, p. 257.

<sup>41</sup> Rice, *Black November*, pp. 82-83.

<sup>42</sup> Tomkins, *Britain and the Influenza Epidemic of 1918-1919*, pp. 256-256.

as a means of improving communication, making best use of resources and providing better care for all. <sup>43</sup>

#### Care in the community

Nonetheless, With such limited hospital space and staff reduced not only by military service but also by the effects of the influenza pandemic, many victims had to be cared for at home if at all possible which meant that a plan of action had to be devised to enable care to be carried out in the community.

The limited resources available for civilian care had to be utilised in the most effective ways with as much additional help as possible. To this end a conference took place in Leicester at the end of October 1918, between the Sanitary Committee and doctors of the Public Medical Service. With the second wave of influenza now well underway the situation in the borough had become very serious and so it was decided:

to virtually suspend the ordinary work of the public health and nursing services, and to concentrate on the influenza epidemic.

The medical and nursing staffs directly in the service of the Town Council will be placed at the disposal of the town for this purpose, and Dr. Mary Weston has been secured to assist the medical men as and when required.

As matters stand at present, the doctors in private and panel practice are unable to cope with their work.

The Tuberculosis Dispensary will be closed for all practical purposes...<sup>44</sup>

Dr Weston was in charge of infant welfare and Dr Thomson the tuberculosis dispensary, but their work was redirected to cope with the epidemic. The situation was summed up in a letter to the editor of the *Leicester Mercury* by Alderman Thomas Windley, chairman of the Leicester Sanitary Committee at that time. Stressing that 'There has never been so rapidly fatal an epidemic as this in Leicester,' Windley announced:

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<sup>43</sup> *Leicester Daily Post*, 21 February 1919, p. 3; *Nottingham Daily Journal and Express*, Friday 21 February 1919, p. 5.

<sup>44</sup> *Leicester Mercury*, 26 October 1918, p. 2.

The Sanitary Committee have given special attention this afternoon to the very serious state of things brought about by the prevailing epidemic of influenza in Leicester. The medical men in the town are greatly overworked, and despite their utmost efforts they cannot give the attention to all the cases that they wish to do.<sup>45</sup>

Dr Millard, the MOH for Leicester, was responsible for ensuring that anyone 'unable to secure the attendance of a doctor in urgent cases of influenza' received medical assistance.<sup>46</sup> Even so, not everyone received attention in time and the pages of the local press carried many such stories. The issue was also raised by the mayor during a meeting of the Leicester Town Council, when he complained that 'the services of doctors could not be obtained, and...children had died in consequence'.<sup>47</sup>

However, those doctors still working in civilian practice were doing their best in the face of insurmountable difficulties. As van Hartesveldt explained, with so many nurses on military service, many doctors, working without assistance, saw hundreds of influenza cases during the course of a day and 'responded heroically to the crisis'.<sup>48</sup>

Furthermore, the speed at which influenza could strike was such as to often defy the best efforts that medical men could make to reach their patients in time. Typical examples from Leicester are those of Edna Hill, who sickened and died while her daughter was out fetching a doctor,<sup>49</sup> and Evelyn Feam, a 19 year old wool spinner, who, after spending a day ill in bed, died at eleven o'clock in the evening, again before a doctor could be fetched.<sup>50</sup> A similarly swift and tragic case from Nottinghamshire was that of Mr Martin who suddenly collapsed and died while nursing his sick wife and baby. All three were later found by neighbours.<sup>51</sup>

The result of this problem was to generate a considerable increase in coroner's inquests which had to be carried out in the event of a death without the attendance of a doctor and the issuing of a death certificate. The situation was summed up by this report in the Nottingham press.

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<sup>45</sup> *ibid*

<sup>46</sup> *Leicester Mercury*, 30 October 1918, p. 5.

<sup>47</sup> *Leicester Evening Mail*, 30 October 1918, p. 1.

<sup>48</sup> van Hartesveldt, 'The Doctors and the 'Flu', p. 33.

<sup>49</sup> *Leicester Daily Post*, 16 October 1918, p. 3.

<sup>50</sup> *Leicester Mercury*, 1 July 1918, p. 2.

<sup>51</sup> *Nottingham Local News*, 30 November 1918, p. 1.

During the week-end the 'flu' has exacted another heavy toll from the inhabitants of the Nottingham district, and both the city and the county coroners this morning received further batches of reports of cases where the victims of this extraordinary malady had passed away so suddenly that it was impossible to obtain medical aid.

The city coroner has no fewer than 14 of these cases under consideration, whilst the county coroner has also received a number of reports of tragically sudden deaths from the 'flu' at Gedling, West Bridgford, Eastwood, and other parts of his district.<sup>52</sup>

#### Demobilisation of medical staff

Attempts were made by local government to alleviate the lack of available trained medical staff by appealing to the War Office. As the war entered its final stages, men continued to be conscripted and had to attend medical boards. The Mayor of Leicester, at a town council meeting in October 1918, explained that his attention had been drawn to the wasting of doctors' time on medical boards 'examining old men unlikely to render military service.'<sup>53</sup>

As a result he had sent a letter to express his concern. However, the government was already aware of the situation and a statement was made in the House of Commons by the Minister of National Service, Sir Auckland Geddes, to the effect that there would be:

...far-reaching measures to release more doctors for civil practice in the reduction of the number of doctors employed on medical boards and in the number of sittings of such boards and the cancelling for the time being of all outstanding notices for medical examination... The necessity of ensuring that as many doctors as possible should be available for civil practice has continually occupied the attention of the Ministry of National Service since the influenza epidemic began in the summer. For many weeks the Ministry has steadily been reducing the numbers of National Service Medical Boards, thereby enabling an increasingly large number of medical practitioners to devote their services exclusively to civil practice. During this period the

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<sup>52</sup> *Nottingham Evening Post*, 25 November 1918, p. 2.

<sup>53</sup> *Leicester Mercury*, 30 October 1918, p. 5.

number of medical board sessions has in fact been reduced from approximately 3,500 to 1,000 per week in order to reinforce civil practice... With the increase of influenza the number of doctors employed on medical board work had been reduced, thereby rendering an increasingly large body of medical men available for exclusively civil practice. All medical examinations in advance were also suspended for the time being. Arrangements had also been made to reinforce the medical staffs available at hospitals so far as their resources permitted.<sup>54</sup>

The War Cabinet Report for 1918 also indicates a readiness to demobilise doctors from military service.

The conclusion of the armistice coincided with the outbreak of a very serious epidemic of influenza, and the demands of the civil population for medical attention increased enormously. Steps were at once taken to demobilise from the Armed Forces (principally the RAMC) a considerable number of medical practitioners to meet the urgent civil needs. Temporary leave to return to civil practice was also granted in a large number of cases, and by these means the worst of the epidemic was tided over.<sup>55</sup>

Following this the Derbyshire press carried an optimistic report with regard to the return of panel doctors:

The reassuring announcement was made at Monday's meeting of the Derbyshire Insurance Committee that there was every prospect of an improvement in the medical service in the near future. The secretary (Mr A. J. Cash) stated that of the 50 panel doctors from the county who were on military service up to a recent date, eight had now received instructions to return to their civil practices, while others had been placed on the list for quick release.<sup>56</sup>

However, these efforts fell well short of what was required, as evidenced by a memorandum sent by Geddes to the War Cabinet in December 1918 on the demobilisation of medical officers serving in the RAMC:

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<sup>54</sup> *Nottingham Evening Post*, 29 October 1918, p. 2; *Nottingham Daily Express*, 30 October 1918, p. 1.

<sup>55</sup> Parliamentary Papers [Cmd. 325], War Cabinet Report for the Year 1918 (1919), p. 134.

<sup>56</sup> *Derby Mercury*, 20 December 1918, p. 6.

The present situation as regards the medical service of the civil community in this country is everywhere one of acute danger, and in many areas one of actual breakdown...the severity and length of the present epidemic of influenza and pneumonia has practically broken down the best defences which the remnant of the profession in civil practice have been able to oppose... Upon the outbreak of the epidemic this autumn, these cases were enormously increased in number and special efforts were made by my Department to cope with the worst emergencies with the limited resources at its disposal. These resources were, however, rapidly exhausted, and when an armistice seemed imminent the Department took up with the Army Medical Department the question of the immediate release of a considerable number of medical officers of the R.A.M.C...the present position in this respect is gravely unsatisfactory. Under 250 men are, at the present time, understood to be in process of release for civil practice... This is wholly insufficient to meet the very serious situation which at present exists... I feel it imperative, therefore, to ask that steps may be taken by the War Cabinet to ensure the immediate demobilisation of additional medical officers at a rate which will release for civil practice and public health work a further five or six hundred within the next fortnight.<sup>57</sup>

Attached to this memorandum was an appendix of cases indicating the extreme circumstances in which the medical profession in civil practice found itself. One case was from a general practitioner in Nottingham.

I beg to represent, as a matter of the gravest and most immediate urgency the necessity for the demobilisation of men from the army to help the local profession – otherwise a serious scandal is almost certain to arise. We at the clinic are carrying over 40 and 50 patients, and even more, from one day's waiting list to the next. Cases are being left for days unvisited after the messages are just received, and the cases of pneumonia, etc. have to be left for days between visits, and the unvisited cases may any of them be pneumonia or even of more urgent consequences, yet it is physically impossible to cover the ground. I am personally extremely near the limit of my physical endurance, after working for a long period from 14 to 18 hours (or

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<sup>57</sup> 'Demobilisation of R.A.M.C. Medical Officers', 4.12.1918, CAB/24/71, London, TNA.

more occasionally) Sundays and week-days. Meantime we are all grossly misused and our patients are literally being neglected and unattended...<sup>58</sup>

Unfortunately, the issue of the demobilisation of doctors from military service was not quickly resolved, despite reassurances from the War Cabinet and it was not until February 1919, when the influenza pandemic was in its third and final wave, that any significant improvement was made in the restoration of doctors to civil practice according to Dr Millard of Leicester.<sup>59</sup> However, it would appear that not everyone was as fortunate.

The criticisms levelled at the government over the slowness of the demobilisation of doctors and nurses were indeed valid as questions in the House of Commons on the issue continued well into 1919. On 19 February, 1919, the Secretary of State for War was pointedly asked if the demobilisation of doctors and nurses could be speeded up in view of the serious understaffing of civil hospitals and the consequent suffering that this was causing. His response was non-committal as he stated that everyone that could be spared was being demobilised but that as there were still so many sick and wounded military personnel in hospitals both at home and abroad, the retention of a large staff of doctors and nurses was necessary.<sup>60</sup>

By March 1919, with frustration mounting, actual numbers of doctors and nurses released from military service was called for. Churchill, as Secretary for War gave the response: 'There were 11,193 doctors and 23,931 nurses employed in the Army on 11<sup>th</sup> November last, and 9,593 doctors and 20,141 nurses are at present serving.'<sup>61</sup>

In reply to this revelation, Conservative MP Leonard Lyle, indicated the disbelief and exasperation that was being felt at the government's failure to appreciate the need in the civilian population and take action to alleviate it: 'Does the right honourable Gentleman fully realise that owing to the influenza epidemic in this country hundreds of people – I do not think I am exaggerating – are dying for want of nursing. The point of the question is the lack of nurses as well as doctors.'<sup>62</sup>

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<sup>58</sup> *ibid* p. 88.

<sup>59</sup> *Leicester Daily Post*, 18 February 1919, p. 3.

<sup>60</sup> 'Doctors and Nurses', HC Deb. 19 February 1919, vol. 112, cc913-4.

<sup>61</sup> 'Army Doctors and Nurses', HC Deb. 4 March 1919, vol. 113, cc191-2.

<sup>62</sup> *ibid*.

Churchill insisted that he did understand and that demobilisation of medical staff must be speeded up. However, despite two further demands for action from Lyle during March, the same question was still being asked in April and the figures quoted, although improved, indicated that there were still a great many doctors and nurses being retained by the military authorities.<sup>63</sup>

#### The need for nurses

Of particular significance in Lyle's questioning here, is his emphasis on the need for the demobilisation of nurses. At a time when so many were demanding the release of doctors from military service, the medical professionals who it was believed would be able to bring an end to the pandemic and the terrible suffering it was inflicting, it appears that Lyle at least understood that the greatest need of influenza victims was for nursing care. Furthermore, this was acknowledged by the LGB in a memorandum on catarrhs and influenza, in which it was stated: 'Satisfactory nursing is most important in the prevention of complications and in aiding recovery from a severe attack.'<sup>64</sup>

In their account of the influenza pandemic in America, Dorothy Pettit and Janice Bailie stated that 'The importance of the contribution of nurses...during the pandemic cannot be overstated.'<sup>65</sup> While in her PhD thesis, Tomkins stressed that 'Nursing... was the single most important factor in coping with the epidemic'<sup>66</sup> and was 'more important than medical intervention...'<sup>67</sup> She argues that while doctors persisted in the mistaken belief that they had the power to prevent or cure influenza and concentrated their efforts on issuing advice and administering all manner of treatments in a largely futile attempt to accomplish these ends, nurses devoted their time and skills to the most urgent needs of alleviating the suffering of the sick and supporting affected families. Indeed, the value of nurses during this crisis was officially acknowledged by Dr Herbert French, physician to the royal household, in the Ministry of Health Report in 1920 when, in discussing the effective treatment of influenza during the pandemic, he declared that 'nursing was of infinitely greater importance than the drugs administered.'<sup>68</sup>

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<sup>63</sup> 'Doctors and Nurses', HC Deb 11 March 1919, vol. 113, cc1061-2 and 25 March 1919, vol. 114, cc193-4; 'Medical Practitioners', HC Deb. 8 April 1919, vol. 114, c1830.

<sup>64</sup> LGB, *Memorandum on Epidemic Catarrhs and Influenza* (London, 1918), p. 5.

<sup>65</sup> D. A. Pettit and J. Bailie, *A Cruel Wind: Pandemic Flu in America 1918-1920* (Tennessee, 2009), p. 104.

<sup>66</sup> Tomkins, *Britain and the Influenza Epidemic of 1918-1919*, p. 43.

<sup>67</sup> *ibid*, p. 45.

<sup>68</sup> Ministry of Health, *Public Health and Medical Subjects No. 4*, p. 93.

In the meantime, however, with so many nurses as well as doctors being retained by military authorities, the local press was full of reports of the difficulties being faced in trying to treat the sick. Dr Boobbyer, in Nottingham declared '...the position is still getting worse, and... it is aggravated by the shortage of doctors and nurses. Some doctors have not had their clothes off for two or three days... Several doctors have over 200 patients on their lists.'<sup>69</sup>

One Nottingham doctor who had to suspend his morning surgery in order to visit influenza victims devised a system to help him overcome his difficulties. He simply left prepared medication at his practice and patients would call in and collect it.<sup>70</sup>

In Leicester the situation was much the same:

Dr C. Killick Millard, the Medical Officer of Health, and such assistants as are at his disposal are continuing the war against the germ... Private doctors are still greatly overworked, and one of them is stated to be in bed himself with a temperature. A story is also told of a well-known local doctor who has not been to bed for 16 nights.<sup>71</sup>

As in Nottingham, so a Leicester doctor also devised a system to help him provide for all his patients: '...one doctor, summoned to 35 influenza patients in one street, in order to get through his calls wrote one prescription, and told the recipients to pass it along to the other sufferers in the thoroughfare'.<sup>72</sup>

Very little appeared in the Derbyshire press on this issue other than a brief mention in a report on the inquests of two local victims of influenza where it was stated that '...great difficulty...is being experienced in getting medical assistance, owing to the exceptional pressure under which the fewer medical men in the town are working'.<sup>73</sup>

With all but the most severe cases having to be treated at home, it was necessary to have sufficient people able to go out into the community to provide care, especially

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<sup>69</sup> *Nottingham Evening Post*, 4 November 1918, p. 4.

<sup>70</sup> *Nottingham Daily Express*, 29 November 1918, p. 3.

<sup>71</sup> *Leicester Evening Mail*, 1 November 1918, p. 4.

<sup>72</sup> *Leicester Daily Post*, 23 October 1918, p. 4.

<sup>73</sup> *Derby Daily Telegraph*, 2 December 1918, p. 3.

nursing. Here, too, there was a serious shortage of personnel, as explained once again by Alderman Windley.

The difficulties are increased by the lack of nurses, and my committee are about to arrange with the Health Visitors and others in the service of the Corporation to confine their attention to nursing influenza cases.

But this will by no means be sufficient, and we are appealing to members of the V.A.D. and others able to assist in nursing to come to the help of the sufferers in this very distressing emergency. Mr A. W. Faire, the County Director, has kindly consented to consult the various V.A.D. Commandants, and I hope there will be a favourable response.

The nurses engaged by the District Nursing Association are doing their utmost, and if there are any at other institutions in the town who can assist, Dr. Millard will be pleased to hear from them.<sup>74</sup>

The District Nursing Association of Leicester appears to have been very active in caring for influenza victims during the epidemic and took control not only of the organisation of others offering their services but also anyone requiring assistance: '...persons wishing to help the health authorities in the epidemic should communicate with Miss Mearns, of the District Nursing Association, New Walk, who has undertaken this department of the work, and those requiring help should apply to her.'<sup>75</sup>

Local newspapers were quick to acknowledge the significance of the contribution made by the District Nursing Association 'whose nurses worked most indefatigably, attending cases at all hours of the day or night. To them and to Miss Mearns, the matron of the association, who kindly took on the guidance of all the nurses, and attended some of the serious cases herself, the town is greatly indebted.'<sup>76</sup>

In a meeting of Leicester Town Council at the end of November 1918, the district nurses were singled out for a special resolution of thanks for their tireless efforts during what was seen as the worst of the crisis. During a period of six weeks the

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<sup>74</sup> *Leicester Mercury*, 26 October 1918, p. 2.

<sup>75</sup> *Leicester Daily Post*, 1 November 1918, p. 3.

<sup>76</sup> *Leicester Daily Post*, 27 November 1918, p. 3.

district nurses had made a total of 9,063 nursing visits within the community, thus, Councillor Aslett declared, 'It was very largely due to their splendid work that they did not have an even higher death-rate.'<sup>77</sup>

Nottingham did not seem to have the same difficulty with regard to finding nurses as Leicester according to reports in the local press. Nurses in Nottingham were also given responsibility for handling the less serious cases themselves: 'The system of supplying competent nurses to the doctors in the city is being extended by Dr P. Boobyer...and excellent results are being obtained. By placing nurses in charge of the less serious cases the doctors are able to devote their time and skill to those patients badly stricken with the malady.'<sup>78</sup>

The following week the same newspaper added: 'A large number of qualified nurses have been pressed into service, some taking the places of the medical men who have fallen victim, and others acting under the instructions of the bed-fast medicos and assistants.'<sup>79</sup> An entry in the city's health committee minute book for 1918 indicates the source of this extra staff. It states that, as a result of the pandemic, maternity and infant welfare centres in the city had been closed and their entire nursing staffs, a total of sixteen nurses, had all volunteered to provide care for influenza cases.<sup>80</sup>

Dr Boobyer's strategies during the influenza crisis were deemed so effective, that they received high level praise:

Col. James, a medical expert, who has just returned from Mesopotamia, visited Nottingham yesterday on behalf of the Local Government Board, and complimented Dr Boobyer on the steps taken to combat the disease. He specially praised the arrangement whereby all the nurses employed by the Health department visit cases as soon as they are notified to medical men, and then report to the latter whether special attention is required. Without this assistance the medical service of the city must have broken down badly.<sup>81</sup>

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<sup>77</sup> *Leicester Journal*, Friday 29 November 1918, p. 3.

<sup>78</sup> *Nottingham Daily Express*, 8 November 1918, p. 1.

<sup>79</sup> *ibid*, 15 November 1918, p. 3.

<sup>80</sup> City of Nottingham Health Committee Minute Book no. 30, 3 December 1918, pp. 25-27, CaCm 45/29-30, Nottinghamshire Archives.

<sup>81</sup> *Nottingham Evening Post*, 15 November 1918, p. 2.

Money did not seem to be a problem either when it came to acquiring nurses even out in the county. Dr Parkinson, MOH for Basford Rural District Council, probably taking his lead from Dr Boobyer, was roundly praised for having taken steps to control the influenza epidemic by supplying nurses to various doctors '...four ladies being so engaged at a cost of £14 14s...the provision of the nurses having done an immense amount of good, and the money having been very well spent'.<sup>82</sup>

The second wave of influenza, occurring mainly between September and December 1918, was the worst in terms of morbidity and mortality and took a great toll not only of the lives of many young, productive adults, but also of the energy and resources of the survivors. At a time when people were daring to think that the danger was over, the third and final wave of influenza appeared.

In the East Midlands the third wave struck in February 1919 and once again the level of sickness stretched medical resources, with the need for more nurses being particularly acute in Leicester. Appeals for assistance were again placed in the local press.

Interviewed yesterday the Medical Officer of Health, (Dr C. K. Millard), said the situation as regards influenza was distinctly serious... It is quite evident that the town is facing another very serious outbreak, although...further assistance of all kinds is urgently needed, both in the Groby Road Hospital and for help in the homes. As regards the latter, the most urgent need is for people who are willing to sit up at night in order to relieve relatives who are getting worn out.

The number of cases in Groby Road Hospital is now 24, but unless nursing assistance can be obtained it will be impossible to admit any more.

Dr Millard added that he would like it to be understood that nurses of even limited experience would be welcome, especially V.A.D.s.<sup>83</sup>

To this end Leicester's Town Clerk undertook to write to Commandant Burder of the V.A.D. - an organisation founded in 1909 to provide nursing care and other essential services in hospitals and other places of need - to request nurses who would be willing to undertake duties in the various districts within the town where victims needed care.

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<sup>82</sup> *ibid*, 17 December 1918, p. 2.

<sup>83</sup> *Leicester Daily Post*, 25 February 1919, p. 3.

As a result, five nurses did come forward.<sup>84</sup> Once again, however, the District Nursing Association came to the fore and took charge of the situation: 'As regards the nursing of the cases in the town, Miss Mearns, of the District Nursing Association, is organising the service, as she did on a former occasion, and any offers of help should be made direct to her.'<sup>85</sup>

As before, their heroic efforts were highly praised in the local Press: 'It is a great thing to have such an institution in the town, ready at all times to come to the rescue with skilled assistance, in houses which can neither afford the fees of, nor provide the requisite accommodation for a nurse in residence during the period of illness.'<sup>86</sup> However, this time, according to one news report, the emergency was made slightly easier to handle by the fact that there were more doctors available in Leicester following demobilisation.<sup>87</sup>

The Nottinghamshire and Derbyshire newspapers did not contain the same appeals for extra nursing help during this third wave of influenza. As the epidemic affected Nottinghamshire as severely as Leicestershire according to official figures then it might be expected that the same kind of difficulties would have been experienced in both counties with regard to health care services and other support. However, Nottingham and district, under the guidance of Dr Boobbyer and his fellow MOHs, seem to have organised services very effectively, particularly during the second wave in the autumn of 1918, and these measures would appear to have continued throughout the third and final wave of influenza in February and March of 1919. Whether this indicates that Leicestershire's response to the crisis on an official level was less well organised or that there was some especially difficult aspect to acquiring resources is unclear given the range of contemporary material available for study.

With regard to Derbyshire, again according to official figures, being the less severely afflicted of the three East Midland counties under examination, it may have had sufficient resources to cope with the higher levels of mortality and morbidity during the three waves of influenza or it may have adopted a less active approach, an issue which will be explored further in the next chapter.

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<sup>84</sup> *Leicester Journal*, 7 March 1919, p. 3.

<sup>85</sup> *Leicester Daily Post*, 24 February 1919, p. 3.

<sup>86</sup> *ibid*, 18 February 1918, p. 2.

<sup>87</sup> *ibid*, p.3.

### Voluntary efforts

As well as calls for nurses during the second and third waves of the pandemic, appeals were also made in the Leicester press for others willing to offer domestic help so that where several family members were affected there would be someone available to prepare food, keep the house clean and care for any children not affected. In addition there was need for volunteers to sit up at night either to relieve exhausted friends and relatives of their nursing duties or to simply secure the property.

The Medical Officer of Health will gladly welcome the assistance of any ladies who have a slight knowledge of nursing, and he also appeals for volunteers...for night work. Whole households are down with the disease and in those cases it is very important that somebody should be in charge of the house during the night...<sup>88</sup>

Appeals did not meet with much success initially, very probably because, in view of the level of contagion and virulence, the people who might have been available to help were already caring for sick relatives or neighbours, were sick themselves or feared going into infected households and becoming ill. Local government was quick to express its disappointment and to offer money as an incentive: '...the appeal for nursing and domestic help has so far met with only a very moderate response. The need for this assistance is very acute... the town authorities are quite willing to pay for this assistance, the question of money not being allowed to stand in the way of securing the help which is so badly needed.'<sup>89</sup>

This was swiftly followed up by further expressions of disappointment: 'We regret to learn that so far the number of volunteers for nursing and domestic help falls lamentably short of need.'<sup>90</sup> Emotional blackmail was added by citing particularly tragic cases in the press in an effort to stir both the compassion and the patriotic fervour of local women:

We give this morning some typical cases from the Medical Officer's journal for yesterday. This is not to harrow people's feelings, or to create alarm, but to arouse those who are in a position to help to the opportunity of sisterly service

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<sup>88</sup> *Leicester Evening Mail*, 29 October 1918, p. 1.

<sup>89</sup> *Leicester Daily Post*, 31 October 1918, p. 3.

<sup>90</sup> *ibid*, 1 November 1918, p. 3.

which lies ready to hand. We do not say there is no risk. There is some risk in the service asked for and it would be wrong to minimise it; but these afflicted households cannot be left unattended. It may be a matter of life and death to have assistance, and Leicester's womanhood, healthy and able to render assistance, will not fail, any more than its men-folk failed when the call came to them from the battlefield.<sup>91</sup>

By the end of November 1918, a number of people, adults and children, had rallied to the call, including some school teachers who, because of the closure of schools due to the pandemic, used their time in the service of the sick:<sup>92</sup> Some private citizens and members of the local council even lent cars and chauffeurs to transport doctors quickly to urgent cases.<sup>93</sup>

A variety of organisations also responded by providing people and equipment. The Red Cross and The Fire Brigade lent ambulances to transport patients to hospital. Corporation Health visitors and Education Committee nurses were made available to assist and the Boy Scouts were also very active, in particular, the 9<sup>th</sup> Leicester Troop who '...have been on duty ever since the stress began...and have been most useful in going messages, answering telephone calls, acting as orderlies, and on one case, carrying soup daily from the Municipal Kitchen'.<sup>94</sup>

Nonetheless, in her assessment of the British response to providing special facilities for the care of influenza patients, Tomkins comments that the same attitudes that resulted in a lack of action with regard to hospitals also accounted for a lack of public support for voluntary efforts.<sup>95</sup> Certainly in a number of countries outside of Britain, the call for volunteers appeared to bring out the best in many people. Howard Phillips records how in Bloemfontein, white volunteers engaged zealously in ministering to the needs of the sick, with house to house visits and soup kitchens being organised to help the worst affected.<sup>96</sup> Similarly, Geoffrey Rice comments on volunteer efforts in New Zealand and there are many other examples.

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<sup>91</sup> *ibid*, 1 November 1918, p. 2.

<sup>92</sup> *ibid*, 7 November 1918, p. 2.

<sup>93</sup> *Leicester Journal*, 29 November 1918, p. 3.

<sup>94</sup> *Leicester Mercury*, 12 November 1918, p. 3.

<sup>95</sup> Tomkins, *Britain and the Influenza Pandemic of 1918-1919*, p. 258.

<sup>96</sup> Phillips, *Black October*, pp. 59-62.

However, not everyone responded in this way. Margaret Andrews describes how, during the first wave of the pandemic in Vancouver, the public response to pleas in the media for volunteers for relief work was poor and she puts this down to a reluctance on the part of the public to admit that, 'normal life was being disrupted.'<sup>97</sup> The difference between the Vancouver response and that of Britain was perhaps in the reassessment of the situation which occurred in Vancouver with the appearance of the second wave when relief efforts were entered into much more vigorously and special hospital facilities and volunteer services were quickly put in place, whereas Britain's apparent attitude of wanting to feel that the problem was being handled without it being 'drawn to their attention'<sup>98</sup> appeared to persisted.

While it has been noted that there was some difficulty in acquiring sufficient volunteers in Leicester, particularly for night work, and Dr Millard does comment on this in his annual report for 1918, there were, nonetheless, many voluntary contributions of time, effort and equipment made by individuals and organisations such as the Red Cross, the boy scouts, and even teachers who came forward following an appeal from the Education Committee when schools were closed, in order to aid doctors and contribute to the provision of community care.<sup>99</sup>

It is tempting to think that friends, neighbours and relatives in the East Midlands and the rest of Britain also volunteered readily to help those in need without this being specifically recorded or necessitating special appeals in the press. However, this cannot be assumed and only a thorough examination of provincial newspapers and local authority documents for all areas in Britain would be likely to answer that question. Significantly, however, although Tomkins points to a lack of voluntary effort in Britain, the only provincial newspapers mentioned in her primary sources are the *Glasgow Herald*, the *Glasgow Citizen* and the *Manchester Guardian*. Apart from these she refers only to the London Press and no local authority documents appear to have been cited outside those of the London boroughs.<sup>100</sup> It would seem, therefore, that the extent of voluntary efforts in Britain has yet to be fully researched.

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<sup>97</sup> M. Andrews, 'Epidemic and Public Health: Influenza in Vancouver 1918-1919', *BC Studies*, 32 (summer 1977), p. 39.

<sup>98</sup> Tomkins, *Britain and the Influenza Epidemic of 1918-1919*, p. 256.

<sup>99</sup> *Leicester Daily Post*, 6 November 1918, p. 2.

<sup>100</sup> Tomkins, *Britain and the Influenza Epidemic of 1918-1919*, pp. 301-303.

## Burial of the dead

If care of the sick was proving difficult, the proper disposal of the dead was no easier. The increase in bodies requiring preparation for burial as a result of the pandemic outstripped the available manpower and resources in many places and the danger to health of unburied corpses left for many days became a serious problem. Undertakers were inundated with requests for the removal of the dead and orders for coffins.

In her novel *This Time of Dying*, author Reina James, whose grandparents died in the influenza pandemic of 1918, paints a poignant picture of the lot of the undertaker during the worst of the crisis.

We worked right through to the evening, interrupted by people knocking for us.....A strategy would be needed when we were quite unable to provide coffins and it occurred to me to ask at the mortuary; they might well agree to take the overflow. If the dead outgrow the living until burial was only possible in pits – who would dig them?<sup>101</sup>

Once again the problem of how to deal with so many bodies was one which was experienced around the world and the answers to that problem took different forms. Barry, describing the situation in Philadelphia, states that the piling up of bodies was the most terrifying aspect of the pandemic because there was nowhere to put them. The city morgue, with sufficient capacity for 36 bodies, had 200 packed inside and as more arrived they had to be stored in houses and on porches. He describes the terrible stench and the fact that there were no coffins or caskets and the few gravediggers still unaffected refused to bury influenza victims.<sup>102</sup>

So desperate was the need for coffins that Alfred Crosby gives an account of an act tantamount to high jacking when authorities in Washington seized two railway cars of coffins destined for Pittsburgh, a city equally desperate for them.<sup>103</sup> In some instances coffins were reused, one body being dropped through the false bottom into the grave and another body being placed inside to go through the same process.<sup>104</sup> There were also cases of profiteering, with exorbitant prices being charged for those coffins that were still available, putting them beyond the means of many. Crosby notes that this

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<sup>101</sup> James, *This Time of Dying*, pp. 151-152.

<sup>102</sup> Barry, *The Great Influenza*, p. 223.

<sup>103</sup> Crosby, *America's Forgotten Pandemic*, p. 83.

<sup>104</sup> Quinn, *Flu: A Social History of Influenza*, p. 149.

was a problem in Washington D.C. where the Health Officer described it as being, 'nothing short of ghoulish in spirit and unpatriotic to the point of treason'.<sup>105</sup> Some local authorities responded to this by taking charge of coffin production themselves and stipulating the price that could be charged. Similar stories are reported from many other countries, and in some so great was the mortality that even individual coffins and graves were abandoned for communal trenches and simple blankets.<sup>106</sup>

Everywhere, undertakers, coffin makers and gravediggers struggled to keep pace with the demand for their services. In Ireland, Foley records that where there were several deceased members of the same family, they would all be interred in the same grave.<sup>107</sup> While Honigsbaum describes how in certain London boroughs the shortage of grave diggers was covered by using town hall employees and park gardeners. However, Bethnal Green, where bodies were often lying unburied for more than two weeks, appealed to the Ministry of National Service for the release of soldiers to help with burials.<sup>108</sup> Their request was ignored but similar action taken by Manchester and Sheffield, where in the latter case German prisoners were being used to dig graves but undertakers were still struggling to deal with all the burials, resulted in members of the Labour Corps from Western Command being sent to assist.<sup>109</sup> Nonetheless, the difficulty of producing enough coffins continued and some undertakers took to recommending cremation in order to solve the problem although this appears not to have been popular.<sup>110</sup>

Laws regarding cremation had only been passed in Britain in 1902 and by 1910 13 crematoria had been opened, including one in Leicester.<sup>111</sup> Although WWI had changed some minds about the appropriateness of this procedure for disposing of the dead, strict Christian beliefs together with fears that it might be used to conceal murders meant that by 1930 there were still fewer than 5 per cent of funerals which were cremations.<sup>112</sup> In a pandemic situation, therefore, the mass storage and burial of bodies posed serious problems.

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<sup>105</sup> Crosby, *America's Forgotten Pandemic*, p. 83.

<sup>106</sup> Phillips, *Black October*, p. 24; Barry, *The Great Influenza*, p. 328.

<sup>107</sup> Foley, *The Last Irish Plague*, p. 62.

<sup>108</sup> Honigsbaum, *Living with Enza*, p. 82.

<sup>109</sup> *ibid.*, p. 105; see also *Nottingham Evening Post*, 4 November 1918, p. 2.

<sup>110</sup> Honigsbaum, *Living with Enza*, p. 105.

<sup>111</sup> L. Kazmier, 'Leading the World: The role of Britain and the First World War in Promoting the "Modern Cremation" Movement', *Journal of Social History*, 42/3 (2009), p. 563.

<sup>112</sup> 'How Cremation became the Way to Go', <<http://news.bbc.co.uk>>, accessed 27 April 2014.

The Nottingham press carried a number of shocking stories from around the country highlighting the difficulties. In Glasgow, for example, which had been particularly badly hit by the effects of influenza:

Undertakers intimate that they cannot guarantee interments at fixed hours, or on specified days, and as the cemetery authorities are without sufficient gravediggers, funerals are being unduly delayed. The pressure was so great on Saturday...that some relatives were obliged to assist in preparing graves. Some interments were delayed until darkness set in. Other burials were deferred until another day<sup>113</sup>

The following month another harrowing tale was reported, this time from Birmingham: 'There is a dearth of gravediggers and undertakers and in many cases dead bodies remain in small houses for eight or ten days – in some instances in rooms occupied by the living.'<sup>114</sup>

Similarly, in the East Midlands, there were reports of serious difficulties, particularly in Leicestershire: 'The total number of funerals in Leicester last week...was 195. The figures are the most remarkable to be found in the cemetery books...the normal number is 50.'<sup>115</sup>

By November 1918, so difficult had things become in the country as a whole that, just as with doctors, questions were asked in the House of Commons with regard to the release of coffin makers, as Colonel Thorne demanded, 'Will the right hon. Gentleman make representations to the National Service Department and get as many coffin-makers as can be got back as soon as possible in consequence of the death from the influenza epidemic, as there are hundreds of bodies in this country uncoffined?'<sup>116</sup>

Associated tradesmen were also finding conditions extremely demanding even if they were ultimately very profitable: 'Mr J. T. Smith, in whose hands is practically the whole of the wreath trade, supplied nearly 150 last week, and in the first two days of

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<sup>113</sup> *Nottingham Evening Post*, 14 October 1918, p. 2.

<sup>114</sup> *Nottingham Daily Express*, 28 November 1918, p. 1.

<sup>115</sup> *Leicester Evening Mail*, 28 October 1918, p. 3.

<sup>116</sup> 'Cadet Depot, Hampstead', HC Deb. 12 November 1918, vol. 110, cc2484.

this week had reached half that total.<sup>117</sup> And market traders declared '...there is an immense demand for flowers'.<sup>118</sup>

Plans had to be made so that the limited resources available could be stretched to accommodate the needs of so many bereaved families. One such measure was to restrict the number of vehicles available for mourners: 'Undertakers in the town are particularly anxious that the public should be moderate in their demands as regards funerals, and they have found it necessary to lay down a rule that for the present only one hearse and one coach can be supplied. Even with this they are finding it difficult to cope with the work...'<sup>119</sup>

In the midst of this crisis, this one measure was the source of a joke printed in the Leicester press, perhaps a demonstration of the British tendency to find humour even in the worst of circumstances:

'First woman: Sorry to hear of your loss Mrs -----.

Second woman: Yes, poor dear. 'twas to be.

First woman: Ah! There's a lot o' deaths about.

Second woman: I suppose so; an' nobody to bury 'em; an' no hearses an' nothin'.

First woman: 'spose there's to be only *one* hearse an' one carriage in future. Disrespec'ful, I calls it.

Second woman; Yes. Thank goodness I've nothin' o' that on my conscience. I had six beautiful horses, and the hearse – only just varnished. Everything as nice as nice could be. A week later, an' as you say, there would have been only *one* hearse. Poor dear, he was just in time!'<sup>120</sup>

Other measures resulted from a meeting between the Leicester Sanitary Committee and the undertakers of the town:

...arrangements were made to meet the abnormal demand upon the undertakers and to expedite burials. It has been decided that funerals be

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<sup>117</sup> *Loughborough Monitor and News*, 7 November 1918, p. 4.

<sup>118</sup> *Leicester Daily Post*, 31 October 1918, p. 3.

<sup>119</sup> *ibid*, 30 October 1918, p. 1.

<sup>120</sup> *Leicester Evening Mail*, 31 October 1918, p. 4.

conducted from the cemetery mortuaries – bodies being conveyed there previously – to the graves, and bereaved relatives are asked to simplify the ceremonials at interment as much as possible.

The committee also decided to request the clergy and ministers not to hold funeral services in churchyards and chapels, and by this means save a great deal of the time of the undertakers.<sup>121</sup>

Further assistance was rendered by the Corporation which provided two drivers, two carpenters and extra staff for the cemeteries.<sup>122</sup> The Tramways Department also helped by assembling 100 coffins at cost in its own workshops and the local branch of the Red Cross Society provided an ambulance for the Health Department to remove bodies to the mortuaries. In a few special cases, the Corporation also assumed responsibility for the burials.<sup>123</sup>

In Nottinghamshire, similar pressures on undertakers and cemetery staff were in evidence. At Beeston: 'The constant funeral processions to the cemetery have never had their equal, and the newly-dug graves tell their own grim story. Undertakers are all busy, and are being kept at work Sundays and weekdays.'<sup>124</sup>

While at Hucknall, where an entire year's burials normally averaged 170 it was reported on 23 November 1918 that:

By Saturday, according to present bookings, there will have been 105 interments at the cemetery already this month. The gravediggers, consequently, are exceptionally busy, and Mr Chapman, the caretaker, finds it a difficult matter to secure the requisite labour for grave digging on account of the dearth of men, and illness among the usual assistants.<sup>125</sup>

At Bagthorpe workhouse, so many of the staff and inmates were affected that it brought additional problems. In a week when 22 deaths had occurred and 28 nurses

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<sup>121</sup> *ibid*, 30 October 1918, p. 1.

<sup>122</sup> *Leicester Daily Post*, 30 October, p. 1.

<sup>123</sup> C. Harrison, *In Sickness and in Health: A History of Leicester's Health and Ill Health 1900-1950*, (Leicester, 1999), p. 55; Millard, *Report on the Health of Leicester for the year 1918*, p. 13.

<sup>124</sup> *Nottingham Local News*, 23 November 1918, p. 3.

<sup>125</sup> *ibid*

were incapacitated by influenza, it was reported at the guardian's meeting that 'Amongst the victims were the majority of the Board's workmen, including joiners, the result being that there was no one there to make coffins.'<sup>126</sup>

In the city of Nottingham itself, sad scenes were becoming commonplace and the backlog of corpses awaiting burial reaching worrying proportions. Local newspapers reported on the pitiful sight of a seemingly endless flow of grieving relatives and friends to graveyards to bury deceased loved ones, some of whom had been dead for a week:

The visible effects of the epidemic in Nottingham are daily becoming more pronounced. For days it has been impossible to walk in the streets without meeting several funeral processions, and undertakers' top-hatted men are to be seen at every hour of the day and night... The burial problems are not diminishing, and instead of corpses lying an average of three or four days, they are now to wait an average of six or seven days. Very many pathetic cases are reported.<sup>127</sup>

However, although there were problems in organising funerals quickly enough, there was no problem with storing bodies until burial could be arranged.

...the difficulty of avoiding delay in burial remains. The health authorities are anxious that during the present mild weather bodies shall be removed from their homes to public mortuaries, where there is excellent accommodation. At Hyson Green there are only ten bodies, whereas accommodation exists for more than twice as many. At Leen Side the accommodation is slightly less but equally good.<sup>128</sup>

The deep sense of loss in the various communities was again expressed by touching descriptions of the graveyards where '...some really pathetic scenes have been witnessed'.<sup>129</sup>

In Leicestershire, at the height of the epidemic in November 1918, one local newspaper reported: 'The Loughborough Cemetery presents a remarkable sight with

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<sup>126</sup> *Nottingham Evening Post*, 12 November 1918, p. 2.

<sup>127</sup> *Nottingham Daily Express*, 29 November 1918, p. 3.

<sup>128</sup> *Nottingham Daily Express*, 5 December 1918, p. 1.

<sup>129</sup> *Nottingham Local News*, 23 November 1918, p. 3.

its profusion of white chrysanthemums covering the new graves.<sup>130</sup> While at Christmastime, when families should have been celebrating together, Welford Road Cemetery in Leicester was a place where many were drawn to be near their lost loved ones.

'Christmas at the Cemetery' might at first sight appear to be an incongruous newspaper headline, but it would certainly not be out of place. On Christmas Day the Welford Road Cemetery provided a scene of remarkable, if pathetic interest. It was something in the nature of a sacred pilgrimage for many hundreds of people – it would scarcely be an exaggeration to say thousands – who desired on this day to pay tribute and honour to their beloved dead. By afternoon there was scarcely a grave which did not bear some tribute of affection – a cross of evergreen or a wreath of flowers.

Especially was this noticeable in that portion of the cemetery which contained some scores of new graves, the resting places of the victims of the recent horrible scourge of influenza. With no headstones to impede the view, the ground here appeared, from a short distance away, to be one mass of flowers...<sup>131</sup>

The Derbyshire newspapers once again made no mention of any problems, this time with the care and disposal of the dead or of any emergency measures having to be put in place, although there were numerous notices of the deaths and funeral arrangements of named individuals. Again, whether this was a deliberate policy to avoid distressing people at a very difficult time or whether their facilities and procedures were sufficient for the task is not known.

This chapter has explored the measures taken in the East Midlands for the care of the victims of influenza both in hospital and in the community and the burial of those who succumbed to it and attempted to compare them with those measures taken elsewhere in Britain and overseas.

The unprecedented number of influenza victims who either needed medical care or the services of an undertaker was a common problem worldwide. With regard to those

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<sup>130</sup> *Leicester Journal*, 8 November 1918, p. 4.

<sup>131</sup> *Leicester Mercury*, 27 December 1918, p. 2.

victims still living, national and provincial newspapers of the day and the more recent reports of researchers and historians from many countries describe the efforts made by hospital staff, nursing organisations, the Red Cross, the Boy Scouts and a host of other groups and public-spirited volunteers to aid the sick in the swift dispatch of serious cases to hospitals, some of which had been set up in schools and public halls as temporary facilities to cope with the emergency, as well as make house to house visits providing soup, nursing and child care, domestic help and anything else the situation required.

Information on these issues is much more comprehensive in accounts from countries outside of Britain and this may well be, as Tomkins asserts, due to Britain's inadequate and ineffective response despite its well-developed medical and public health systems, as well as to public attitudes about the pandemic which she claims also had a negative effect on support for voluntary efforts. Certainly there was much criticism of the medical profession and health authorities at the time and this has continued in many historical accounts since. However, the fact that in 1918-19 the necessary science and technology did not yet exist to combat the infection or even to see what was causing it must be taken into account. Whilst significant developments had been made in the prevention and cure of bacterial infections, viruses were still not understood. Thus, while it is tempting to take a harsh view of Britain's failings in handling the crisis, as Johnson points out, the medical profession lacked 'the knowledge to cope.'<sup>132</sup>

Furthermore, at the time of WWI, Britain was still at the head of a substantial empire and much of its energy was necessarily directed towards co-ordinating the efforts both of itself and its dominions in bringing the conflict to a successful conclusion. The arrival of a deadly influenza pandemic as the war was reaching a critical phase would have imposed a considerable additional burden on a country already stretched to its limits. In such a situation, it is perhaps understandable that there would be a desire on the part of officials and ordinary members of the public to see the pandemic simply as a part of the suffering of the war which was already being handled by the resources and systems in place, rather than an additional crisis which required a whole range of extra measures.

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<sup>132</sup> Johnson, Britain and the 1918-19 Influenza Pandemic, p. 143.

In addition, the limited number of medical men left in civil practice, were mainly the older members of the profession, most of whom had received their training in the nineteenth century. Younger doctors and those recently qualified were all being taken into military service, so the kind of modern thinking that may have resulted in a more proactive response to the pandemic in terms of setting up special facilities and services to alleviate the suffering of victims, was largely absent from the civilian situation, although the value of their work on influenza was acknowledged in the military sphere.

Tomkins' criticism of the medical establishment's failure to provide special temporary influenza hospitals is, nonetheless, perhaps a valid one as having more sufferers placed together in units specifically set up to meet their needs would have relieved some of the pressure both on the hospitals and on the local doctors who were having to visit hundreds of patients in their own homes. It may also have reduced the number dying at home without the attendance of a doctor and, in consequence, the pressure on the coroner's courts which had to hold inquests on all such cases. Even so, staffing such facilities with so many doctors and nurses being either on military service or down with influenza themselves may well have been a significant problem, especially when combined with the apparent general reluctance of the British public to volunteer.

Despite these national difficulties, Tomkins does point out that the most effective responses to the pandemic were made at local level and based on the information presented above it can be seen that in Leicester there were soup kitchens in operation and offers of cars and ambulances to transport the sick to hospital and doctors to tend patients as well as volunteers offering their time for nursing and domestic duties. In Nottingham also there was a temporary influenza hospital established and apparently plenty of nursing care available, so at least in parts of the East Midlands, special facilities and voluntary efforts were clearly being made available to some degree.

With regard to the disposal of the dead, the East Midlands did not appear to suffer as much as some parts of Britain as there seemed to be adequate mortuary space for bodies and sufficient coffins were produced with the help, in Leicester's case, of the Corporation and the Tramways Department. Certainly the number of funerals to be conducted put severe strain on gravediggers and ministers but systems did not appear

to break down. There also appears to be no evidence of profiteering in the East Midlands or in the rest of Britain. Overall, therefore, the East Midlands, despite its high incidence of morbidity and mortality, seems to have coped better than some places mentioned in caring for the needs of influenza victims.

With the influenza virus at the time of the pandemic not having been isolated, knowing how to protect oneself from infection or what treatment to take to effect a cure if attacked was a major concern for almost everyone at the time and this is the subject of the next chapter.

## CHAPTER 5

### Prevention and Cure

'Spanish 'Flu'...Take our special powders. They are a certain preventative and a sure cure. Suitable for all ages.'<sup>1</sup>

Such were the confident claims of J. Wood, a chemist from Ilkeston, about one of his own products and similar claims were made by many other chemists about their 'influenza' preparations.

With the influenza outbreak of 1918 being so much more severe than had previously been experienced, efforts to prevent catching the disease or curing it successfully if afflicted were high on everyone's agenda. This chapter will examine the range of measures employed by health professionals and members of the general public in their attempts to try and control the spread of influenza and to remedy its effects.

In the battle against the pandemic, there were three main lines of attack. Firstly, the medical profession, that is doctors in private and public practice and research, secondly, public health administered by the Local Government Board (LGB) and finally, the people themselves. Much has already been said about the difficulty of acquiring a doctor's services during the influenza pandemic, but where medical help was obtained, the service a patient might receive will be examined. Local authorities, under the direction of the LGB, were responsible for the health of their communities and the prevention or remedying of outbreaks of disease. Their role in handling the influenza pandemic and how effective it was will also be explored. Finally, the efforts of people to medicate themselves and their families, something which many people had to do before the advent of the welfare state and the provision of a free health service, will be discussed.

#### The medical profession

Considering the medical profession first, it had gained enormous prestige following the advances of the bacteriological revolution in the late nineteenth century. Science had transformed medicine and the means to isolate and identify the micro-organisms

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<sup>1</sup> *Ilkeston Advertiser and Erewash Valley Weekly News*, 26 July 1918, p. 2.

causing specific diseases and to prevent infection had been achieved by medical researchers whose names are still revered today. In Germany, Robert Koch, head of the research department at the Institute for Infectious Diseases in Berlin had discovered the causes of typhoid fever, cholera and tuberculosis. In France, Louis Pasteur had developed vaccines for rabies and anthrax as well as the process of pasteurisation, and in England Joseph Lister had developed sterilisation techniques for surgery to reduce infection.

The results of such success were to establish the belief that 'the wonders of medical science could vanquish any foe, no matter how microscopic'.<sup>2</sup> However, the fact that influenza was caused not by bacteria but by a virus was problematic on two fronts. Firstly, viruses were not fully understood at that time and secondly, the technology did not yet exist to combat them effectively. Nonetheless, in 1918, a greater understanding of bacterial infection and epidemic disease had led to a more confident and professional body of medical practitioners who felt themselves capable of curing any ailment through the power of modern medicine: 'The good physician is prepared to meet any emergency that may arise...he is a 'friend in need,' a 'tower of strength' in the sick room. He is the man upon whom the people have learned to depend when sickness occurs and death hovers over their dwelling.'<sup>3</sup>

With the first appearance of influenza in Britain in the summer of 1918, neither doctors nor the media thought that this was anything serious despite the unusual timing of its appearance. In the East Midlands a report in the Derby news stated:

An epidemic of influenza is reported from various parts of the British Isles, but though many thousands of cases have occurred in both civil and military hospitals, reports to-day suggest that the malady is not of a serious type, and that the few deaths notified so far have been those of weak patients suffering from other complications.<sup>4</sup>

In Leicestershire a similar lack of concern was apparent. In July, in presenting his annual report on the health of the borough, Dr Blackham, MOH for Loughborough, declared it to be good and added:

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<sup>2</sup> Honigsbaum, *Living with Enza*, p. 9.

<sup>3</sup> *Medical Times and Hospital Gazette*, Aug. 1918, p249, quoted in Tomkins, 'The Failure of Expertise' p. 438.

<sup>4</sup> *Derby Daily Telegraph*, 24 June 1918, p. 2.

There are further reports of the spread of influenza in many parts of the kingdom, and in the larger towns especially...but it is the opinion of several Medical Officers of Health who have been interviewed on the subject that the epidemic, though so widely prevalent, is for the most part of mild type, and if taken in its earlier stages, is readily amenable to ordinarily careful treatment.<sup>5</sup>

As the summer progressed, however, the disease spread rapidly. Attempts to halt its progress in the East Midlands included the early closure of elementary schools before the normal start of the summer holidays and some theatres and cinemas were placed out of bounds to soldiers.<sup>6</sup> Doctors also were working long hours in an effort to cope with the level of sickness. As the Derby press declared: 'Although apparently mild in character, the epidemic of influenza is still making itself seriously felt...doctors, short-handed and hard-working already, have been scarcely able to satisfy the extra demands upon their time.'<sup>7</sup> Despite the serious nature of this report, it ends with the surprising comment that 'it is not really a matter for alarm'.

#### The use of alcohol

By the end of the summer the problem seemed to be largely over, but with the autumn came a second and more serious wave and, quite naturally, many people looked to the doctor to provide them with a cure for their sickness in spite of the rampant contagion and unusually high mortality of the first wave over which doctors appeared to have little control. In his article on the response of British doctors to the influenza pandemic of 1918, F. R. van Hartesveldt states: 'The most commonly prescribed medicine was alcohol – whiskey or brandy – as a stimulant. At St Bartholomew's Hospital in London, brandy was prescribed as a remedy for influenza more than any other drug.'<sup>8</sup>

The problem with this approach was twofold. Firstly, during the war years alcohol was not easy to obtain. The demand for grain had resulted in distilling being stopped and existing supplies of spirits being put in bond with only small amounts being released on ration. As influenza became more serious there were calls for larger supplies of whiskey and brandy to be released to treat the sick as a belief in the use of spirits to cure influenza was firmly held by many. In Leicestershire the position became serious

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<sup>5</sup> *Loughborough Herald and North Leicestershire Gazette*, 4 July 1918, p. 5.

<sup>6</sup> *ibid*

<sup>7</sup> *Derby and Chesterfield Reporter*, 12 July 1918, p. 5.

<sup>8</sup> van Hartesveldt, , 'The Doctors and the 'Flu', pp. 33-34.

due to the constant prescription of spirits by doctors: 'Owing to the great demand for whisky and brandy for which medical men have given numerous certificates to people suffering from influenza, Loughborough is said to have become a 'dry' town.'<sup>9</sup>

At a conference of the Watch and Sanitary Committees held in Leicester's Council Chambers to discuss ways in which the influenza pandemic might be tackled, Mr Leeder remarked that 'Licensed houses had no brandy such as was ordered by doctors for certain cases.'<sup>10</sup> However, he undertook to call a meeting of the Licensed Victuallers' Association to see what could be done. Following that meeting an official protest about the lack of available spirits was issued by the Licensed Victuallers Association of Leicester in November 1918 and was reported in the local press.

This Association desires to bring to the notice of the Liquor Control Board the great inconvenience and hardship inflicted upon the public by the inadequate supply of alcoholic liquor and especially brandy for medicinal purposes during the prevailing epidemic and urges upon the Board the stern necessity of the immediate issue from bond of an adequate supply of spirits to meet this emergency and the demands of the public generally.<sup>11</sup>

In Derby an equally serious situation existed. At a meeting of the Board of Guardians, Canon Browne declared:

...within a fortnight 41 cases of pneumonia following influenza had been admitted into the infirmary, whilst there were nine nurses down with influenza, pneumonia having set in in two of their cases. It was a well-known fact that doctors practically kept many patients suffering from pneumonia alive on brandy, and it was a most regrettable fact that the Government should not allow brandy to be released while people were dying from the lack of it...<sup>12</sup>

In Nottinghamshire, at a meeting of the Basford Guardians in December 1918, the Chairman, Mr Furso, remarked that 'a good many doctors have ordered it, but found it impossible to obtain it'. While another member stated that '...in Kirby the epidemic

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<sup>9</sup> *Leicester Evening Mail*, 31 October 1918, p. 1.

<sup>10</sup> *ibid*

<sup>11</sup> *ibid*, 26 November 1918, p. 2.

<sup>12</sup> *Derby Daily Telegraph*, 27 November 1918, p. 3; *Derby and Chesterfield Reporter*, 29 November 1918, p. 1.

was severe... There were no spirits there except at one public-house, and the landlord told him he supplied 420 medical orders for spirits last month.'<sup>13</sup>

It seemed at first that the government had heard the complaints. The Nottingham press reported:

In view of representations that have been made that there is in some districts a shortage of spirits required in the treatment of patients suffering from influenza, arrangements are being made by the Ministry of Food that in the event of information reaching the Ministry that an additional supply of spirits is necessary in any particular district for the treatment of such patients the Ministry will direct a special supply to that district...All bottles of spirits supplied for this purpose will bear distinctive labels and will only be sold against a certificate from the doctor attending the patient.<sup>14</sup>

Nevertheless, belief in the medicinal effects of alcohol was not universal and prompted some fierce criticism. In the *Leicester Mercury*, the following letter, from Mr Arthur Foster, appeared in November 1918:

Sir, - in reference to Mr Martin's letter in today's paper as to the difficulty of obtaining brandy for medicinal purposes when ordered by a doctor....The question as to whether its use might have prolonged life, if not in some cases have saved it... The recent exhaustive report of the Advisory Committee, consisting of eminent scientific men appointed by the Central Board (Liquor Traffic), wherein the action of alcohol on the human organism is very fully analysed, would appear to contraindicate its use for the aforesaid objects. The committee has, however, definitely established the fact that alcohol is not a stimulant, but a sedative.<sup>15</sup>

The Temperance Society was also vociferous in its condemnation of the use of spirits for the sick. The Derby branch reported that 'Spirits were quite unnecessary in dealing with the present epidemic of influenza.'<sup>16</sup>

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<sup>13</sup> *Nottingham Evening Post*, 10 December 1918, p. 2.

<sup>14</sup> *Nottingham Daily Express*, 17 December 1918, p. 3.

<sup>15</sup> *Leicester Mercury*, 6 November 1918, p. 6.

<sup>16</sup> *Derby Mercury*, 29 November 1918, p. 5.

Despite this, by the third wave of influenza, calls for more spirits to be released were still being made. In Nottingham letters were sent to London: 'Fifteen deaths occurred at Hebburn last week from influenza and pneumonia. The Medical Officer of Health's letter to the Food Control Committee that ample supplies of whiskey and brandy are necessary for the patients has been forwarded to the London authorities.'<sup>17</sup>

A report in the Leicester press seemed, once again, to indicate that the government was responding positively: 'The Ministry of Food announce that the Cabinet have decided to increase by 50 per cent the amount of spirits being released, making the amount now available 75 per cent of that released in 1916.'<sup>18</sup>

Even so, by March 1919 there were still complaints that spirits were not available in sufficient quantities and lives were being lost because of it. In a meeting of the Leicester Sanitary Committee, one member asked '...why the committee did not take action about lives being lost through an inadequate supply of whisky? Everyone who could get whisky had been saved.'<sup>19</sup>

During a meeting of the Manchester City Council, reported in the Nottingham press, Councillor Ross Clyne spoke of whiskey as 'God-given medicine' and said the government had 'murdered' some of the persons who had died from influenza.'<sup>20</sup> A Nottingham vicar even bemoaned the difficulty in obtaining spirits without a doctor's note in his parish magazine declaring, 'It is a scandalous shame.'<sup>21</sup>

Nonetheless, the second problem with prescribing alcohol was that earlier research had shown that its efficacy as a stimulant was not well founded as stated in Mr Foster's letter above. The agreement of government to release it as a treatment for Influenza, therefore, was certainly due to a combination of public pressure and a failure of medical authorities to produce any better ideas. Van Hertesveldt explains that scientific research conducted fifty years earlier by Dr Benjamin Ward Richardson had clearly shown that alcohol was a depressant and not a stimulant and this had been confirmed by a government sponsored study just prior to the outbreak of the pandemic. However, doctors dismissed Richardson's conclusions and clung to the idea

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<sup>17</sup> *Nottingham Evening Post*, 3 February 1919, p. 2.

<sup>18</sup> *Leicester Mercury*, 22 February 1919, p. 9.

<sup>19</sup> *Leicester Journal*, 7 March 1919, p. 3.

<sup>20</sup> *Nottingham Evening Post*, 6 March 1919, p. 2.

<sup>21</sup> *ibid*, 8 March 1919, p. 2.

that alcohol was the cure for influenza and its complications and thus continued to prescribe it for many of their patients.<sup>22</sup>

#### Other remedies

The insistence on the use of alcohol, together with the range of other remedies used by doctors, some of which seemed almost to harked back to a bygone age, are an indication of how powerless doctors actually were in the face of the pandemic and how desperately they clung to anything that might work irrespective of how dated or unscientific it might be.

Van Hartesveldt describes the wide range of remedies printed in both the *British Medical Journal* and the *Lancet* during the period of the pandemic, which included massive dose of salicin, sodium salicylate and strychnine, inhalation of iodine in steam, intravenous injections of garlic oil dissolved in pure ether, tri-menthenal allylic carbide and purging with castor oil or camemel (mercurous chloride) followed by bicarbonate of soda every four hours. He comments, 'For all the assurances in numerous articles about treatment, it is clear that doctors were confused and ill-prepared to either treat influenza or study the effect of such treatment.'<sup>23</sup>

Quinn, also comments on the range of treatments that doctors were administering including such out-dated practices as cupping and bloodletting but points out that this was an expression of their desperation as the effects of the pandemic became more severe and their efforts continued to be unproductive. He describes how doctors treated patients whilst smoking pipes full of strong tobacco in the hope that this would act as a germicide. They also recommended steam baths and enemas and administered doses of tetanus, diphtheria and smallpox serum in the hope that something might have the desired curative effect. Interestingly, as the pandemic continued, medical opinion also shifted from complete confidence in the efficacy of alcohol to warning patients that they were much more likely to catch influenza if they drank any alcohol at all.<sup>24</sup>

Sandra Tomkins highlights the problem further, commenting that all manner of remedies were applied in the full conviction that the answer would be found. She

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<sup>22</sup> van Hartesveldt, F. R., 'The Doctors and the 'Flu': The British Medical Profession's Response to the Influenza Pandemic of 1918-19', *International Social Science Review*, 2010, vol. 85, 1/2: 28-39

<sup>23</sup> *ibid*, p. 20.

<sup>24</sup> Quinn, *Flu: A Social History of Influenza*, p. 139.

cites the use of 'aspirin, quinine, opium, ammonia, alcohol, camphor, eucalyptus and iodine to musk, wet packs, blood serum, creosote, turpentine, cinnamon and turtle soup'.<sup>25</sup> She adds that there was little consensus amongst doctors as to what were thought to be effective treatments which led to a climate of dispute and contradiction within the medical profession. What this did not do, unfortunately, was enable doctors to accept and admit that they did not possess the knowledge to cure the disease.<sup>26</sup>

### Vaccines

With little seeming to offer a cure, doctors turned their attention to prevention. One possible means of arresting the spread of the disease and perhaps even effecting a cure was the development of a vaccine. Vaccines had already been successfully developed for a number of contagious diseases, such as smallpox (Jenner 1796), so it was hoped that medical science would provide the answer once again.

Early efforts to produce a vaccine began in military establishments as explained in chapter 1. As so many doctors had been taken into military service to meet the needs of the fighting forces during the war, some of the best medical practitioners of the day were employed in the care of sick and injured soldiers in well-equipped hospitals and many were well acquainted with efforts made during the previous influenza pandemic in the early 1890s to discover the aetiology of the disease by isolating the infective agent.

In Germany, research was carried out by Richard Pfeiffer. In post mortem examinations of influenza victims, Pfeiffer discovered the presence of a micro-organism in their lungs which he called bacillus influenzae, later known as Pfeiffer's bacillus. In an effort to establish this as the cause of influenza, Pfeiffer conducted the necessary research to comply with Koch's Postulates, four conditions laid down in 1884 which must be satisfied before a micro-organism can definitely be identified as the cause of a specific disease. Although two of the conditions were met, the others were not. Furthermore, Pfeiffer's bacillus, today known as haemophilus influenzae, is only one of the micro-organisms found in the nose, throat and lungs of influenza patients, others including pneumococci, streptococci and staphylococci. Despite Pfeiffer's own reservations, the scientific community accepted his findings as proof

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<sup>25</sup> Tomkins, 'Failure of Expertise,' pp. 437- 438.

<sup>26</sup> *ibid*, p. 439.

that the cause of influenza had been found. As Hans Zinsser, an American bacteriologist confidently declared: 'The relationship between the clinical disease known as influenza or grippe and the Pfeiffer bacillus has been definitely established by numerous investigations.'<sup>27</sup>

By the outbreak of the 1918 influenza pandemic, Pfeiffer's findings were still held to be conclusive and, with another opportunity to acquire infected tissue from influenza patients, doctors set out to create a vaccine. In America, Dr Timothy Leary of Tufts Medical College, Boston, created one of the first vaccines. By October 1918 this was being used on San Francisco citizens with Leary's assurance that it should '...abort flu and prevent pneumonia in all but a small percentage of cases and should do away with the death rate almost totally'.<sup>28</sup>

Dr William Hassler, Chief of the San Francisco Board of Health, declared it to be 'a real prophylactic against influenza' adding that 'even if it were not effective in every case it cannot do any harm'.<sup>29</sup> Cases of influenza in the city declined dramatically once the vaccine started to be used but whether this was due to the vaccine or to other preventive measures is not certain. Even so, cities in the USA where Leary's vaccine was used did claim remarkable results.

In England, following a conference at the War Office on 14 October, chaired by Sir William Leishman, Director General of the Army Medical Services, it was decided that the production of a vaccine was of 'great and urgent importance'.<sup>30</sup> Despite the doubts that were being raised about Pfeiffer's bacillus at the time, Leishman declared that '...there was no question that Pfeiffer's bacillus as well as pneumococci and streptococci produced the symptoms and secondary complications of influenza'.<sup>31</sup>

He went on to suggest that a vaccine made up of a cocktail of these bacteria might produce the desired effect. Dr Walter Fletcher of the MRC and the Army Pathological Committee was appointed to oversee production. Leishman's prime concern was, of course, the military and the need to have a fit fighting force, particularly if the war should continue. Despite a lack of staff and facilities, Fletcher produced a vaccine

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<sup>27</sup>Crosby, *America's Forgotten Pandemic*, p. 270.

<sup>28</sup> *ibid*, p. 100.

<sup>29</sup> *ibid*, p. 101.

<sup>30</sup> Honigsbaum, *Living with Enza*, p. 114.

<sup>31</sup> *ibid*, p. 114.

which was trialled at the Royal Naval College in Greenwich and at Abbeville near Etaples.

By December 1918 results of the trials were mixed, but as the war had ended and military camps were being dismantled, Fletcher's efforts to continue the work became very difficult. Even so, there was some apparent success with a vaccine developed at the Royal Naval College by Surgeon-Captain Percy Bassett-Smith, which was given to one thousand boys at the Royal Hospital School, none of whom went on to develop influenza despite its prevalence in the area.<sup>32</sup> A vaccine was also available for civilians as reported in *The Practitioner*, and quoted in the Annual Report on the Health of Derbyshire by MOH, Dr Sidney Barwise.

Treatment: there is no specific for influenza. Good results are obtained from vaccine treatment, if given early, but the efficacy of the treatment is dependent upon its prompt administration before pneumonia sets in.

Dr Wynn recommends a mixed vaccine containing 100 millions each of B influenza, Streptococci and Pneumonocci in 1cc. This vaccine can be obtained from Messrs Parker, Davis & Co., Regent Street, London W.1., or Messrs Evans & Sons, Leschar & Webb, Higher Runcorn, Cheshire.<sup>33</sup>

Dr James Niven, MOH for Manchester was also a supporter of influenza vaccine and was recommending its use during the summer of 1918 even before it had been made available. However, Doctors Millard and Boobyer of Leicester and Nottingham made no reference to influenza vaccine either in their annual reports or in their various press releases giving advice to the general public and although Dr J. A. Fairer of Leicestershire did comment briefly on prophylactic vaccine in his address in Newcastle, it was only to say it had been used in too few cases for there to be any clear idea as to its effectiveness.<sup>34</sup>

Certainly the civilian response seems to have been less than enthusiastic about the use of a vaccine and very little appeared in the local press. In both Derby and Leicester mention of the use of a vaccine only appeared in two 'Letters from London'

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<sup>32</sup> *ibid*, p. 120.

<sup>33</sup> Barwise, *Report on the Health of Derbyshire for the Year 1918*, pp. 13-14.

<sup>34</sup> *Leicester Mercury*, 24 February 1918, p. 5; *Leicester Daily Post*, 25 February 1918, p. 3.

towards the end of the third wave in 1919 and neither was entirely positive about the prospect: 'It is hoped...that we shall not have to be inoculated against influenza, for the list of maladies for which injections have to be made is already a formidable one.'<sup>35</sup>

In the Leicester press, the 'London Letter' referred to the conference which took place at the Institute of Hygiene on 28 February 1919, specifically to discuss influenza, its treatment and prevention. Amongst those attending was Dr Carnegie Dickson who, in answer to the question 'should the healthy be vaccinated or only those attacked?' replied: 'Where persons had been vaccinated, even if they contracted influenza, they were milder cases and there were no complications. The benefit of vaccine was not that it actually gave protection against contracting the disease, but it stimulated the vaccinated person to fight for himself.'<sup>36</sup>

The press comment in response to this cast doubts on the general public's willingness to follow this advice: 'Doctors are not expecting a general run on the vaccines, in spite of the strong opinion of the conference on the subject, the public being apparently very suspicious of this mode of treatment.'<sup>37</sup>

Today it is understood that medical researchers in 1918-19 were working against difficulties over which they had little control, making the production of an effective vaccine almost impossible. Diseases were still linked purely to bacteria and, although it was known that some micro-organisms were so small that they were 'filter-passers' they were not understood nor could they be seen; the light microscopes in use at that time being incapable of detecting something so small.

What the conference did highlight, however, was the lack of any standard approach to the pandemic by doctors even as it was in its third and final wave. Press comment was understandably cynical: '...the whole weight of medical opinion is never behind anything, except the not entirely disinterested dogma that it is wise to call in the doctor when you feel seedy'.<sup>38</sup> With regard to measures being made compulsory, the writer went on: 'Friday's conference is, of course, a sufficient answer to any proposal

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<sup>35</sup> *Derby Daily Telegraph*, 6 February, p. 4.

<sup>36</sup> 'The Prevention of Influenza', *Nursing Mirror and Midwives Journal*, 8 March 1919, p. 353.

<sup>37</sup> *Leicester Daily Post*, 3 March, p. 2.

<sup>38</sup> *ibid*

that, in the present confused state of knowledge, any course of treatment should be imposed on the public against its will.<sup>39</sup>

### Masks

A measure that was imposed in some parts of the world was the wearing of masks. In parts of Canada and the USA, masks quickly became accepted by the public as a means of protection from infection. In Calgary, Alberta, despite not at that time being affected by the influenza pandemic, an order was made on 23 October 1918 that '...all employees in contact with the public – in banks, buffets, candy stores, elevators and barber shops – must don a medicated mask through working hours, like any hospital attendant'.<sup>40</sup>

Before that, in September of 1918, authorities in San Francisco, the most active city in the USA with regard to preventive measures, issued a pamphlet on 'Spanish' Influenza. In it the United States Public Health Service, recommended the wearing of a gauze mask for all those nursing influenza patients. Following this, masks quickly became a common sight in a wide variety of situations and by 19 October 1918, a compulsory order to wear masks was placed on barbers. Three days later, all citizens were being urged to buy a mask without delay, encouraged by Major James Rolph, Mayor of San Francisco, adopting the gas-mask slogan 'Who leaves this mask behind dies' and being warned that without masks San Francisco was in danger of 50,000 cases of influenza and 1500 deaths.<sup>41</sup>

Although it was not compulsory for the general public to wear masks at first, by 1 November, with over 1,400 new cases, it had become so, with masks having to conform to a standard size, four thicknesses of material, five inches wide and seven inches long. Despite press coverage showing prominent citizens in their masks, which were said to 'enhance their beauty'<sup>42</sup> not all San Franciscans were convinced and there were arrests of those found without their masks on. However, masks soon became part of the fashion scene, the three most popular styles being the Agincourt, so called because of its protruding snout in the shape of a French knight's helmet, the Ravioli which was a simple square shape apparently preferred by policemen, and the more alluring yashmak which hung loose below the chin like a harem veil and was

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<sup>39</sup> *ibid*

<sup>40</sup> Collier, *The Plague of the Spanish Lady*, p. 192.

<sup>41</sup> *ibid*, p. 193.

<sup>42</sup> *ibid*, p. 194.

particularly popular amongst younger females although these were eventually declared illegal.<sup>43</sup>

Extraordinary claims were made for the effectiveness of masks in preventing the spread of influenza. Dr William Hassler, chief of San Francisco's Board of Health, claimed that if everyone in the city was made to wear a mask, influenza would be under control within a week.<sup>44</sup> Similarly, Dr Woods Hutchinson, writer of a popular medical column, declared that masks were 'a nearly foolproof way to ward off flu'.<sup>45</sup>

With such support from its leading citizens and medical experts, the people of San Francisco adopted the use of masks with great enthusiasm and thousands were sold within days. Levi Strauss and Company, maker of denim jeans, offered to produce masks for every citizen in San Francisco. The Red Cross, however, produced 5,000 masks for sale in the city. They became available to the public at 11.00am on the 22 October 1918 and by 12.00 noon they had all gone. By noon the next day the Red Cross had dispensed 40,000 masks and by 26 October 100,000 and orders were being taken from other towns.<sup>46</sup>

Australia and New Zealand also adopted this method of prevention. In Sydney, everyone except those surfing on Bondi Beach was required to wear a mask or be found guilty of offending 'against the peace of our sovereign lord, the King, his crown and dignity'.<sup>47</sup> One Sydney solicitor took his responsibilities so seriously that he 'won a magistrate's applause for a mask so large it enveloped his whole face'.<sup>48</sup>

Medical opinion was again divided on the effectiveness of masks as a preventive measure. Dr Edwin Jordan of the American Medical Association, following an examination of the record of mask wearing in 1918 to 1919 stated that:

Those attending or examining influenza patients may obtain some measure of protection by wearing properly constructed face masks and eye goggles. On the other hand, the practical difficulties in the way of mask wearing by the

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<sup>43</sup> Collier, *The Plague of the Spanish Lady*, p. 195; Crosby, *America's Forgotten Pandemic*, p. 103.

<sup>44</sup> Crosby, *America's Forgotten Pandemic*, p. 102.

<sup>45</sup> *ibid*, p. 103.

<sup>46</sup> *ibid*

<sup>47</sup> Collier, *The Plague of the Spanish Lady*, p. 194.

<sup>48</sup> *ibid*, p. 195.

general public seem insuperable and render this measure one for individual rather than general prophylaxis.<sup>49</sup>

It was also often flouted even in those cities which made it compulsory. It was difficult to enforce and many would remove their masks when they felt they could not be observed by the authorities. Crosby comments on the disadvantages of having to wear a mask, stating that they were uncomfortable and inconvenient and even caused one's glasses to fog up. He also points out that some people claimed they brought on attacks of neuralgia whilst others simply called the compulsory wearing of masks humiliating and depressing and an infringement of personal liberty.<sup>50</sup> The editor of a San Diego newspaper expressed his rejection of mask wearing by pointing out rather facetiously that 'only highwaymen, burglars and hold-up men wear masks professionally'.<sup>51</sup>

Even so, as the second wave of the pandemic was coming to an end in San Francisco, there were those who believed that wearing masks had saved hundreds of lives and when, on 21 November 1918, the order making masks compulsory in the city came to an end, John A. Britton of the Red Cross gave a luncheon for Red Cross workers, the Board of Health and many similar organisations, during which he proclaimed:

It is a privilege to meet this indomitable band of workers, and see you exposing your complexions unmasked...the work you have done under the masterful leadership of Dr Hassler has reduced by more than half the number of cases which it was predicted San Francisco must have ...This success is due in large measure to the enforcement of the mask wearing.<sup>52</sup>

Despite this apparent success in the USA and in certain other countries, in Europe there is much less evidence for the use of masks although they were recommended in Paris for anyone attending influenza patients.<sup>53</sup> Certainly Britain did not take to mask wearing. Manchester's Dr Niven produced an advice leaflet and posters during the first wave of influenza, in the summer of 1918, which included the recommendation to

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<sup>49</sup> Crosby, *America's Forgotten Pandemic*, p. 102.

<sup>50</sup> *ibid.*, p. 105.

<sup>51</sup> van Hartesveldt (ed.), *The 1918-1919 Pandemic of Influenza*, p. 152.

<sup>52</sup> Crosby, *America's Forgotten Pandemic*, p. 106.

<sup>53</sup> van Hartesveldt, (ed), *The 1918-1919 Pandemic of Influenza*, p. 80.

wear muslin masks,<sup>54</sup> as did Dr Barwise, of Derbyshire a few months later.<sup>55</sup> It was also reported in the Nottingham press that masks were being worn in the Sheffield district during the third wave of the pandemic<sup>56</sup> and in the Derby press that some doctors in London were demanding that members of the public be forced to wear masks.<sup>57</sup> However, van Hartesveldt points out that this approach was unusual in England, and quotes the *Manchester Guardian* which declared, "Women are not going to wear ugly masks."<sup>58</sup> Dr Leonard Hill in London also condemned the wearing of masks, stating that 'by raising the temperature and humidity of the air breathed, they struck at the respiratory membrane's natural defences'.<sup>59</sup>

In the East Midlands the issue of masks was scarcely mentioned in the local press either in the first or second waves of influenza. In February 1919, during the third wave of influenza, The *Leicester Daily Post* carried the story of *The Times* Medical Correspondent's article '...advising the public to wear masks, except when in the open air'.<sup>60</sup> A few days later, however, the Leicester press, reporting on Dr J. A. Fairer's, address in Newcastle mentioned earlier, recorded his response to a question regarding the benefits of respiratory masks: '...although they had been used with considerable success in San Francisco, he [Dr Fairer] personally doubted their effectiveness. The fact that they must be constantly worn, which naturally cannot always be done, as at meal times, etc., limits their usefulness, apart from the necessary disinfection required'.<sup>61</sup>

Dr Millard of Leicester also stated in his annual report for 1918 that the wearing of masks was not practised in Leicester hospitals where influenza patients were being treated. He stated that although masks had been offered to members of staff if they wanted them, they declined on account of the doubt over their effectiveness and the inconvenience of having to wear them.<sup>62</sup>

Some citizens in the East Midlands were not as sceptical as Fairer and Millard, however, as evidenced by correspondence in the *Derby Daily Telegraph*: 'Why is it,

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<sup>54</sup> *ibid*, p. 97.

<sup>55</sup> Barwise, *Report on the Health of Derbyshire for the year 1918*, p. 12.

<sup>56</sup> *Nottingham Evening Post*, 3 March 1919, p. 3.

<sup>57</sup> *Derby and Chesterfield Reporter*, 19 February 1919, p. 3.

<sup>58</sup> van Hartesveldt (ed), *The 1918-1919 Pandemic of Influenza*, p. 97.

<sup>59</sup> Collier, *The Plague of the Spanish Lady*, p. 193.

<sup>60</sup> *Leicester Daily Post*, 19 February 1919, p. 2.

<sup>61</sup> *Leicester Mercury*, 24 February 1919, p. 5.

<sup>62</sup> Millard, *Report on the Health of Health for Leicester for the year 1918*, pp. 12-13.

sir, that influenza masks are not more easily obtainable? It should immediately be placed within the power of the public to obtain easily and cheaply influenza masks.’<sup>63</sup>

But in general the British public remained unconvinced, as shown by the *Leicester Daily Post*’s London Letter: ‘Nobody will regret an increasing tendency to turn down what has been described as the muzzling order – the horrifying suggestion that we should all wear masks...In the matter of masks, many doctors hold that they are as useless as they are unaesthetic.’<sup>64</sup>

A range of other preventive remedies was suggested by doctors, including gargles and nasal douches. The idea that infection could be avoided by keeping the nose and throat thoroughly cleansed by regularly flushing them with antiseptic was popular and appeared in the Nottingham press as early as July 1918: ‘Competent authorities agree that to avoid infection it is wise to disinfect the upper air passages – mouth and throat and nose – night and morning.’<sup>65</sup>

The same newspaper issued more detailed advice during the second wave in October 1918: ‘A mixed solution of permanganate of potash (two to three grains to the pint) and common salt (1½ teaspoons to the pint) should be frequently used as a mouth and nose wash.’<sup>66</sup>

However, it was not until February 1919 that this method of prevention was given official support. In Dr Fairer’s address in Newcastle, he recommended nasal douches and gargles as the best method of preventing an attack of influenza.<sup>67</sup> But as with vaccines and masks, not everyone was in agreement with this approach. At the London conference in 1919 mentioned above, Sir Malcolm Morris referred to the salt and permanganate of potash remedy as ‘a most horrible mixture’.<sup>68</sup>

The confusion within the medical profession with regard to the treatment of influenza persisted throughout the course of the pandemic and doctors continued to clutch at any straw, however improbable, which might provide an answer. As late as March

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<sup>63</sup> *Derby Daily Telegraph*, 1 March 1919, p. 3.

<sup>64</sup> *Leicester Daily Post*, 3 March 1919, p. 2.

<sup>65</sup> *Nottingham Evening Post*, 8 July 1918, p. 2.

<sup>66</sup> *ibid*, 26 October 1918, p. 2.

<sup>67</sup> *Leicester Mercury*, 24 February 1919, p. 5.

<sup>68</sup> ‘The Prevention of Influenza’, p. 353.

1919, Dr Robertson Dobie of Perthshire declared that the reasons the working classes were unable to fight against disease and infection was lack of sugar. His comments appeared in the Leicester press. He declared that if the thousands of tons of sugar being stored were released for sale to the public and sent to the refining industry to make jams and sweets then '...in two months I predict influenza and all its disastrous complications will be a thing of the past'.<sup>69</sup> He went on to explain the reasons for his assertions: 'I have studied the subject carefully, and on my list of patients I have very few, if any, of the employees in our local jam factory. There they live in a sugary atmosphere all day.'

Such a lack of consensus, coupled with excessive morbidity and mortality rates despite the range of remedies administered, made the impotence of doctors in the face of a major medical crisis increasingly apparent. However, it was not until 1920 that the powerlessness of doctors to provide any effective treatment for influenza was officially acknowledged in the Ministry of Health report by Dr French. Whilst highlighting the efficacy of going to bed as soon as infected and staying there until fully recovered (something that few other than the more affluent would have been able to do), he stressed that 'once the influenza attack in any individual case had developed into the pneumonic type... no matter what treatment was adopted, it was extremely difficult, if possible at all, to modify the course of the disease in the least.'<sup>70</sup>

#### Public health and the Local Government Board

As for public health, the second line of attack, this operated on two levels, one national and one local. Nationally, public health was the responsibility of the Local Government Board. The LGB, established in 1871, was a government supervisory body charged with overseeing local administration in England and Wales, the administration of the Poor Law together with public health and the prevention of the spread of disease being just a small part of their work. It was headed by a president who was usually a cabinet minister and he made decisions on policy. At the time of the 1918 pandemic, the president of the LGB was W. Hayes Fisher and the Chief Medical Officer was Sir Arthur Newsholme.

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<sup>69</sup> *Leicester Daily Post*, 12 March 1919, p. 4.

<sup>70</sup> Ministry of Health, *Public Health and Medical Subjects No 4*, p. 92.

The LGB rarely met and left matters of public health largely to 'a network of local sanitary authorities and local Medical Officers of Health appointed by town halls'.<sup>71</sup> It occasionally issued advice and initiated scientific investigations into matters of health but tended to leave such things in the hands of the local authorities. The result was that, just as they had during the previous outbreak of influenza in 1890, the LGB actually did very little during the 1918-19 pandemic, despite expressions of concern being sent to them by medical men during the early stages of the outbreak.

One doctor who expressed concern was Walter Fletcher of the MRC. Based on correspondence with officers in the RAMC following the summer outbreak in 1918, it was clear he was convinced that there would be further waves of influenza with serious pneumonic complications, probably towards the winter.<sup>72</sup> His aim was to be proactive and prepare for any secondary waves before they happened. To this end he wrote to Newsholme in June 1918 pleading for more resources to enable him to investigate the influenza outbreak that he had witnessed raging through the army camp at Etaples earlier, but his request was ignored.

Newsholme did appear to take the possibility of a second wave of influenza seriously, however, and began to plan emergency measures himself in July of 1918 in order to reduce overcrowding on public transport and provide extra nursing care in munitions factories. He had even intended to release a memorandum for public guidance, but by August he had abandoned it all. The LGB eventually had a meeting with the MRC in October 1918 for the purpose of discussing the influenza outbreak, but a sceptical Fletcher pointed out this was simply a hastily convened conference for the LGB to gain information to use 'in response to expected questions in Parliament'.<sup>73</sup>

The LGB continued to do very little throughout the whole course of the pandemic, other than belatedly issuing advice, often when suggested measures were already in operation in towns and cities across Britain. The kind of advice the board offered was revealed by Newsholme when he spoke to a press representative about the epidemic on 10 October 1918 and this was reported in the Nottingham news the following day.

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<sup>71</sup> Honigsbaum, *Living with Enza*, p. 56.

<sup>72</sup> Correspondence with LGB and War Office 1918-20, FD1/535, TNA, cited in Honigsbaum, *Living with Enza*, p. 55.

<sup>73</sup> van Hartesveldt, 'The Doctors and the 'Flu', p. 32.

...it is most vital for those who are obliged to live in aggregated conditions to have the advantage of open-air life as much as possible. Furthermore, he ought to go to bed if he is ill and stop there until he is free of fever.....Attacks can only be reduced in frequency or prevented if the general public will realise the extreme readiness with which the infection of influenza is spread. Special precautions should be taken over regard to sneezing and coughing, and the most important of these precautions is to cover your face with a handkerchief. Avoidance of over-crowding and free ventilation of rooms are also valuable preventives.<sup>74</sup>

On 22 October the LGB finally issued a circular to local authorities giving a simple list of rules for members of the public to follow with the aim of preventing the spread of infection. These were printed in the Nottingham press the same day.

#### OFFICIAL INSTRUCTIONS TO THE PUBLIC

Explicit instructions dealing with influenza are given in an important pamphlet issued by the Local Government Board and signed by Sir Arthur Newsholme.

The following precautions are given to limit the spread of infection:

Constantly flush bed rooms and living rooms with fresh air.

Avoid overcrowded rooms and places of amusement.

Not more than one person to one room for sleeping purposes when anyone is affected.

The wet cleansing of all infected places is important.

Indiscriminate spitting is specially dangerous. Prolonged mental strain or over-fatigue, and still more alcoholism should be avoided.

The only safe rule is to regard all catarrhal attacks and every illness associated with rise of temperature as infectious, and to adopt at once precautionary measures.<sup>75</sup>

A letter to MOHs suggesting that they should think about preparing some precautionary instructions was also sent.<sup>76</sup> In fact a number had already done so

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<sup>74</sup> *Nottingham Evening Post*, 11 October 1918, p. 2.

<sup>75</sup> *ibid*, 22 October 1918, p. 2.

<sup>76</sup> Honigsbaum, *Living with Enza*, p. 90.

including Doctors Millard and Boobyer of Leicester and Nottingham respectively. This was followed in November 1918, by regulations to allow for the ventilation of cinemas and the restriction of shows, again, after many authorities had already done this.<sup>77</sup>

Apart from this, little else was done. The reluctance of the LGB to take any decisive action at such a time attracted serious criticism, but in a conference at the Royal Society of Medicine in November 1918, Newsholme attempted to explain the reasons. He admitted, 'I know of no public health measures which can resist the progress of pandemic influenza' and added:

There are national circumstances in which the major duty is to 'carry on,' even when risk to health and life is involved... it was necessary to 'carry on,' and the relentless needs of warfare justified incurring this risk of spreading infection and the associated creation of a more virulent type of disease or of mixed diseases.<sup>78</sup>

The Medical Officer of Health

Consequently, it was the second level of public health, the local authorities and their Medical Officers of Health, which were left to deal with the crisis themselves, thus, as Tomkins points out '...in the absence of Local Government Board initiatives, health policy evolved at local level'.<sup>79</sup>

In her analysis of the response of London boroughs to the influenza pandemic, Tomkins identified three categories of local authority. The first was those who essentially denied that there was an influenza pandemic happening at all and so did virtually nothing to combat it. The second type of authority was those who acted on the recommendations of the LGB despite their scepticism that anything could actually be done about the situation, thus they did not attempt to do anything beyond encourage the public to take the precautions suggested. Tomkins does note, however, that this group seemed particularly keen on the question of cinemas as foci of infection. The third type of authority was those who recognised that prevention was just one approach and one that was probably going to be limited in its effectiveness. They understood that much more needed to be done to aid the sick and deal with the distressing effects of the pandemic and to this end they were much more vigorous in

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<sup>77</sup> *Forty-Eighth Annual Report of the LGB*, Appendix H, section C, 24-29, p. 203.

<sup>78</sup> Address by Sir Arthur Newsholme, 'Discussions on Influenza', p. 13.

<sup>79</sup> Tomkins, *Britain and the Influenza Epidemic 1918-19*, p. 114.

their response. These authorities followed the LGB guidance but also made great efforts to secure nursing and domestic help and anything else that was needed.<sup>80</sup>

The principal figure behind any action which had been agreed by local authorities was generally the MOH and in the East Midlands, the local authorities for Leicester and Nottingham in particular were fortunate to have two very capable doctors in that role, Charles Millard and Philip Boobbyer, both highly regarded as pioneers in their profession.

Dr Millard (1870-1952) was a native of the East Midlands. The son of Reverend C. S. Millard, Rector of Costock, Nottinghamshire, he attended Trent College and after completing his degree at Edinburgh University, was appointed Medical Officer at the Birmingham Fever Hospital in 1893 at the time of a serious outbreak of smallpox. After being promoted to Hospital Superintendent three years later, he went on to become MOH for Burton-on-Trent in 1899 and MOH for Leicester in 1901, continuing in that post until his retirement in 1935.

Millard was well known for 'championing unpopular causes which he believed to be sound',<sup>81</sup> such as euthanasia, cremation, birth control and the ending of compulsory mass vaccination to control disease, indeed, the results of his passionate support of certain causes are still with us today. For example, his Presidential Address on euthanasia to the Society of Medical Officers of Health in 1931 resulted in the founding in 1935 of the Voluntary Euthanasia Legalisation Society (now known as Dignity in Dying) and the reading of the first draft Bill (written by Millard) on the issue in Parliament in 1936. Furthermore, Leicester was one of the first authorities to establish a municipal crematorium (in 1904) and to hold family planning clinics.<sup>82</sup> His concerns focused particularly on public health and the lot of the urban poor, many of whom produced large families whilst living in one cramped and filthy room.

Millard's energy and devotion to duty brought him many honours both professionally and socially as reflected in the many high offices he held, for example, in the British Medical Association and the Society of Medical Officers of Health as well as Leicester's Medical Society, Temperance Society and Literary and Philosophical Society. During

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<sup>80</sup> Tomkins, 'The Failure of Expertise', pp. 449-450.

<sup>81</sup> 'Obituary of C. Killick Millard', *British Medical Journal*, 22 March 1952, p. 660.

<sup>82</sup> C. Debenham, *Birth control and the Rights of Women: Post-suffrage Feminism in the Early Twentieth Century*, (London, 2013), p. 97.

WWII, he came out of retirement to become temporary MOH for Blaby and Lutterworth Rural District, a position he held until 1951, a year before his death at the age of 81.<sup>83</sup>

Dr Boobyer (1857-1930) was born in Brighton. He attended Brighton College and after studying for his degree at King's College and King's College Hospital, London and qualifying in both medicine and surgery, he became assistant MOH to Basford Rural Sanitary District (incorporating Greasley, Ilkeston, Basford, Bulwell, Arnold, Carlton and Wilford) in 1884. In 1889, at the age of only 31, he became MOH for Nottingham, a post he held for 40 years until his retirement in 1929.

In her article on Boobyer, Denise Amos refers to him as Nottingham's health pioneer and points to his tireless efforts to improve public health and the lives of the poor. He was an expert in epidemics and as such campaigned vigorously for the end of such insanitary practices as public scavenging and the persistence of midden privies and the pail system of excrement removal in the city. He also developed and improved Nottingham's health service significantly during his tenure, increasing staffing from 40 to 220 employees and raising annual expenditure from £28,000 to £121,000, funding a pathology department, maternity and child welfare services, clinics for venereal disease and tuberculosis and a hostel for unmarried mothers.<sup>84</sup> That Boobyer and Millard were well acquainted with each other is certain, particularly through meetings of the East Midlands' Branch of the Society of Medical Officers of Health which were held at Nottingham.

In considering into which of Tomkins' categories East Midlands' local authorities might be placed, the efforts of Leicester Town Council and Dr Millard would certainly put them in the third category. In the East Midlands, one of the first attempts by a public health official to advise the general public regarding the influenza outbreak came from Millard. In July 1918, during the first wave of influenza, he made the following statement in the local press in response to many enquiries he had received from employers in the city asking what precautions they should take in order to prevent the spread of influenza amongst their employees.

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<sup>83</sup> 'Obituary of C. Killick Millard, BMJ, P. 661.

<sup>84</sup> D. Amos, 'Nottingham's health pioneer: Dr Philip Boobyer', *The Nottinghamshire Historian*, 69 (2002), pp. 7-8.

Infection is less likely to spread if it is freely diluted with fresh air. Therefore, the more thoroughly rooms can be ventilated and flushed with fresh air the better. All windows and ventilators should be opened to their fullest extent, and fortunately there should be little opposition to this at this time of the year. At the close of the day's work, after the employees have left, all floors should be swept with damp sawdust in order to collect all dust, which is a fruitful medium for the transmission of infection. Employees should be urged to avoid all indoor places of amusement whilst the present epidemic prevails. It is far better for them, both as regards avoiding infection and keeping fit, to be out in the open air. For the same reason it is better to choose the outside rather than the inside of a tram.<sup>85</sup>

He added that although some employers were distributing quinine pills and other tablets to their workers he had no faith in their efficacy and if attacked the best thing to do was simply to go to bed and stay there until recovered. He stressed that to continue going to work when sick was not fair either to oneself or to one's fellow workers.

Millard made a further statement to the Leicester press just prior to the issue of the memorandum, repeating his earlier advice and, under the headline 'Prevention Better Than Cure,' he added 'Keep yourself fit, go to bed early, and don't worry.'<sup>86</sup>

The next significant official action prompted by the pandemic in Leicester occurred on the afternoon of 25 October 1918, when, facing a sudden huge rise in influenza mortality in the town, there was a meeting of the Sanitary Committee to discuss the seriousness of the situation and what could be done about it. The issues raised in this meeting and the decisions reached were set out in a letter by the Chairman of the Sanitary Committee, Alderman Windley, and sent to the editor of the *Leicester Mercury* for publication the next day.

In the letter, Windley recognised that local doctors were struggling to cope with the number of influenza victims needing medical attention and that there was a pressing need for nurses which the committee was trying to relieve by acquiring the services of health visitors, V.A.D. members and anyone else who could assist, the District Nursing

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<sup>85</sup> *Leicester Mercury*, July 4 1918, p. 2.

<sup>86</sup> *Leicester Evening Mail*, 19 October 1918, p. 4; *Leicester Mercury*, 21 October 1918, p. 2.

Association already providing as much care as they could. He also pointed out that schools had been closed and cinemas barred to children under 14 years of age and the possibility of closing all places of entertainment for a time was under consideration. He urged everyone to take precautions by avoiding crowded places, cancelling public functions and keeping windows open for ventilation and should symptoms occur to follow the advice that Dr Millard had already put onto placards and circulated, 'Go to bed and stay there till better.'<sup>87</sup>

The letter ended with the news that a meeting of a sub-committee and those doctors in the town who had expressed a desire to contribute to the deliberations on emergency measures was to take place at the town hall that evening, which it did. As a result it was decided to suspend much of the routine work of the borough's health professionals and to direct time and resources to deal with the pandemic. To facilitate this the tuberculosis dispensary was closed except for the renewal and issue of certificates two nights a week and all doctors and nurses employed by the town council were placed under the direction of Dr Mary Weston to assist the work of the private and panel doctors who were finding it impossible to cope with the number of influenza cases needing medical aid. Millard was also noted as the point of contact for anyone wishing to offer their services.

In a further meeting of the town council on 29 October it was stated that a letter had been written to the War Office to raise the issue of doctors on medical boards wasting their time examining old men who were unlikely to enter military service. After confirming the emergency measures already taken, Windley added that advice had been sought on the use of disinfectants but the LGB had made no recommendations. It was also stated that anyone unable to acquire the services of a doctor should contact Dr Millard and they would receive attention.<sup>88</sup> In addition a conference of interested parties took place two days later to consider the closing of public resorts including cinemas, theatres, music halls, public houses and churches.

By the end of October, therefore, the Leicester Town Council had conducted several meetings to discuss the influenza crisis and had taken steps to try and ease the situation both by means of preventive measures and through the organisation of support and relief for victims.

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<sup>87</sup> *Leicester Mercury*, 26 October 1918, p. 2.

<sup>88</sup> *ibid*, 30 October 1918, p. 5.

In a further town council meeting on 26 November, Windley explained what their efforts had achieved which included the assistance of four doctors for the medical men of the town, accommodation for serious influenza cases at Groby Road Isolation Hospital, the Sanatorium and the Children's Hospital on Anstey lane, the assistance of health visitors, Education Committee nurses, the District Nursing Association, V.A.D. workers, the Boy Scouts and a number of volunteers. They had also made arrangements to assist undertakers in moving bodies and securing supplies of coffins and had taken advantage of a number of offers of vehicles for the transport of doctors and patients including two private cars and two ambulances, one from the Red Cross and one from the Fire Brigade.<sup>89</sup>

Furthermore, Leicester Town Council went through a similar process as the third wave of the pandemic started to threaten in February 1919, again making hospital accommodation available and renewing or establishing contacts with nursing organisations as well as with volunteers willing to make home visits. Based on their previous experience they had recognised that 'influenza spread so rapidly that it is well to be prepared beforehand'.<sup>90</sup>

There is little information on the efforts made by other councils in Leicestershire. The local press mentions Dr Blackham, the MOH for Loughborough and Dr Bell giving advice to readers on prevention, particularly in relation to fresh air at home and at work, and on the closure of schools.<sup>91</sup> Dr Hall, MOH for Hinckley is also mentioned in connection with accommodation for serious influenza cases being made available at Hinckley Isolation Hospital.<sup>92</sup>

In the Nottinghamshire press there was little mention made of the Nottingham City Council or steps taken by the local authority beyond reference to cinema restrictions which were imposed on 9 November 1918<sup>93</sup> and an arrangement made with retailers by the Nottingham Food Control Committee to provide milk to influenza sufferers on the production of a priority card.<sup>94</sup> However, the figure of Dr Philip Boobyer, Nottingham's MOH, does stand out as the main influence behind many of the

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<sup>89</sup> *Leicester Daily Post*, 27 November 1918, p. 3.

<sup>90</sup> *Leicester Mercury*, 18 February 1918, p. 9.

<sup>91</sup> *Loughborough Herald and North Leicestershire Gazette*, 24 October, p. 4, 14 November, p. 4, 28 November, p. 2, 1918.

<sup>92</sup> *Leicester Mercury*, 4 March 1919, p. 5.

<sup>93</sup> *Nottingham Evening Post*, 9 November 1918, p. 2.

<sup>94</sup> *ibid*, 20 November 1918, p. 2.

measures reported in the press and it may, therefore, be assumed that he acted with the full support of the local authority, which would place them in the third category along with Leicester.

In addition to his efforts with regard to the care of the sick and the support of doctors in the community previously described, Boobbyer was also prominent in giving advice on prevention. He appeared in the press on 25 October 1918, giving his advice on precautions against influenza following the publication of the LGB's guidance three days earlier. His advice also included the dangers of eating in public places and having to use eating utensils which had been used by others. The following day he appeared in the press once again giving more detailed advice, this time extolling the benefits of fresh air both for the sick and the healthy and again stressing the need for clean feeding utensils and the necessity of boiling those used by influenza patients immediately after use. He also recommended a nose and mouth wash, regular eating and sleeping habits and the avoidance of fatigue and worry. He featured in many more press reports during the course of the pandemic, either directly, issuing guidance to the public, making appeals for assistance and reporting on the extent of influenza infection in the city, or indirectly, with his advice and opinions being referred to by others.<sup>95</sup>

Once again there is little known of the efforts of other MOHs in the county except for Dr Knight of Carlton who gave the usual advice of fresh air and avoidance of overcrowding and confirmed the closure of schools at the end of November 1918.<sup>96</sup>

In the Derbyshire press very little is revealed about how the local authority was dealing with the pandemic. Although the newspapers carried numerous stories of influenza victims in the county as well as in other parts of the country and abroad, Derbyshire newspapers gave much more space to advertisements for influenza remedies than did those of Leicestershire or Nottinghamshire, advertisements often disguised as official public notices.<sup>97</sup>

It could be that this was a conscious effort on the part of the press to convince citizens that matters were under control and to maintain a lighter and more positive

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<sup>95</sup> *Nottingham Evening Post*, 18 November 1918, p. 2; *Nottingham Journal*, 18 November, p. 1, 25 November, p. 3, 29 November, p. 3, 1918; 26 February, p. 5, 3 March, p. 5, 1919.

<sup>96</sup> *Nottingham Local News*, 30 November 1918, p. 1.

<sup>97</sup> *Derby Daily Telegraph*, 1 July 1918, p. 4.

mood concerning the pandemic to prevent the public from becoming unduly preoccupied and falling victim to it as a result of over-anxiety. It was certainly the view of some doctors and politicians, that keeping cheerful was the way to stay healthy and that nervous types were worrying themselves into a dose of influenza<sup>98</sup> although the weekly publication of death rates throughout November and December would certainly have caused some alarm. However, it could also be that little was actually being done on an official level, thus there was nothing much to report.

Apart from mentioning the closure of some schools in the first and second wave and the restrictions placed on Derby's cinemas following the LGB's order, the main Derby dailies tended to concentrate mainly on the effects of the pandemic elsewhere. However, the MOH for the town, Dr Brindley, in reporting to the council, commented that instructions on safeguards and precautions had been issued to the public.<sup>99</sup> The showing of the LGB's educational film 'Dr Wise on Influenza' in the local cinemas was also announced in the press.<sup>100</sup>

Amongst the first comments of a MOH on the pandemic to appear in the Derbyshire press were those of Dr Crarer of Matlock in November 1918 in a county weekly newspaper. In a press interview he stated that Matlock had influenza cases just like other parts of the country but fortunately they were not fatal. He also added that war food had nothing to do with the disease but that the war had worn down people's nerves and their resistance. The rest of the interview was given over to a brief outline by Crarer of the history of influenza, from which the reporter deduced that the advice was to go to bed and stay there until one felt stronger.<sup>101</sup>

A list of instructions for the general public with regard to treatment and precautions appeared in another weekly newspaper, serving Ilkeston and the Erewash Valley. Here, the Ilkeston MOH, Dr John A. Watt, gave a fairly lengthy piece of advice on what to do if attacked, measures to avoid spreading infection, how to avoid a relapse and finally general precautions similar to those issued by the LGB.<sup>102</sup>

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<sup>98</sup> *Leicester Evening Mail*, 28 October 1918, p. 3.

<sup>99</sup> *Derby Mercury*, 6 December 1918, p. 3.

<sup>100</sup> *Derby Daily Telegraph*, 9 December 1918, p. 3.

<sup>101</sup> *The Matlock Visitor*, 2 November 1918, p. 4.

<sup>102</sup> *The Ilkeston Advertiser and Erewash Valley Weekly News*, 1 November 1918, p. 2.

The only other references to measures taken in Derbyshire appear in the annual report of Dr Barwise, the County MOH and in a report by Dr Allen the MOH for Belper. In his Annual Report for 1918, Barwise gave a brief summary of the death rate for the year and the spread of influenza across the county between October and November, after which he noted 'It was little that we could do to combat the disease. The Health Visitors did everything that was humanly possible. Copies of the following circular were distributed.'<sup>103</sup>

The circular referred to began by pointing out that there was no sure preventive and then presented a list of instructions similar to others mentioned earlier, aimed at preventing the spread of the infection and recommending the use of gargles, disinfectants and masks. It was accompanied by a list of measures for treating an influenza patient which was taken from the latest copy of *The Practitioner* and this included the recommendation of a vaccine.

Included in part II of Barwise's annual report were very brief summaries by the MOHs from the other urban and rural districts in the county of mortality from influenza and pneumonia in their areas and actions taken to prevent the spread of infection. These actions consisted of distributing printed advice, closing schools and, in some cases, Sunday schools and cinemas too and where cinemas were still open, barring children under 14 years of age as instructed by the LGB. The use of district nurses and health visitors to attend the sick was mentioned by Dr Watt of Ilkeston, a borough which suffered high levels of mortality as shown earlier. Nurses were also mentioned by Dr Fraser of Chesterfield, another borough which suffered very high levels of mortality, but only in relation to the distribution of precautionary instructions.

In addition, Dr Allen of Belper, in making his report to the urban district council in February 1919, referred to a recrudescence of 'what was called the influenza epidemic'. He then remarked that places of entertainment had again been given instructions regarding ventilation and the barring of children under 14 years as had been in force previously.<sup>104</sup>

It would appear, therefore, that there was a slightly mixed response by the Derbyshire local authorities but most councils may have belonged to the second

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<sup>103</sup> Barwise, *Report on the Health of Derbyshire for the Year 1918*, p. 12.

<sup>104</sup> *Derby Mercury*, 28 February 1919, p. 8.

category identified by Tomkins, in that beyond issuing the recommendations and instructions circulated by the LGB and using the services of the Health Visitors there seems to have been little else done to alleviate the effects of the influenza pandemic and the comments of Doctors Barwise and Allen in their reports would suggest a certain scepticism about the pandemic and the belief that very much could be done about it. Even the measures taken regarding the restriction, disinfection and ventilation of cinemas did not happen until the second wave of the pandemic was declining but that seemed to be an effort worthy of considerable self-congratulation. However, there clearly were some additional efforts to ease the suffering of victims, particularly in Ilkeston under the guidance of Dr Watt.

Tomkins confirms that in most local studies it is the MOH who stands out as the principal force behind epidemic policy and although he was sometimes seen as a hero, especially by the patients who benefited from his efforts, he was also often seen as a villain, particularly by business owners who were inconvenienced by the regulations and restrictions he imposed in an attempt to halt the spread of infection.<sup>105</sup> Consequently, not all MOHs received the full backing of the local authorities for which they worked.

One such MOH in England who did appear as a heroic figure was Dr Niven of Manchester. He had experienced the Russian flu epidemic of 1890 when he was MOH for Oldham and had implemented policies of isolation of the sick, disinfection of contaminated areas and keeping convalescents resting and away from work for at least three weeks to reduce the possibility of spreading infection. By such means he had had a considerable effect on the control of the disease. However, when he attempted to provide similar protection for Manchester during the pandemic in 1918 he was let down by local authorities which would not implement his recommendations.<sup>106</sup> In Leicester and Nottingham there appears to have been no such conflict of interests and the efforts of Doctors Millard and Boobyer seem to have been fully appreciated and supported.

The level of appreciation of the MOH's work can be gauged by the tributes paid to them in the handling of the crisis. In Nottingham no official vote of thanks to Dr Boobyer is recorded in the press but just before Christmas 1918, in an article

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<sup>105</sup> Tomkins, 'The Failure of Expertise', p. 452.

<sup>106</sup> Honigsbaum, *Living with Enza*, pp. 104-105

declaring the end of the second wave of the pandemic in the city, the writer made the comment, 'Dr Boobyer, who has worked so indefatigably towards the suppression of the plague...' which, added to the innumerable times his name was mentioned by writers of press reports, indicates the high regard in which he was held.

In Leicester, during a meeting of the town council held on 26 November 1918, a more extensive tribute was paid to Dr Millard and the way he had handled the demands of the pandemic even though members of his own family were also stricken with the infection. He was praised for the way he had dealt with the needs of the families and friends of sufferers, his fellow doctors and the many callers who visited him in his office daily and for taking no rest until he was assured by medical staff that the pandemic was subsiding.<sup>107</sup>

#### Self-medication

The third line of attack against the influenza pandemic was the people themselves and this opened the door to a plethora of remedies, some traditional and others little more than quack concoctions sold by opportunists looking to make money out of the situation. Around the world, wherever influenza raged, all manner of remedies were to be found.

Phillips describes how in South Africa a particular brand of antiseptic skin ointment applied to the inside of the nostrils was claimed to guarantee the prevention of infection<sup>108</sup> while in Chicago, according to Paul Buelow, patent medicines such as 'Father John's Medicine' and 'Kondon's Catarrhal Jelly' were advertised in the daily newspapers claiming to build resistance to influenza germs and be a safe preventive. Other products advertised as protection against influenza included Lysol disinfectant and Horlick's Malted Milk drink.<sup>109</sup>

Home grown remedies also came in many guises. Eating onions and garlic or drinking herbal infusions tended to be amongst the most popular recommendations in countries around the globe, but others were not as readily acceptable, such as some from Africa including drinking vinegar or whale oil or washing in cat's urine.<sup>110</sup>

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<sup>107</sup> *Leicester Daily Post*, 27 November 1918, p. 3.

<sup>108</sup> Phillips, *Epidemics*, p. 77.

<sup>109</sup> In van Hertveldt (ed.), *The 1918-1919 Pandemic of Influenza*, p. 137.

<sup>110</sup> Quinn, *Flu: A Social History of Influenza*, p. 142.

In Britain in the early years of the twentieth century, self-medication, by means of family remedies or preparations bought over the counter from the local chemist, was common practice, indeed, for many it was all that they had. Consequently, as the infection raged and over-worked doctors, despite their convictions about the effectiveness of modern medicine, seemed helpless to cure the sick and public health authorities seemed equally unable to prevent the spread of infection, people grasped at anything that might work as doing something was better than doing nothing.

Many producers of medicines and other products rushed to advertise their wares, clearly with a keen eye on profit as well as a desire to help the suffering. A wide range of patent medicines and other preparations appeared in the local press with impressive claims to either cure or prevent infection and in some cases both, even if no link to influenza treatment had been mentioned previously. What was in many of these preparations was rarely mentioned although laws requiring the listing of ingredients on labels did not come into force in Britain until 1944. Nevertheless, Lori Loeb points out that in 1918-19, commercially produced medicines for influenza were very similar to those given out on prescription and did much the same job. She also adds that research carried out by the British Medical Association showed them not only to be relatively harmless but in many cases beneficial.<sup>111</sup>

The type of products advertised fell into three main categories. One was to deal with dirt where germs live and breed, another was to strengthen the system either to prevent flu being caught in the first place or to aid recovery in convalescence and the third was to fight the effects if already afflicted. A number of such 'remedies' appeared in the East Midlands' press during 1918-19 and Table 19 below indicates the products being advertised in those counties. Some remedies were specific to one county only while others were to be found across the region as indicated by the colour coding.

Some advertising declared that people were becoming sick through lack of adequate nourishment and that once this problem was addressed the body could either resist infection or become healthy once again if already afflicted.

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<sup>111</sup> L. Loeb, 'Beating the flu: orthodox and commercial responses to influenza in Britain, 1889-1919', *Social History of Medicine*, 18/2 (2005), pp. 213-214.

Lack of meat was thought to be particularly problematic with regard to maintaining good health and questions about this were even asked in the House of Commons.<sup>112</sup> Hayes Fisher, President of the LGB, denied that there was any truth in this. However, people were not convinced and the claims of products such as Bovril, OXO and Chymol reflected this belief. The makers of Bovril stated:

The shortage of beef has had a serious effect upon vitality. It is just because Bovril contains the goodness of beef in a highly concentrated form.....that it proves so invaluable at the present moment.....Bovril increases vitality, strengthens the whole system, and fortifies the body against the attack of influenza.<sup>113</sup>

OXO's claims were similar:

A cupful of OXO two or three times a day will prove an immense service as a protective measure. Its invigorating and nourishing properties are most rapidly absorbed into the blood, and thus the system is reinforced to resist the attacks of the malady.....<sup>114</sup>

The makers of Chymol boasted that their product not only fortified you against infection, but also enabled you to recover if you were already infected:

This pure, delicious super-food builds up your natural resistance to influenza. Equally it guards you against all the dangerous 'after effects.' Doctors recommend Chymol as a tonic food. Its red bone marrow, sweet fats, and fine Barley Malt make up the deficiencies of present food – save you from the dangerous exhaustion of war worry or overwork – build up the anaemic, nervous, and convalescent.<sup>115</sup>

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<sup>112</sup> Nottingham Daily Express, Thursday 29 October 1918, p. 1.

<sup>113</sup> *Leicester Mercury*, 27 December 1918, p. 7.

<sup>114</sup> *ibid*, 20 November 1918, p. 6.

<sup>115</sup> Nottingham Local News, 13 July 1918, p. 3.

Table 19. Influenza Remedies Advertised in East Midlands' Newspapers, 1918-19.

A: Leicestershire

<i>Loughborough Herald.</i>	
Oct 3 <sup>rd</sup> Dec 4 <sup>th</sup>	Venos
<i>Leicester Mercury</i>	
Aug 14 <sup>th</sup>	Formamint
Nov 2 <sup>nd</sup>	Jackson's Anti-Flu Powders
Nov 5 <sup>th</sup>	Express Powders
Nov 20 <sup>th</sup>	Oxo
Nov 20 <sup>th</sup>	Gossages Soap
Dec 13 <sup>th</sup>	Alkaline Mineral Water
Dec 27 <sup>th</sup> , 30 <sup>th</sup>	Bovril
Feb 19 <sup>th</sup>	Carr's Fever Powders
Feb 22 <sup>nd</sup>	Lestrol Gargle
Mar 3 <sup>rd</sup>	Calverts No 1 Phenol
Mar 14 <sup>th</sup>	Chymol
<i>Lincoln, Rutland &amp; Stamford Mercury.</i>	
Oct 4 <sup>th</sup>	Venos
Nov 8 <sup>th</sup>	PEPS infection killing tablets
Nov 8 <sup>th</sup> Dec 6 <sup>th</sup>	Formamint
Nov 8 <sup>th</sup>	Jeyes Fluid
Nov 15 <sup>th</sup>	Hall's Wine
Feb 21 <sup>st</sup>	Phenosol
Feb 21 <sup>st</sup>	Phenozar
<i>Leicester Journal.</i>	
Nov 8 <sup>th</sup>	Venos
Mar 28 <sup>th</sup>	Lifebuoy Soap
<i>Leicester Daily Post.</i>	
Nov 23 <sup>rd</sup> , 28 <sup>th</sup>	Bovril
Dec 13 <sup>th</sup>	Alkin Saltrates
Feb 27 <sup>th</sup>	Old-Time Influenza Cure
Mar 25 <sup>th</sup>	Jeyes Fluid
<i>Leicester Evening Mail.</i>	
July 10 <sup>th</sup>	Sotol Gargle
July 16 <sup>th</sup> , 18 <sup>th</sup> , 20 <sup>th</sup> , 22 <sup>nd</sup>	Chymol
July 18 <sup>th</sup> Oct 29 <sup>th</sup>	Phospherine
Nov 1 <sup>st</sup> , 9 <sup>th</sup> , 29 <sup>th</sup>	Oxo
Nov 1 <sup>st</sup>	Venos
Nov 6 <sup>th</sup>	First Aid Soap
Nov 27 <sup>th</sup>	Bovril
Nov 29 <sup>th</sup> Dec 3 <sup>rd</sup> , 10 <sup>th</sup> , 18 <sup>th</sup>	Lifebuoy Soap

B: Derbyshire

<i>Derby Mercury.</i>	
Dec 6 <sup>th</sup> , 27 <sup>th</sup>	Bovril
Feb 14 <sup>th</sup> Mar 21 <sup>st</sup> , 28 <sup>th</sup> April 18 <sup>th</sup>	Lifebuoy Soap
Dec 27 <sup>th</sup> Jan 10 <sup>th</sup>	Ker-Nak Pills
Mar 7 <sup>th</sup>	Dr Williams' Pink Pills

<i>Derby Daily Telegraph.</i>	
July 1 <sup>st</sup> , 22 <sup>nd</sup> , 24 <sup>th</sup> , 29 <sup>th</sup> Oct 29 <sup>th</sup> , 31 <sup>st</sup> Nov 13 <sup>th</sup> Feb 10 <sup>th</sup> , 14 <sup>th</sup> , 17 <sup>th</sup> Mar 13 <sup>th</sup>	Hart's Influenza Mixture
July 1 <sup>st</sup> Aug 13 <sup>th</sup> Sept 23 <sup>rd</sup> Dec 19 <sup>th</sup>	Formamint
July 13 <sup>th</sup> , 19 <sup>th</sup> , 23 <sup>rd</sup>	Chymol
July 15 <sup>th</sup> , 23 <sup>rd</sup> , 25 <sup>th</sup> Nov 15 <sup>th</sup> , 20 <sup>th</sup> , 29 <sup>th</sup> Dec 10 <sup>th</sup> , 20 <sup>th</sup> Feb 7 <sup>th</sup>	Warner's Kankure Remedy
July 25 <sup>th</sup> , 27 <sup>th</sup> , 30 <sup>th</sup> Aug 1 <sup>st</sup> , 6 <sup>th</sup> , 10 <sup>th</sup> , 13 <sup>th</sup> , 15 <sup>th</sup> , 17 <sup>th</sup> , 20 <sup>th</sup> , 27 <sup>th</sup> , 29 <sup>th</sup> , 31 <sup>st</sup> Sept 3 <sup>rd</sup> , 5 <sup>th</sup>	Jeyes Fluid
Oct 23 <sup>rd</sup> Nov 13 <sup>th</sup>	Venos
Oct 30 <sup>th</sup> Nov 6 <sup>th</sup> , 13 <sup>th</sup> , 16 <sup>th</sup>	
Nov 4 <sup>th</sup> Mar 4 <sup>th</sup>	Dr Williams' Pink Pills
Nov 11 <sup>th</sup> , 14 <sup>th</sup> , 18 <sup>th</sup> , 21 <sup>st</sup> , 25 <sup>th</sup> , 27 <sup>th</sup> Dec 3 <sup>rd</sup> , 5 <sup>th</sup>	Pinkobolic Soap
Nov 20 <sup>th</sup> , 29 <sup>th</sup> Dec 3 <sup>rd</sup>	Oxo
Nov 23 <sup>rd</sup> , 28 <sup>th</sup> Dec 6 <sup>th</sup>	Bovril
Nov 27 <sup>th</sup> Dec 11 <sup>th</sup> , 16 <sup>th</sup> , 19 <sup>th</sup> , 20 <sup>th</sup>	Soda Water
Nov 27 <sup>th</sup> Dec 6 <sup>th</sup> , 24 <sup>th</sup> Jan 2 <sup>nd</sup> , 17 <sup>th</sup> , 21 <sup>st</sup> Mar 12 <sup>th</sup>	Lifebuoy Soap
Dec 12 <sup>th</sup>	Alkaline Water
Mar 6 <sup>th</sup>	Hall's Wine

<i>Derby &amp; Chesterfield Reporter</i>	
Nov 1 <sup>st</sup>	Venos
Nov 8 <sup>th</sup>	Dr Williams' Pink Pills
Nov 29 <sup>th</sup>	Bovril

<i>Matlock Visitor</i>	
Nov 9 <sup>th</sup> , 16 <sup>th</sup>	Venos
July 6 <sup>th</sup> Nov 16 <sup>th</sup>	Hall's Wine
Dec 7 <sup>th</sup>	Bovril

<i>Ilkeston Advertiser &amp; Erewash Weekly News</i>	
July 26 <sup>th</sup>	Woods Special Flu Powders

C: Nottinghamshire

<i>Nottingham Local News.</i>	
July 13 <sup>th</sup> , 20 <sup>th</sup> , 27 <sup>th</sup>	Chymol
Dec 14 <sup>th</sup>	Calverts No1 Phenol
Dec 21 <sup>st</sup>	Dr Mayu's Influenzine

<i>Nottingham Evening Post.</i>	
July 8 <sup>th</sup>	Sotol
Oct 29 <sup>th</sup> Nov 19 <sup>th</sup>	Oxo
Nov 13 <sup>th</sup>	Formamint
Nov 13 <sup>th</sup>	Gossages Soap
Nov 20 <sup>th</sup> , 26 <sup>th</sup>	Pinkabolic Soap
Nov 26 <sup>th</sup>	Bovril
Jan 22 <sup>nd</sup> Mar 12 <sup>th</sup> , 19 <sup>th</sup> , 26 <sup>th</sup>	Fort-Reviver
Feb 25 <sup>th</sup>	Nasal Douche
Feb 28 <sup>th</sup> April 1 <sup>st</sup>	Ker-Nak Tablets
Mar 13 <sup>th</sup> , 14 <sup>th</sup> , 17 <sup>th</sup> , 31 <sup>st</sup>	Chymol
Mar 15 <sup>th</sup>	Sister Veitch's Electro-Therapeutic Treatment

<i>Nottingham Daily Express.</i>	
July 4 <sup>th</sup> , 15 <sup>th</sup> , 17 <sup>th</sup>	Stevenson's Cold & Influenza Powders
July 30 <sup>th</sup>	Phospherine
Oct 28 <sup>th</sup>	Venos
Nov 5 <sup>th</sup> Mar 3 <sup>rd</sup>	Dr Williams' Pink Pills
Nov 6 <sup>th</sup>	Chloramine-T Mouth Wash
Nov 9 <sup>th</sup> , 19 <sup>th</sup> Dec 30 <sup>th</sup> Jan 1 <sup>st</sup> , 3 <sup>rd</sup> , 4 <sup>th</sup> , 7 <sup>th</sup>	Collenza
Nov 12 <sup>th</sup> Feb 24 <sup>th</sup>	Formamint
Nov 19 <sup>th</sup>	Oxo
Nov 29 <sup>th</sup> Dec 23 <sup>rd</sup> , 30 <sup>th</sup>	Bovril
Nov 29 <sup>th</sup> Dec 24 <sup>th</sup> Jan 1 <sup>st</sup>	Lifebuoy Soap
Jan 1 <sup>st</sup>	Shepperley's No 101 Influenza Mixture
Feb 21 <sup>st</sup>	Sanaphos
Feb 25 <sup>th</sup>	Eau de Cologne

Key:

- Leicestershire/Nottinghamshire/Derbyshire
- Leicestershire/Derbyshire
- Nottinghamshire/Derbyshire
- Leicestershire/Nottinghamshire
- one county only

Examples of advertisements for this type of product found in East Midland newspapers can be seen below in Figures 30 and 31.

Another popular theory with regard to the origins of the pandemic was dirt, as this was where germs could hide and multiply. Consequently, there were numerous advertisements for disinfectants and soaps for use in the workplace and home to cleanse fabrics, surfaces and bodies, eliminate dirt and germs and thus avoid infection. Jeyes' Fluid was described as 'The Best Disinfectant' and people were urged to use it daily in baths, lavatories, sinks and drains and spray it into the atmosphere in '...the office, school, factory, home, cinema and theatre'.<sup>116</sup>

Lever Brothers, the makers of Lifebuoy Soap, used the kind of patriotic rhetoric in their adverts that reflected the times. Clearly they saw the fight against influenza as a war to be waged against an enemy of the Empire and its citizens, declaring, 'For the Bonnie Bairns of the Brave. For the future welfare of the Empire the children must be kept healthy now. Protect them from germs and microbes of disease by using Lifebuoy Soap.....'<sup>117</sup>

Gossages Purified Carbolic Soap appeared in the Nottinghamshire and Leicestershire press. The language used here was much simpler but the message was essentially the same: 'It disinfects as it cleans. Use it for all purposes. It is the best for your floors, wash-tub, bath and toilet.'<sup>118</sup> Pinkobolic Soap was advertised in the Derbyshire and Nottinghamshire press for similar purposes. Examples of these adverts can be seen in Figures 32 to 34

Other advertisements were for pills, powders and mixtures to deal with influenza once the patient had succumbed. Again, a number of these were advertised generally across the East Midlands. One particularly well-advertised product and one of the first to link itself to the influenza epidemic sweeping the country was 'Formamint' germicidal throat lozenges made by Genatosan Limited, (Figure 35 below). The claims made for its curative and preventive powers were impressive and advertisements for the product even took the form of public notices, linking it with official public health and medical authority and including testimonials from prominent citizens:

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<sup>116</sup> Derby Daily Telegraph, 23 October 1918, p. 3.

<sup>117</sup> Leicester Evening Mail, 29 November 1918, p. 5.

<sup>118</sup> Leicester Mercury, 20 November 1918, p. 6.

Home Brewery Co., Ltd.

# OXO

## Fortifies the System against INFLUENZA INFECTION.

*Extract from a communication received from a Doctor:—*

"A cupful of OXO two or three times a day will prove an immense service as a protective measure. Its invigorating and nourishing properties are most rapidly absorbed into the blood, and thus the system is reinforced to resist the attacks of the malady. It will be apparent that a strong, healthy person will escape contagion when the ill-nourished one will fall a victim, consequently, one's aim must be the maintenance of strength."

The benefit to the community of a concentrated Fluid Beef like OXO is greater than ever in the present day; it increases nutrition and maintains vitality in the system, and thus an effective resistance is established against the attacks of the influenza organism.

OXO appreciably compensates for the shortage of meat.

Sole Proprietors and Manufacturers: OXO Limited, Thames House, London, E.C.4.

Figure 30. *Nottingham Guardian* 6 November 1918, p. 6.

## Influenza

*Bovril Ltd. wish to express their regret at the shortage of Bovril during the recent Influenza epidemic.*

*The proprietors of Bovril, recognising that those who are deprived of the body-building powers of Bovril may more easily fall victims to the epidemic, have done their utmost to increase the supply, but the lack of bottles has seriously hampered—and still hampers—their endeavours. Efforts are being made to collect empty bottles, and it is hoped that supplies will soon be increased by the release of men for the bottle factories.*

*It is suggested that those consumers who have a stock of Bovril should avoid purchasing at present, and thus leave the available Bovril for those who have more pressing need of it at this critical time.*


Figure 31. *Nottingham Guardian* 23 November 1918, p. 5.

© The Visiter, ©

57, BISHOPSGATE, LONDON, E.C.

By Royal Warrants of Appointment during Three Successive Reigns.

# JEYES' FLUID



**THE BEST DISINFECTANT**

## Guard against Influenza!

Protect yourself from infection by the daily use of

# Jeyes' Fluid

The Ideal Disinfectant.

Safe.      Efficient.      Economical.

Use it in your Bath. Spray the atmosphere of the Office, School, Factory, Home, Cinema and Theatre. Disinfect all Lavatories, Sinks and Drains.

Invaluable for use in Schools.

All chemists sell Jeyes' Fluid and Cyllin Pastilles.

**JEYES' SANITARY COMPOUNDS Co., Ltd., 64, Cannon St., London.**

Figure 32. *Leicester Daily Post* 25 March 1919, p. 4.

# *The* **INFLUENZA PERIL**

*Prevention  
is Better than Cure.*

*Use—*

## **LIFEBUOY SOAP**



**FOR THE BONNIE BAIRNS OF THE BRAVE.**

**F**OR the future welfare of the Empire the children must be kept healthy now. Protect them from the germs and microbes of disease by using Lifebuoy Soap.

No more simple, more certain, or more delightful way of promoting cleanliness and health and preventing disease could be found.

For the Empire's sake, for the children's sake—"Do it now"—use Lifebuoy Soap. Use it for the Toilet, for the Bath, and for Home cleaning.

The mild carbolic odour you note in Lifebuoy Soap is the sign of its splendid protective qualities. Lifebuoy Soap cleans and disinfects at the same time.

**MORE THAN SOAP, YET COSTS NO MORE.**

LEVER BROTHERS LIMITED, PORT SUNLIGHT.

L. 765-35

Figure 33. *Derby Daily Telegraph* 27 November 1918, p. 4.



**INFLUENZA**

**PREVENTION IS BETTER  
THAN CURE**

Efficient and liberal use of "Pinkobolic" will effectively combat disease and rid the air of noxious germs.

It should be used for all purposes — Toilet Laundry and Scrubbing.

It cannot be too strongly emphasised that floors should always be scrubbed with "Pinkobolic"

**PINKOBOLIC**


**9d per pound.**

**GOOD LUCK**

**SOAP.**

Figure 34. *Derby Daily Telegraph* 11 November 1918, p. 2.

58



## Fight the 'Flu with Formamint

THE GERM-KILLING  
THROAT TABLET

Read the following  
extract from Dr. Hop-  
kirk's standard work  
*"Influenza: Its Cause  
and Treatment"*:

"In Formamint Tablets we  
possess the best means of pre-  
venting the infective processes  
which, if neglected, may lead to  
serious complications. Conse-  
quently every influenza patient  
should suck four or five of these  
tablets a day until convalescent  
. . . . . There is no reason  
why individuals, families and  
households should not adopt  
the preventive measures that  
the State cannot enforce on a  
large scale. No hardship is  
involved in sucking a Forma-  
mint tablet and taking a small  
dose of quinine when exposed  
to the danger of infection."

Buy Formamint at your  
chemist's to-day — price 2/2 per  
bottle — but be sure you get the  
*genuine* kind, labelled: Genatosen,  
Ltd. (British Purchasers of the  
Sanatogen Co.), 12, Chancery Street,  
London, W.C. 1. (Chairman:  
The Viscountess Rhonda.)

Figure 35. *Nottingham Evening Post* 2 November 1918, p. 4.

In Formamint Tablets we possess the best means of preventing the infective processes which, if neglected, may lead to serious complications. Consequently every influenza patient should suck four or five of these tablets a day until convalescent...<sup>119</sup>

Remember, too, that Formamint has *curative* as well as preventive powers... No tablets can claim to be equal or similar to Formamint in comparison.<sup>120</sup>

Another remedy advertised across the three counties under review and which consumers can still buy today was Veno's, referred to in 1918 as the 'Lightening Cough Cure'. Once again extraordinary claims were made for its powers as '...the world's supreme remedy for Coughs and Colds, Lung Troubles, Asthma, Bronchitis, Nasal Catarrh, Hoarseness, Difficult Breathing and Influenza'.<sup>121</sup> The advert included a testimonial purporting to be from a soldier praising the product's ability to cure not only a fellow soldier who had been gassed, but also himself and two other soldiers suffering from 'Spanish Flu' who found 'instantaneous relief' after taking Veno's.

Some products were advertised as tonics, designed to build up the system and enable it to fight off infection. In Nottinghamshire and Derbyshire, considerable space was given over to adverts for Dr Williams' Pink Pills for Pale People. Described as building up the blood, numerous testimonials from sufferers who claimed to have been cured were included to persuade readers that this was the product they needed.<sup>122</sup> Another tonic, this time advertised in the Leicestershire and Derbyshire press, was Hall's Wine.

Described as the 'Supreme Restorative', Hall's Wine's effectiveness was claimed to be in enriching the blood which toned up the nerves and gave renewed strength and vigour. 'Halls Wine never fails,' it was claimed in the press.<sup>123</sup> In the same counties, the drinking of alkaline or soda water was promoted to purify the blood by flushing the kidneys and stimulating the liver thereby making the consumer resistant to infection.<sup>124</sup>

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<sup>119</sup> *Derby Daily Telegraph*, 1 July 1918, p4; *Leicester Mercury*, 3 July 1918, p. 3.

<sup>120</sup> *Leicester Mercury*, 14 August 1918, p. 2.

<sup>121</sup> *Lincoln, Rutland and Stamford Mercury*, 4 October 1918, p. 2.

<sup>122</sup> *Derby Mercury*, 7 March 1919, p7; *Nottingham Daily Express*, 5 November 1918, p. 3.

<sup>123</sup> *Matlock Visitor*, 6 July 1918, p. 2, 16 November 1918, p. 3; *Derby Daily Telegraph*, 6 March 1919, p. 4; *Lincoln, Rutland & Stamford Mercury*, 15 November 1918, p. 4.

<sup>124</sup> *Derby Daily Telegraph*, 11 December 1918, p. 1, 12 December 1918, p. 4; *Leicester Mercury*, 13 December 1918, p. 9.

There were also numerous remedies peculiar to specific areas, advertised by local chemists. In Leicestershire there were Jackson's Anti-Flu Powders, Express Powders and Carr's Fever Powders.<sup>125</sup> For germ killing action there was First Aid Soap, Phenosol liquid sanitary soap and Phenozar disinfectant fluid.<sup>126</sup> For disinfecting the upper respiratory passages there was Lestrol Gargle offered by Clark's Chemist of Leicester and PEPS infection killing tablets. Dissolve one of these in the mouth and '...every part of the throat and breathing tubes is immediately protected by a powerful germ-destroying medicine'.<sup>127</sup>

In Derbyshire three chemists, Hart of the Corn Market in Derby, Warner of Normanton Road, Derby and Woods of Ilkeston, advertised their own preparations. These were Hart's Influenza Mixture, advertised as a preventative and a complete cure, Warner's Kankure Remedy to prevent pneumonia and Woods' Special Flu Powders also described as a certain preventative and sure cure.<sup>128</sup>

In Nottinghamshire a range of local products performing similar functions was available. The Nottingham chemist of Stephenson and Waton of Pelham Street sold Stephenson's Cold and Influenza Powders, Collenza, another remedy for colds and influenza and Phosphozone, a tonic to aid recovery after influenza.<sup>129</sup> Boots offered Chloramine T disinfectant wash for mouth, throat and nose for prevention and cure of colds and 'flu. They also promoted the use of Eau de Cologne as an antiseptic and germicidal perfume, claiming that it purified the air and made the breathing passages less liable to infection. They offered different types for different purposes, for example, Jersey Castle for use in the sick room and White Heather for toilet and general use.<sup>130</sup> Wolverson's of Beeston offered Dr Mayu's Influenzine, to disinfect the throat, while Shepperley's Chemist of Long Row sold Shepperley's No. 101 Influenza Mixture, which 'will speedily cure any case of influenza'.<sup>131</sup> Other products available to strengthen the nerves and build up the system included Sanaphos reconstructive

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<sup>125</sup> *Leicester Mercury*, 2 November 1918, p. 1, 5 November 1918, p. 3, 19 February 1919, p. 6.

<sup>126</sup> *Leicester Evening Mail*, 6 November 1918, p. 4; *Lincoln, Rutland & Stamford Mercury*, 21 February 1919, p. 1.

<sup>127</sup> *Leicester Mercury*, 22 February 1918, p. 8; *Lincoln, Rutland & Stamford Mercury*, 8 November 1918, p. 4.

<sup>128</sup> *Derby Daily Telegraph*, 1 July 1918, p. 1, 15 July 1918, p. 2; *Ilkeston Advertiser & Erewash Weekly News*, 26 July 1918, p. 2.

<sup>129</sup> *Nottingham Daily Express*, 4 July, p. 4, 30 July, p. 3, 9 November, p. 3, 1918.

<sup>130</sup> *ibid*, 6 November 1918, p. 3, 25 February 1919, p. 6.

<sup>131</sup> *Nottingham Local News*, 8 March 1919, p. 3; *Nottingham Daily Express*, 1 January 1919, p. 6.

food, and Fort-Reviver, a non-alcoholic tonic made from fruit juices.<sup>132</sup> Figures 36 and 37 below show examples of advertisements for this type of remedy.

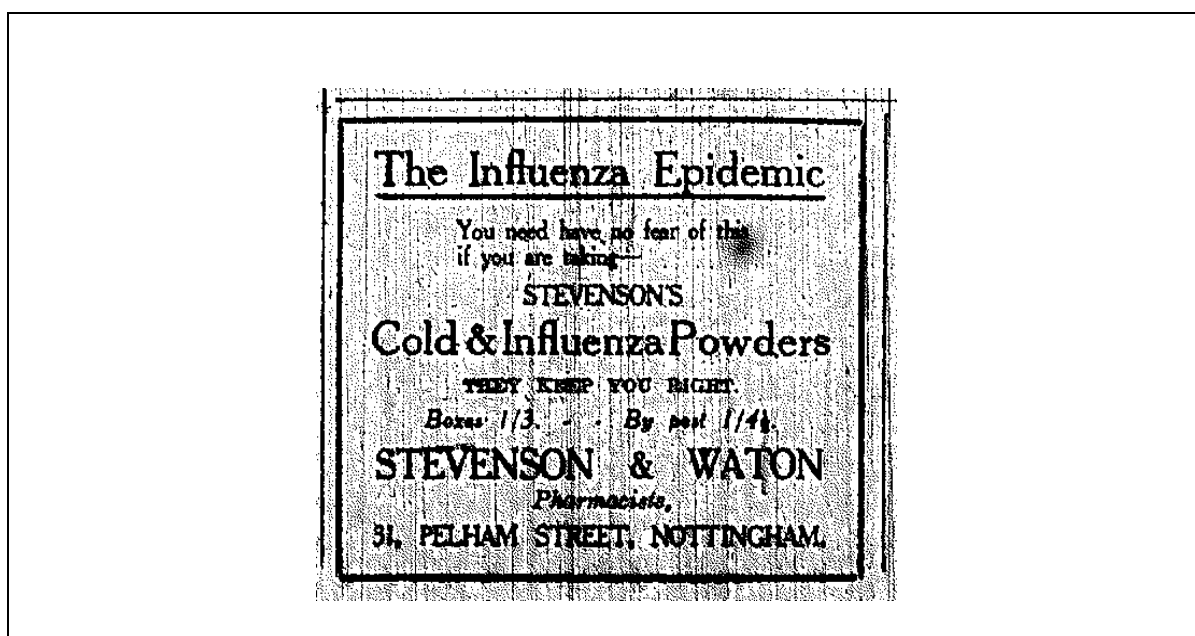


Figure 36. *Nottingham Evening Post* 5 July 1918, p. 3.

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<sup>132</sup> *Nottingham Daily Express*, 21 February 1919, p. 6; *Nottingham Evening Post*, 19 March 1919, p. 4.

Do YOU wish to escape.

# INFLUENZA?

If so, then you will be well advised to purchase a bottle of

## HART'S MIXTURE

to have by you in case of emergency. A **SNEEZE** is a danger signal, a sign that a cold is about to lay hold of you. Do not neglect nature's warning, but on the first appearance of any cold symptoms take a few doses of **HART'S MIXTURE** and you will have no further cause for anxiety. No other medicine

**Cures a Cold so Quickly.**

The general symptoms of **INFLUENZA** are pains in the head and limbs, sore throat, depression of spirits, and feverishness. The first few doses of **HART'S MIXTURE** will reduce the temperature, relieve the pains, brace the patient up, and if persevered with will in a short time effect a complete cure. This popular and truly wonderful medicine can only be obtained from—

**HART'S, 38, CORN MARKET.**

It is sold in 8 oz. bottles, **1/3**, or 20 oz. family size, **2/9** (by post **6d.** extra). It is **Derby's Favourite Remedy** for the disease, and during the present epidemic of **INFLUENZA**

**NO HOME SHOULD BE WITHOUT IT!**



Figure 37. *Derby Daily Telegraph* 29 October 1918, p2

The most unusual influenza treatment advertised, however, was 'Sister Veitch's Electro-Therapeutic Treatment' seen in the *Nottingham Evening Post*. Promoted as an effective treatment for a wide range of ailments from insomnia to hair troubles and the after effects of influenza, and as a modern scientific method of drugless healing, Sister Veitch treated patients in her consulting rooms at the George Hotel in Nottingham.<sup>133</sup> Exactly what the treatment involved is not stated but it is likely to have been similar to the popular Victorian electrotherapy treatment invented in 1862 by which a patient was exposed to mild electric shocks for the relief of pain, hysteria, distress and other mental conditions, particularly those thought to afflict women.<sup>134</sup>

In addition to 'over the counter' preparations, many people also had their own home remedies. Occasionally these would be sent to local papers for publication with the aim of helping others. Possibly the simplest was 'breathing copiously for five minutes three times a day' suggested by Arthur Lovell of Leicester<sup>135</sup> In the Leicester Daily Post an influenza cure found in the diary of the Reverend John Mill, minister of Dunrossness in Shetland between 1740 and 1803 was printed: 'A decoction of 2 oz lin-seed, 2 oz of liquorish–stick bruised and boiled over a slow fire in a pint of water.....then strained and mixed with 4 oz powdered sugar candy, also some lemon juice, brandy or rum; take frequently a spoonful thereof, etc.'<sup>136</sup>

In the Derbyshire press, in a column entitled Notes and Notions, a 'Cure for Influenza' was confidently announced. The writer from London insisted that to keep the 'dreaded scourge at bay' one simply had to eat raw onions and he supported this contention by pointing out that 'the Italian colony at Saffron Hill' had been free of influenza because 'they all eat onions – raw onion – freely'.<sup>137</sup>

However, for most people, there were few commodities such as fresh fruits, vegetables or alcohol available to them so they used whatever they had. Richard Collier, in researching his book 'The Plague of the Spanish Lady' received correspondence from many survivors and their family members describing their experiences during the pandemic. Mr Horace Allen of Wigston, Leicester, was one of those who wrote to Collier. He was living in Derbyshire at the time, working for the

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<sup>133</sup> *Nottingham Evening Post*, 15 March 1919, p. 4.

<sup>134</sup> Victorian Pharmacy (1996) A Lion Television Production for the BBC, episode 2

<sup>135</sup> *Leicester Mercury*, 17 March 1919, p. 3.

<sup>136</sup> *Leicester Daily Post*, 27 February 1919, p. 3.

<sup>137</sup> *Derby Daily Telegraph*, 20 July 1918, p. 3.

Midland Railway. He became ill on 6 November 1918 and took to his bed. A doctor was called but medication failed to work and he developed pneumonia. He describes the care he was given by his doctor and his wife's mother: 'Dr Bob came every day sometimes twice if he was in the district. To eat was mostly milk puddings and bread and butter and to drink toast water, lemon water and blackcurrant juice made from blackcurrant jam pints of it.'

As his condition worsened he received help from an unexpected source.

I had to have eggs and brandy. With these being scarce brandy had to be ordered by the doctor. Dr Bob had a great friend in Mr John Hall the owner of Halls Colliery, Swadlincote. Dr Bob was also the colliery doctor.....Mr John Hall gave the doctor some bottles of brandy for his very serious cases out of his wine cellar. Eggs at that time of the year were very scarce and in big demand but a workmate of mine kept some fowls and brought me one every day.

Despite all of these efforts, Mr Allen continued to worsen and by the beginning of December his condition was very grave. After the doctor confessed he did not know what else to do [other than prescribe purified creosote] Mr Allen's mother-in-law turned to a traditional remedy: '... the best thing to do is to poultice him...So I was poulticed day and night...and it worked after two days breaking the congestion.'<sup>138</sup>

A similar experience was described in a letter from Mrs Edith Corton of Cropston in Leicestershire. She was a member of the Land Army and was struck down with influenza in October 1918. She was fortunate to obtain the services of a nurse: '....it was she who saved my life... There were no drugs, she treated me for acute pneumonia, I was constantly poulticed and she made a cotton wool waistcoat...' <sup>139</sup>

Although there were many individual cases of apparently successful treatment such as those above, the state of medical knowledge at that time was incapable of producing a cure for influenza, and even today, despite the many advances in medical science which have been made since 1918, the influenza virus still confounds efforts to

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<sup>138</sup> Private Papers of Richard Collier, Horace Allen, letter dated 9 May 1973.

<sup>139</sup> *ibid*, Edith Corton, letter dated 9 May 1973.

produce a guaranteed cure. As described by W. I. B. Beveridge, in the title to his book, influenza is still very much 'an unfinished story of discovery'.

This chapter has focused on the measures taken by doctors and public health authorities to combat the spread of infection in the civilian population during the influenza pandemic and deal with the suffering and distress it caused to those who were afflicted. It has also looked at what the general public did to try and help themselves.

What seems to emerge from the above discussion is that the conditions of war together with the state of medical knowledge at that time were a most unfortunate combination and may have increased the suffering of some victims rather than alleviated it. This is not to suggest that under different circumstances health professionals in 1918 could have prevented or cured influenza, indeed, there is no certainty that this can be done even today despite the work of the World Health Organisation and the claims in some modern tabloid newspapers.<sup>140</sup> However, it did create a number of difficulties which had a bearing on how the crisis was handled and why that was different in different places.

Many in the medical profession remained convinced of their ability to control the disease through preventive methods or to administer a cure despite evidence to the contrary in the three successive waves of uncontrollable morbidity and mortality that had occurred. Others became so convinced that nothing could be done about it, it prevented them taking the kind of action that might have eased suffering. Added to this the almost mass conscription of doctors and nurses into military service and the apparent reluctance of the government to demobilise them after the Armistice placed enormous pressure on the medical and public health services caring for the civilian population.

At a time when the LGB would have been expected to take decisive action to direct local authorities in the public health measures to be taken, they did virtually nothing, the need to concentrate on the war effort taking precedence over measures to try and control a pandemic. This left practically everything in the hands of local authorities and their MOHs which accounts for the different approaches used in different areas.

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<sup>140</sup> L. Johnston, 'Jab to End Super-Flu', *Sunday Express*, 20 October 2013, pp.1 and 6.

Although little is known of the work of most of the Medical Officers in the East Midlands and elsewhere, some do stand out and in this respect the region was fortunate in having the services of Doctors Millard of Leicester and Boobyer of Nottingham whose sterling efforts throughout the crisis secured hospital space for the worst cases, nursing and domestic care for victims out in the community and provided a constant stream of advice and information for the benefit of the general public, all it would seem with the confident support of their local authority. There was even the provision of a temporary influenza hospital in Nottingham, a facility not generally available in Britain. Efforts in Derby, however, are much less clear as little seems to have been said about them either in the local press or in the MOH's Annual Report beyond the circulation of LGB recommendations and the work of the health visitors.

Treatment for influenza as provided by doctors varied a great deal. Other than going to bed as soon as infected and remaining there until fully recovered, which did seem to be effective for those who had the resources to do it, there was no general consensus on which treatments were deemed to be most beneficial and ultimately it was acknowledged that none of them actually worked, especially once the victim had succumbed to secondary complications. However, alcohol was extensively prescribed and various solutions were used for inhaling, injecting or ingesting.

Furthermore, a remedy very much to the fore in Nottingham was the fresh air treatment favoured by Dr Boobyer and used extensively at the Queen's Walk influenza hospital. It was also highly recommended by Dr Millard although there is no evidence that this was practised in the hospitals in the city. As for preventives, gargles and douches were also recommended by both doctors and by Dr Fairer of Leicestershire but vaccines and masks were not, despite being favoured in Derby and in other parts of Britain and overseas.

The home remedies of the general public, like those of the doctors, also varied a great deal and were influenced by the country or region they came from but in the East Midlands suggested treatments included eating raw onions, milk puddings and eggs and applying poultices.

The range of treatments most commonly used by the public, however, were preparatory medicines, advertised in most local newspapers and sold by chemists

across Britain and in many other countries. Influenza was also big business for many manufacturers of foods and drinks, especially those produced for convalescents or for people needing a tonic, and for the makers of soaps and cleaning fluids, highly recommended by many health professionals to get rid of the dirt and germs that spread infection. All such products were advertised extensively in daily and weekly newspapers and most claimed to be the ideal product to prevent or cure influenza. The East Midlands, in common with many other places, advertised a wide range of preparatory medicines and other products making such claims. With regard to prevention and cure, therefore, the East Midlands' experience would seem to be very much in line with that of many other places around the world.

With contagion raging during the course of the influenza pandemic despite the concerted efforts of the medical profession, public health authorities and the general public against it and with so many citizens, if not actively caring for the afflicted, being either sick, dead or convalescent themselves, the normal activities of daily life became seriously disrupted and this will be the focus of the next chapter.

## CHAPTER 6

### Labour, Leisure and Learning

After four years of war, civilian life had already undergone considerable adjustment in order to deal with the changes that resulted. Thousands of men were now absent from their families and their jobs for long periods of time, some returning sick, injured or permanently disabled, others not returning at all. Women found themselves, not only having to run the home and care for the children, but also having to undertake many of the jobs, including those in heavy industries, that the men had left to go to war.

Considerable effort was made by those left on the home front to maintain the appearance of normal life and be as unaffected as possible by the events on the other side of the English Channel. People still went to work, children still went to school and free time was still spent in pleasurable activities such as attending sporting events, going to the cinema or enjoying a show, taking an evening class, eating out in a restaurant or participating in social or charitable events. However, the outbreak of the influenza pandemic in the summer of 1918 and its persistence until the spring of 1919 tested the public's resolve and endurance to the utmost at a time when they were already under great stress.

This chapter focuses on the extent to which the ordinary activities of civilian life, namely, work, leisure activities and education, were affected by the influenza pandemic. The first part will examine working life, particularly essential industries such as coal mining and manufacturing, and public services such as the post, telephone and trams, and consider how these were affected by the needs of war as well as by the pandemic and the possible economic effects of that. The second part will look at the effect of the pandemic on popular leisure activities and the third part will consider its effects on education.

#### Work

Waging war is a very costly business and puts great pressure on the workforce to produce the goods needed to keep fighting forces adequately supplied. This pressure is further increased by the need to take men into military service which means that

many industries lose the services of experienced workers at a time when they need them most.

This was certainly the case in Britain. On the day that Britain declared war on Germany, 4 August 1914, Lloyd George gave a speech to businessmen assuring them that it would be 'business as usual' which gave rise to the illusion that the war would have no great effect on the normal activities of daily life.<sup>1</sup> However, with the appointment of Kitchener as secretary of state for war the following day, a process began which was to put serious strain on Lloyd George's promise. While the government envisaged a quick war lasting perhaps nine months, Kitchener saw a war lasting several years with millions of men in the field.<sup>2</sup>

G. J. DeGroot argues that Kitchener's vision of a 'mass citizen army', drained vital industries of manpower as patriotic fervour not only encouraged many men to leave their work and enter military service of their own accord but also resulted in skilled workers often being shamed into volunteering. This situation continued to worsen throughout the war resulting in serious labour shortages and a lack of essential resources.<sup>3</sup>

One of the first emergencies to occur was a lack of ammunition, the production of which was both highly skilled and dangerous and not the sort of job that could be left to unskilled workers. Mining was also being drained of experienced operatives as, 'Kitchener's army competed with industry for the same, limited supply of labour.'<sup>4</sup> As late as the summer of 1918, MP Sir Joseph Walton raised the problem of men being taken away from essential industries in the House of Commons when he pointed to the fact that 75,000 men had been taken from the mines for military service during that year alone.<sup>5</sup>

In January 1916, in an effort to increase manpower for the military, conscription was introduced for single men between the ages of 18 and 41, but following poorer results than expected, conscription was extended in April of that year to include married men.

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<sup>1</sup> DeGroot, *Blighty*, p. 54.

<sup>2</sup> *ibid*, p. 61.

<sup>3</sup> *ibid*, p. 73.

<sup>4</sup> *ibid*, p. 92. See also p. 63 where DeGroot quotes statistics on volunteers sent to the trenches during 1914 which included 10,000 skilled engineers, 145,000 men from building trades and 160,000 miners.

<sup>5</sup> 'Fuel and Lighting Order', HC Deb. 31 July 1918, vol. 109, cc457-551. See also, 'Coal Supplies', HC Deb. 29 July 1918, vol. 109, cc9-14.

Exemptions included those employed in essential industries but it was left to local tribunals to decide who those workers were which resulted in differences from region to region.<sup>6</sup>

In February 1917 the National Service Scheme was launched to encourage all men between the ages of 18 and 61 to enrol to serve their country, irrespective of whether they were engaged in essential work or not. When this failed, army recruitment and control of the workforce were finally passed to a new civilian authority, the Ministry of National Service headed by Auckland Geddes, in August 1917. Under the Defence of the Realm Act, he had the power to close down non-essential industries and move labour to essential industries instead. By April 1918, with American troops arriving at the battle front, Geddes gave priority to industries such as munitions and ship and aircraft production which continued until the end of the war. But again DeGroot argues that the government simply 'limped from manpower crisis to manpower crisis during the war' and exercised no control over the civilian workforce until 1918 when it made some attempt to coordinate manpower needs.<sup>7</sup>

This situation would have had a significant impact on the East Midlands which, as a major industrial region, was making a considerable contribution to the war effort, particularly with regard to coal mining, engineering and boot and shoe manufacturing. The Leicestershire and South Derbyshire coalfield and the East Derbyshire and Nottinghamshire coalfield were the most productive in the region during WWI, providing coal for military and civilian use and the work of the region's boot and shoe manufacturers was in great demand by the military.<sup>8</sup> The Rolls-Royce factory in Derby was also making Eagle, Falcon and Hawk aero engines to power the Bristol fighters, seaplanes and blimps which were used extensively during the war and played a major part in British successes.<sup>9</sup>

Such was the situation in Britain when the influenza pandemic appeared in the summer of 1918 and the additional difficulties this exerted on industry can be gleaned from cabinet reports and memoranda between boards of trade and the War Office as well as from the news media.

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<sup>6</sup> DeGroot, *Blighty*, p. 96

<sup>7</sup> *ibid*, p. 105

<sup>8</sup> Wilson, *The Myriad Faces of War*, p. 149

<sup>9</sup> M. E. Smith, *Industrial Derbyshire* (Derby, 2008), p. 157.

## The need for coal

In an age when coal was the prime source of power, the mining industry was vital to the successful pursuit of the war on both sides but efforts by British collieries to meet the demand for coal were seriously hit by the pandemic in combination with the loss of so many skilled men. A report on the work of the Board of Trade for July 1918 states:

Extreme difficulty has been experienced during the past month in dealing with the demand for coal both for inland consumption and for shipment, which has considerably exceeded output.

The effect of influenza on output showed no sign of abating in certain districts, even towards the end of the month, the output of certain collieries being reduced by as much as 50 per cent. It is anticipated that the position will be materially improved when the epidemic dies down.....<sup>10</sup>

The report goes on to express concern that a serious consequence of the pandemic together with the failure of the War Office to return, as promised, 25,000 miners to the pits, was that it would be impossible to make up the time lost in connection with the accumulation of coal stocks for the coming winter although a hopeful note was expressed in connection with a proposed scheme for rationing fuel to domestic and industrial consumers. However, a memorandum sent the following month concerning deficit in overall coal production of 9,500,000 tons, confirmed the effect the first wave of influenza had had on output: 'A further quite unexpected factor is the influenza epidemic affecting the men employed in the collieries throughout the coal fields. The loss of output on this account alone amounts to nearly 2 million tons in the month of July.'<sup>11</sup>

The problems were being exacerbated by the demands of the American Expeditionary Force which had increased from 50,000 tons to 500,000-750,000 tons per month. This, combined with the effects of influenza and the lack of skilled miners, was making

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<sup>10</sup> Monthly Report on the Work of the Board of Trade, 'Coal Control', 12.8.1918, CAB / 24/ 60, London, TNA.

<sup>11</sup> Memorandum to the President of the Board of Trade, 'The Coal Situation', 15.8.1918, CAB / 24/ 61, London, TNA.

'...the coal position at the present time far worse than was anticipated in June both as regards export and the supplies for inland consumption'.<sup>12</sup>

The Nottingham press reported that 'In Northumberland and Durham the rapid spread of the disease is seriously affecting the collieries, in some cases 70 per cent of employees being off work,' and locally 'A number of employees from the Digby Collieries...had to be taken to their homes suffering from the malady.'<sup>13</sup>

*The Times* also reported that coal miners were particularly prone to attack by influenza and that Nottinghamshire collieries were struggling with 250 men down with the infection at the Mansfield pit in one day.<sup>14</sup> Two days later it reported that there were hundreds of influenza cases in the Monmouthshire collieries.<sup>15</sup>

With the second wave of influenza in the autumn of 1918, the situation worsened. A further loss of output was reported in a memorandum by the President of the Board of Trade to the War Cabinet in October when the estimated shortfall in production was 14 ½ million tons: '...in view of the unexpected loss of output due to the...influenza epidemic... The coal position at the present time is most serious...'<sup>16</sup>

The East Midlands' press reported that 'There are many cases of influenza in the Leicestershire colliery area.'<sup>17</sup> By November Nottinghamshire miners were again suffering: 'Reports to hand show that in the Bulwell district influenza is very bad...Amongst the victims there are a large number of miners.'<sup>18</sup> In the same edition, another report notes: 'Quite a number of residents in Annesley and Newstead have fallen victim to the 'flu and are consequently out of action, the absentees from the pits being more than usual on this account...'<sup>19</sup>

By late November the situation in East Midlands' pits was worse than just absenteeism.

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<sup>12</sup>ibid

<sup>13</sup> *Nottingham Journal and Express*, 2 July 1918, p. 3.

<sup>14</sup> *The Times*, 3 July 1918, p. 3.

<sup>15</sup> ibid, 5 July 1918, p. 3.

<sup>16</sup> Memorandum by the President of the Board of Trade to the War Cabinet, 'Return of Miners from the Army', 7.10.1918, CAB / 24/ 66, London, TNA.

<sup>17</sup> *Nottingham Evening Post*, 23 October 1918, p. 2.

<sup>18</sup> *Nottingham Local News*, 2 November 1918, p. 1.

<sup>19</sup> ibid, p. 2.

Five men employed at a Leicestershire colliery have died within the last few days, and 130 were away from work yesterday owing to influenza. The daily average for a fortnight of men off duty is 150; in normal times it is not over 30. Other collieries are also affected, and throughout the Coalville district the ravages of the disease are marked...<sup>20</sup>

By the beginning of December the situation was still grave with influenza prevalent in Ellistown, Battram, Ibstock, Whittwick, Ravenstone and Snibstone<sup>21</sup> and little improvement had been made by the following week as it was reported 'Influenza continues to claim many victims in the Leicestershire colliery district...'<sup>22</sup> While in Nottinghamshire, the slightly more optimistic news for Arnold and Daybrook stated 'Influenza abating though mines... still without workers.'<sup>23</sup> Nothing was reported on the situation in the Derbyshire mines in the newspapers consulted for this study.

British mines were not the only ones to suffer. In assessing the economic effects of the influenza pandemic in the United States Tom Garrett describes how mines in Tennessee had been reduced to 50 per cent of their normal output by mid-October 1918 and were in danger of closing down as were some mines in Kentucky. Similarly in South Africa, where a great deal of mining was done by the non-white population which, as noted previously, suffered very high influenza morbidity and mortality rates, *The Times* reported that six collieries in Johannesburg had closed down while others were working at only one third of their normal capacity<sup>24</sup> and the position of collieries in the Transvaal was described as critical.<sup>25</sup> Gold and diamond mining, an important part of South Africa's economic activity, was also badly affected.

Howard Phillips notes that by November 1918 '...1,147 black mineworkers on the Rand had fallen victim to Spanish Influenza'<sup>26</sup> and over a period of six weeks, 61,000 of the 190,000 men employed in the gold mines had also been hospitalised. This caused a serious labour shortage which led to a reduction in production to only 62 per cent of normal output by December 1918 and a fall in profits of around £300,000. *The Times* also reported that gold production in Johannesburg was down by 10 per cent and De

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<sup>20</sup> *Leicester Evening Mail*, 21 November 1918, p. 4.

<sup>21</sup> *ibid*, 2 December 1918, p. 3.

<sup>22</sup> *ibid*, 9 December 1918, p. 4.

<sup>23</sup> *Nottingham Evening Post*, 7 December 1918, p. 2.

<sup>24</sup> *The Times*, 15 October 1918, p. 5.

<sup>25</sup> *ibid*, 23 October 1918, p. 3.

<sup>26</sup> Phillips, *Black October*, p. 2.

Beers, the main mining company in Kimberley, had halted some of its operations altogether.<sup>27</sup>

### Manufacturing

Other Industries also struggled to maintain production with workers falling victim to influenza, including industries vital to the war effort such as munitions and engineering and national and provincial newspapers reported on the situation at home and abroad. By late June 1918, the high levels of sickness and absenteeism amongst the civilian workforce which marked the activity of the first wave of the pandemic were being felt in industries across Britain and many other countries.

*The Times*, for example, reported the alarming statistic of 600 cases of influenza in two factories in Letchworth in June 1918<sup>28</sup> In early July it reported that the textile trade in the City of London and elsewhere was suffering severely with 15 to 20 per cent of the workforce ill while in Newcastle labour was becoming scarcer by the hour as up to 70 per cent of employed men were sick.<sup>29</sup> The following day *The Times* reported a serious situation in the munitions factories and ironworks in Birmingham, the closure of a large mill in Heywood and the plight of large firms in Manchester,<sup>30</sup> and the list of absenteeism and indisposition amongst workers continued to grow, as across Britain factories and warehouses, shops and offices, were reduced to staffing levels that were barely adequate.

The same was true in towns and cities around the world. Again, Phillips describes how, in Cape Town a number of factories with largely black workforces were forced to close through lack of labour.<sup>31</sup> Geoffrey Rice also notes how factories in New Zealand struggled to keep working while *The Times* reported that factories in India had been reduced by one third or more of their workers.<sup>32</sup>

The newspaper also reported on the situation in Germany, where it noted that Berlin's armaments and munitions factories had been affected by influenza and that factories in Frankfurt had one third to one half of their workforce away sick.<sup>33</sup> This greatly

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<sup>27</sup> *The Times*, 4 October 1918, p. 5.

<sup>28</sup> *ibid*, 26 June 1918, p. 7.

<sup>29</sup> *ibid*, 2 July 1918, p. 3.

<sup>30</sup> *ibid*, 3 July 1918, p. 3.

<sup>31</sup> Phillips, *Black October*, p. 13.

<sup>32</sup> *The Times*, 8 July 1918, p. 7.

<sup>33</sup> *ibid*, 4 July 1918, p. 5, 5 July 1918, p. 3.

increased Germany's difficulties, with falling productivity across a wide range of industries and sharply rising prices as a result. In Frankfurt, two million working days were reported lost in 1918 because of influenza, contributing to serious food and coal shortages and the highest prices in Germany.<sup>34</sup>

In the East Midlands, a region of extensive and varied industrial output, the first wave of influenza caused serious concern, as reported in the Derby press: 'The new epidemic of influenza is giving a vast amount of trouble...and unless it should die away as suddenly as it arose its effects on industry will not be negligible.'<sup>35</sup> Only a few days later these fears seem to have materialised: 'Practically every factory and works in the town is similarly affected, and in the case of one important establishment over one thousand hands have been off sick at the same time.'<sup>36</sup>

With the second wave of influenza, the factories continued to struggle as workers fell sick. The difficulties being experienced in Derby were reported in the Nottingham press: 'Derby, which suffered severely from the ravages of influenza during the epidemic in the early summer, is undergoing another visitation which is gradually assuming the same proportions...work in the engineering and other important trades is being seriously interfered with.'<sup>37</sup> The Derby press, however, commented little on the effects, stating only, 'The ravages of the epidemic are seriously affecting factories.'<sup>38</sup>

In Nottingham, industry was also affected by the influenza pandemic in July: 'Many of the workers in the factories have been attacked, over fifty being off at one factory.'<sup>39</sup> By the second wave of the pandemic the Nottingham press was reporting that in Arnold, 'Hundreds of men and women are away from work and some of the factories have been almost deserted.'<sup>40</sup> This situation persisted into December even though the influenza appeared to be abating.

Leicestershire industry did not escape the effects of influenza either. As with Derbyshire and Nottinghamshire, Leicestershire factories were without the services of

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<sup>34</sup> van Hartesveldt (ed.), *The 1918-1919 Pandemic of Influenza*, p. 29.

<sup>35</sup> *Derby Daily Telegraph*, 1 July 1918, p. 2.

<sup>36</sup> *Derby and Chesterfield Reporter*, 12 July 1918, p. 5.

<sup>37</sup> *Nottingham Evening Post*, 23 October 1918, p. 2.

<sup>38</sup> *Derby Mercury*, 6 December 1918, p. 3.

<sup>39</sup> *Nottingham Evening Post*, 11 July 1918, p. 2.

<sup>40</sup> *Nottingham Local News*, 23 November 1918, p. 3, 7 December 1918, p. 2.

many of their workers during the highly infectious first wave of the pandemic.<sup>41</sup> It seems, however, that the situation was not so bad at this stage as to seriously interrupt output: 'In the larger factories there are a considerable number of men away. In one firm over 80 were out of a department, but in most places there is no such absence as to wholly disorganise the working...'<sup>42</sup>

By the second wave, however, the local press reported a worsening situation noting that in a Loughborough factory '...there had been 12 cases in one day',<sup>43</sup> while in the nearby village of Barrow-on-Soar 'About 60 people are absent from the factory.'<sup>44</sup> In Leicester, major industries were seriously stricken.

Many of the operatives of the principal industries of the town are also down with the infection. The operatives of one large hosiery firm have been so seriously attacked that the proprietor had no alternative last night but to close the works for the week end. Large numbers of operatives in other hosiery firms have also been stricken down. Careful enquiries go to show that the boot and shoe trade is more seriously affected than any other. The percentages vary, but taking the average it is very high. Should it still go higher it will make the carrying on of business very difficult.<sup>45</sup>

The situation was very much the same across all types of working environment where people congregated to produce the goods the country needed. Even so, it was necessary to maintain production. Dr Millard, MOH for Leicester, admitted to the local press after a town council meeting that 'They would like to close the factories...but they could not suspend the industries of the town.'<sup>46</sup>

#### Public services

Public services were also hit hard by the influenza pandemic. Again, this was very much the situation around the globe and recent histories describe the chaos of postal, telephone and transport services struggling to function with hardly any staff left who

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<sup>41</sup> *Loughborough Herald and North Leicestershire Gazette*, 4 July 1918, p. 5.

<sup>42</sup> *Leicester Journal*, 19 July 1918, p. 4.

<sup>43</sup> *Leicester Evening Mail*, 8 October 1918, p. 3.

<sup>44</sup> *ibid*, 15 October 1918, p. 1.

<sup>45</sup> *ibid*, 19 October 1918, p. 4.

<sup>46</sup> *Leicester Mercury*, 31 October 1918, p. 3.

were well enough to work. Fire brigades, police forces and the work of the courts were also affected.

T. A. Garrett, for example, states that in Memphis, USA, in October 1918, 124 men out of 400 who worked on the Memphis Street Railway were sick on one day causing the service to be seriously reduced. In addition, the Cumberland Telephone Company had over 100 operators absent so that none but urgent calls could be handled.<sup>47</sup> Similarly, Phillips describes how existing resources in Kimberley, South Africa, had been 'strained to the utmost limit' with streets deserted, shops and banks only being open for an hour or two a day, the post office with less than half its workforce fit for duty and trams running free of charge because there were no conductors to collect the fares.<sup>48</sup> In New Zealand, Geoffrey Rice states that in Wellington the fire service and police force were seriously depleted and even the legal profession was unable to function and closed for a week as the courts had adjourned because it was impossible to obtain enough people for jury service.<sup>49</sup>

In Britain, national and provincial newspapers reported on the plight of public services around the country. Transport services were difficult to maintain in some areas. In London, for example, it was reported that at one stage 500 members of the London General Omnibus Company were away sick and there were similar difficulties in many other places.<sup>50</sup> In the East Midlands, news reports of transport difficulties focused on the trams, while postal and telephone services were also disrupted.

In Derby during the summer of 1918 public transport was disrupted by the first wave of influenza.

Mr. M. Harding, manager of the Derby Tramways, informs us that 20 conductors and nine motor-men were [off] on Tuesday, the victims of influenza. [Though] he is working the system already with a greatly reduced staff in consequence of the demands of the army, it became necessary still further to curtail the service, particularly on the [...ton] and Kedleston Roads. Mr Harding desires that the public should understand the difficulties under

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<sup>47</sup> T. A. Garrett, 'Economic Effects of the 1918 Influenza Pandemic: Implications for a Modern Pandemic', *Report to the Federal Reserve Bank of St. Louis*, (2007), p. 20.

<sup>48</sup> Phillips, *Black October*, p47

<sup>49</sup> Rice, *Black November*, pp. 92-104.

<sup>50</sup> *Derby Daily Telegraph*, 23 October 1918, p. 3.

which he is labouring at the present time, and to make due allowance for any inconvenience which may arise.<sup>51</sup>

With the appearance of the second wave in the autumn, postal services began to suffer. Out in the county, 'Letters were delayed several hours in delivery at Matlock yesterday in consequence of many of the staff being laid up with influenza.'<sup>52</sup> While in Derby 'The percentage of staff affected by influenza at the Derby Post Office is increasing. The public may experience a temporary falling off in the promptitude of services, but we are assured that all that can be done is being done to maintain their efficiency and punctuality.'<sup>53</sup>

In Nottingham, the post office was struggling as early as July with the first wave of influenza:

Work at and in connection with the Nottingham Post Office is being carried on under considerable difficulty owing to the number of employees down with the disease. Including telephone staff, there are about 100 away sick, while on Thursday 62 of the postal delivery staff failed to turn up, and deliveries of letters were delayed in consequence.<sup>54</sup>

Interestingly, in view of the medical insistence at this time on the importance of fresh air, the report continues, 'Most of the victims of the epidemic are outdoor workers.'<sup>55</sup> The same report then points to the difficulties being experienced in public transport in the city.

The epidemic has attacked the employees of the Nottingham Corporation Tramways, and this morning 51 conductresses and 10 male drivers were absent suffering from the complaint. By pressing every available man, woman and boy into service, and persuading some of them to work extra shifts, the management were able to run the usual number of cars with the extra ones put on at the dinner hour. A good deal of inconvenience has been caused, however, and the regular service is being maintained with difficulty.<sup>56</sup>

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<sup>51</sup> *ibid*, 3 July 1918, p. 2.

<sup>52</sup> *Nottingham Daily Express*, 24 October 1918, p. 3.

<sup>53</sup> *Derby Daily Telegraph*, 30 October 1918, p. 3.

<sup>54</sup> *Nottingham Evening Post*, 6 July 1918, p. 2.

<sup>55</sup> *ibid*.

<sup>56</sup> *ibid*.

By the second wave in the autumn of 1918, the post office was again asking for patience from the public as services were badly hit.

It is understood that quite 50 per cent of telephonists are affected in the Nottingham district, and subscribers and the general public will no doubt give this due consideration should they meet with any difficulties. Every effort is being made to cope satisfactorily with the volume of traffic by working extra duty, which places a great strain upon the present depleted staff.<sup>57</sup>

The third and final wave of influenza in the winter months of early 1919 brought renewed disruption to Nottingham public transport as reported in the local press: 'No fewer than 89 of the staff, including 33 drivers and 44 conductors, in the employ of the Tramways Committee are on the sick list, the majority of them having fallen victim to influenza.'<sup>58</sup>

In Leicester, the pattern of disruption to public services was reported in the local news but in much less detail, reporters preferring instead to make general statements that the town's services and other works were suffering '...considerable dislocation of business...due to the illness of a large proportion of the staff and employees'.<sup>59</sup> This may have been in an effort not to cause undue public alarm but this is not clear.

With reference to emergency services such as the police force and the fire service, little is said about the situation in the East Midlands. The situation in London is reported in *The Times* in November 1918 when it was stated that 1,445 members of the Metropolitan Police Force and 130 members of the London Fire Brigade were away sick with influenza.<sup>60</sup> *The Times* also noted difficulties for the police and fire brigade during the first and second waves of the pandemic in Newcastle on Tyne, Newry and Northampton.<sup>61</sup> The Leicester press comments on the situation in London and some of the northern towns of England and Scotland<sup>62</sup> but beyond the announcement of the deaths of individual members of those services,<sup>63</sup> and the assurance at the end of

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<sup>57</sup> *Nottingham Evening Post*, 22 November 1918, p. 2.

<sup>58</sup> *ibid*, 7 March 1919, p. 2.

<sup>59</sup> *Loughborough Herald and North Leicestershire Gazette*, 31 October 1918, p. 4.

<sup>60</sup> *The Times*, 1 November 1918, p. 7.

<sup>61</sup> *ibid*, 3 July 1918, p. 3; 22 October 1918, p. 3.

<sup>62</sup> *Leicester Daily Post*, 28 October 1918, p. 1, 25 February 1919, p. 1; *Leicester Evening Mail*, 19 October 1918, p. 4.

<sup>63</sup> *Nottingham Evening Post*, 24 February 1919, p. 2; *Derby Daily Telegraph*, 30 November 1918, p. 3; *Leicester Journal*, 1 November 1918, p. 3.

October 1918 that no member of the Nottingham city or county police force had been attacked,<sup>64</sup> there is only one instance, again in the Leicester press, where the position of a local police force was commented upon and that was to reveal that 'practically every constable in the Lutterworth Division has been laid up with influenza'.<sup>65</sup>

It is, perhaps, reasonable to surmise that there would be a reluctance to make public any difficulty with policing local areas arising from the effects of the influenza pandemic, as that might become an encouragement to lawless behaviour amongst members of the public as well as those already established in the criminal fraternity. Similarly, it would do little for public confidence to announce the indisposition of the emergency services. Reporting on it in areas some miles distant, such as London, for example, may not have seemed so threatening.

In addition to the problems faced by the police, the work of the courts was affected as reported in the Nottingham press.

Several cases which should have been heard at the Nottingham Summons Court to-day had to be adjourned on account of persons concerned being down with influenza. In one instance, the hearing had had to be previously postponed owing to the illness of the complainant, and now a similar course was necessary on account of the absence of the defendant.<sup>66</sup>

### Businesses

As well as industries and public services, offices and commercial businesses across Britain and many parts of the world were affected by the influenza pandemic. Shops, banks, restaurants, hotels and similar establishments found themselves short staffed and in some cases working reduced hours or even closing temporarily.

Garrett, describing the situation in the USA, quotes figures from a number of businesses in Arkansas and Tennessee, including merchants from Little Rock who reported in October 1918 that business had declined by between 40 and 70 per cent with losses of up to \$10,000 a day.<sup>67</sup> While in Rio de Janeiro, widespread sickness was so severe, with many large businesses reduced to 50 per cent of their workforce,

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<sup>64</sup> *Nottingham Daily Express*, 30 October 1918, p. 1.

<sup>65</sup> *Leicester Mercury*, 1 November 1918, p. 7.

<sup>66</sup> *Nottingham Evening Post*, 22 November 1918, p. 2.

<sup>67</sup> Garrett, *Economic Effects of the 1918 Influenza Pandemic*, p. 19.

that it caused social and economic chaos. Newspapers struggled to publish, supplies of foods, medicines and other commodities could not be maintained so commercial establishments had no customers and anyone who did have anything to sell charged an extortionate price. The local newspapers described Rio as 'an abandoned city'.<sup>68</sup>

*The Times* carried a number of reports on the difficulties being experienced in other countries. Offices, banks and other businesses in India, South Africa, Switzerland and Germany were reported as having seriously depleted staffs or even having to close. *The Times* also gave some indication of the plight of businesses in Britain. In July 1918 the newspaper reported that 'Unmistakable signs of its prevalence are to be seen in offices, warehouses and places of business in the city of London where work is interfered with considerably through members of the staff being ill.'<sup>69</sup>

However, little else is said about the situation at home. There were some reports in the East Midlands' press on the difficulties being experienced in different parts of the country, particularly London and the north, but again, little was reported on problems in the East Midlands except in the briefest and most general terms. One business that did announce the strain it was under during the first wave of influenza in July was Squire's Bread of Leicester: 'Owing to depletion and illness of some of our staff, we find it impossible to deliver as promptly as hitherto, but feel sure that our customers will bear with us until such time when we shall be able to make our usual deliveries.'<sup>70</sup>

Also in the Leicester press, in October 1918, under the headline 'Small Shops Closed', the unexpected problem of small shops closing in different districts of the town due to illness, making it difficult for people to obtain their rations, was highlighted and this resulted in the emergency arrangement of being able to obtain a week's rations from another shop.<sup>71</sup> A month later there was a brief remark about businesses in Uppingham being short staffed,<sup>72</sup> but nothing else was found in Leicester newspapers.

Nottingham newspapers were also brief in their comments about businesses although a few extra details were given. In July they reported that '...several business

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<sup>68</sup> van Hertesveldt (ed.), *The 1918-1919 Pandemic of Influenza*, p. 194.

<sup>69</sup> *The Times*, 5 July 1918, p. 3.

<sup>70</sup> *Leicester Evening Mail*, 18 July 1918, p. 4.

<sup>71</sup> *ibid*, 19 October 1918, p. 4.

<sup>72</sup> *Leicester Journal*, 29 November 1918, p. 3; *Loughborough Herald and North Leicestershire Gazette*, 28 November 1918, p. 8.

establishments in the city have been seriously denuded of their staffs'<sup>73</sup> while in October it was declared: '...there are several business places in the city which are being carried on with considerable difficulty owing to the number of employees suffering from the disease'.<sup>74</sup> A few days later the same newspaper reported, 'Factories, warehouses, and other business houses are feeling the effects of the visitation but it is difficult to obtain definite figures. Banks too are among the sufferers, the Nottingham and Notts Bank in Thurland Street having no fewer than eight of its staff away.'<sup>75</sup> The following month it was stated in the local press that the Netherfield Co-operative Society was having a difficult time as half of their staff were away ill<sup>76</sup> but little else was reported on the difficulties being experienced by businesses. No comments on the effects of the influenza pandemic on local or regional businesses were found in Derbyshire newspapers.

### Farming

Out in the countryside, the business of agriculture had its problems due to a combination of bad weather and the influenza pandemic. In August 1918 a report from the Board of Agriculture and Fisheries to the War Cabinet blamed difficulties with flax production on adverse weather which was hampering the harvest and on influenza which was prevalent at many of their camps.<sup>77</sup> In November, a similar report declared that although the weather was much improved, 'Attacks of influenza have been numerous among women of the Land Army, and have necessitated the curtailment of several efficiency tests and other arrangements.'<sup>78</sup>

In the Leicester press a return of bad weather and influenza amongst agriculturalists was highlighted as 'causing considerable difficulty on the farms practically all over the country...Many acres of potatoes have still to be lifted...'<sup>79</sup> No other reference to agricultural problems was found in either the national or the regional press during this period.

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<sup>73</sup> *Nottingham Daily Express*, 4 July 1918, p. 3.

<sup>74</sup> *Nottingham Evening Post*, 22 October 1918, p. 2.

<sup>75</sup> *ibid*, 28 October 1918, p. 2.

<sup>76</sup> *Nottingham Local News*, 23 November 1918, p. 3.

<sup>77</sup> Board of Agriculture and Fisheries, 'Report for the week ending 6 August 1918', 9.8.1918, CAB 24/60, TNA

<sup>78</sup> Board of Agriculture and Fisheries, 'Report on the Work of the Food Production Department', 20.11.1918, CAB/24/70, TNA.

<sup>79</sup> *Leicester Evening Mail*, 14 December 1918, p. 5.

### Making profit from the pandemic

There were some professions and businesses which profited from the influenza scourge, specifically those which dealt directly with the effects of illness and death. Private doctors suddenly found that they had more fee paying patients than they could cope with. Chemists had queues of customers waiting to either have their prescriptions filled or to buy one or more of the array of influenza cures which quickly appeared on chemists' shelves, many of them made up and advertised in the local press by the chemists themselves as discussed in chapter 5. Undertakers, gravediggers and coffin makers also found their services in great demand, as reported in the Nottingham and Leicester press: '...undertakers and gravediggers are being compelled to increase their staffs and work overtime'.<sup>80</sup> While at Sutton Bonington, '...the number of deaths has kept the coffin makers very busy'.<sup>81</sup>

In Leicester the demand for certain commodities reached unexpected levels and increased prices accordingly.

The Wholesale Fruit Market this morning reports a direct effect of the influenza epidemic, for the demand for grapes and lemons and such like invalid requirements has sent prices up considerably. Hothouse grapes are fetching 2s. 6d. to 5s. a lb wholesale, and barrel grapes 40s. to 80s. a barrel, according to their quality. Naturally, too, there is an immense demand for flowers, though supplies in this direction are somewhat scanty.<sup>82</sup>

In some countries, the need for such goods led to accusations of profiteering. Sam Adamo describes a situation of blatant profiteering in Rio de Janeiro where the greedy took advantage of the needy 'without the least spirit of humanity'. The cost of available foods, medicines and services rose in some cases by 400 per cent or more and pharmacies became 'thieves' dens'.<sup>83</sup>

Even in Auckland, New Zealand, Linda Bryder records how doctors and nurses attending influenza victims demanded payment in some cases before seeing the patient and in the case of one nurse charge ten times the rate charged by hospitals.

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<sup>80</sup> *Nottingham Local News*, 23 November 1918, p. 3.

<sup>81</sup> *Leicester Journal*, 1 November 1918, p. 3.

<sup>82</sup> *Leicester Mercury*, 30 October 1918, p. 2.

<sup>83</sup> In van Hartesveldt (ed.), *The 1918-1919 Pandemic of Influenza*, pp. 196-197.

Similarly chemists are noted as charging ten shillings and sixpence for an eleven pence thermometer and three shillings and six pence for medicines that previously cost nine pence.

This resulted in a Royal Commission inquiry into the pandemic in 1919 which recommended an epidemic clause to be attached to a new Public Health Act to prevent excessive charging for food, fruit, medicines, hospital supplies and other necessities so that advantage could not be taken of any 'stricken community'.<sup>84</sup>

There is no suggestion in any available sources that profiteering was engaged in by British doctors, chemists or merchants but it appears that prices of certain commodities did rise during the pandemic because of demand.

#### The cost

Attempts have been made by some to estimate the cost of the pandemic in terms of lost production. In America, Garrett pointed out that the greatest difficulty for researchers looking into the economic effects of the influenza pandemic is the lack of economic data with the only real source of information being the news media.

Elizabeth Brainerd and Mark Siegler, also looking into the economic effects of the pandemic in America, did not put a figure on the cost in terms of working days lost and the drop in production levels in 1918-19, but they did conclude that the pandemic had a significant effect on business failures between 1919 and 1921 and was a contributing factor in the post -WWI recession in the USA.<sup>85</sup>

One contemporary British estimate made by the *Daily Mail* gave a figure of £120,000,000 for Britain but van Hertesveldt suggests that even this was too low.<sup>86</sup> Furthermore, Johnson points to the difficulty of establishing the real cost of the pandemic because of the impossibility of separating it from the cost of the war.<sup>87</sup> However, some indication of cost can be gleaned from claims made to the Prudential Life Assurance Company which, it was reported in *The Times* and in the *Derby*

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<sup>84</sup>L. Bryder, "Lessons of the 1918 influenza epidemic in Auckland", *New Zealand Journal of History*, 16/2 (1982), pp. 102-104.

<sup>85</sup>E. Brainerd and M. V. Siegler, *The Economic Effects of the 1918 Influenza Epidemic* (London, 2002), p. 28.

<sup>86</sup>*Daily Mail*, February 17 1919, cited in van Hertesveldt, *The 1918-1919 Pandemic of Influenza*, p. 11.

<sup>87</sup>Johnson, *Britain and the Influenza Pandemic*, p. 149.

*Mercury*, paid out a total of £650,000 in influenza claims for the two months of November and December 1918 just in the industrial branch.<sup>88</sup> No information is available for the cost of the pandemic to East Midland businesses.

### Leisure

Another type of activity which faced serious difficulties was that of entertainment. Just as there was a collective effort to maintain working life, not only to ensure the provision of goods and equipment for the home market and the fighting forces but also to generate an air of normality in abnormal times, so it was with leisure activities. Adults and children still attended shows, sports fixtures, clubs and social, charitable and religious events. However, just as the workplace had become a perfect environment for the spread of influenza with large numbers of people often working in very close proximity, so leisure activities provided similar opportunities for the influenza virus to infect victims.

With MOHs quick to issue advice to the public about the need to avoid crowded situations and get plenty of fresh air to prevent infection, places of popular entertainment such as picture houses and music halls came under the closest scrutiny during the periods of influenza prevalence, it being felt that large numbers of people enclosed in confined spaces with little ventilation offered the perfect environment for influenza germs to increase and spread. Consequently, in many towns and cities in Britain and overseas, action was taken to remedy the situation.

In the East Midlands, temporary restrictions on cinema admittance were applied as early as July during the first wave of the pandemic when, following a meeting of the Leicester Watch Committee on 11 July, it was decided '...to close all cinema theatres to children under 14 years of age from to-day up to and including the 20<sup>th</sup> inst. If at the end of that period the epidemic shows no substantial improvement, the order will be renewed and remain operative throughout August.'<sup>89</sup> As elementary schools had already been closed, it may have seemed to the members of the committee to be a logical next step. It was also approved by the MOH for Leicester, Dr Millard, and the Medical Officer to the Education Committee, Dr Warner, who were of the opinion that

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<sup>88</sup> *The Times*, 7 March 1919, p. 7; *Derby Mercury*, 14 March 1919, p. 5.

<sup>89</sup> *Leicester Evening Mail*, 12 July 1918, p. 1.

fresh air was the best antidote to influenza and children should be in parks taking advantage of it.

By the arrival of the second wave of the pandemic in October, the issue of cinemas, music halls and other places of congress as prime locations of infection returned once more to the public health agenda in Leicester, as evidenced by a letter from Alderman Windley, chairman of the Sanitary Committee, to the Editor of the Leicester Mercury, in which he stated that '... having secured the closing of all the schools and cinemas against children under 14, the desirability of closing these places of amusement entirely for a short time will have to be considered'.<sup>90</sup>

That efforts were being made at that time by cinema managers to ensure a clean and healthy environment and thus be able to maintain business is shown by the notice which appeared in the Leicester press on 30 October regarding the Picture House in Granby Street.

The air inside the famous Picture House is kept perfectly pure by the most expert and scientific method. Before the air actually reaches the Picture House it is washed, warmed and filtered, and passed through little ducts to the Theatre. Throughout the entire day the Picture House is kept at an even and healthy temperature while the air is completely changed every 3 minutes.<sup>91</sup>

Even so, on Thursday 31 October 1918, a conference of the Leicester Watch and Sanitary Committees was held with representatives of Leicester's places of amusement. Following serious mortality figures in the city for the previous ten days, the purpose of the meeting was to see if the managers of such establishments would agree to a short period of closure in order to assist the local authorities in their attempt to prevent the spread of infection.<sup>92</sup> Mr Gray, representing the cinema managers, together with Mr Truman Towers speaking for the music halls together with representatives of other places of entertainment in the city, enquired if there was an alternative to closing their businesses. Alderman Windley, therefore, suggested closing between performances to allow for the renewal of air and opening times of 6.00 to 7.30 and 8.30 to 10.00 were also suggested.

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<sup>90</sup> *Leicester Mercury*, 26 October 1918, p. 2.

<sup>91</sup> *Leicester Evening Mail*, 30 October 1918, p. 3.

<sup>92</sup> *ibid*, 31 October 1918, p. 1.

Included in the agenda was the possible closing of churches and public houses. The issue of closing churches was a contentious one and Reverend Elliot, the Rural Dean, spoke with some vehemence against the suggestion made by Dr Millard that, although the town's industries could not be closed down, it would be a comparatively trifling matter to close amusement houses, churches and chapels. He pointed out that only a royal proclamation could order churches to be closed and since this was a time when people were suffering, 'very great sorrow and bereavement', he felt that to deprive the people of the opportunity for public prayer would be a 'profoundly irreligious step'. He also added that '...if religion was any good at all it was more good now than ever', and pointed out that church services were not overcrowded and everything was being done to ensure good ventilation.<sup>93</sup>

At the same meeting, Mr Leeder, speaking on behalf of the publicans, explained that he and his colleagues were in a difficult situation and attempts to check overcrowding had led to one landlord suffering at the hands of his customers as '...when he opened the door, the crowd surged in so that they knocked him down, trampled on him, and filled the house so full that no one could be served at all'.<sup>94</sup> Even so, Mr Leeder offered to call an immediate meeting of trade members to discuss the proposal. The conference closed with assurances of further meetings with the various interests involved as soon as possible.

By the next day, however, the cinema managers in Leicester, following a meeting of their association, had made a decision and announced in the press that they would be showing two performances a day, 2.00 until 5.00 and then 7.00 until 10.00. Furthermore, during performances there would be a twenty minute interval during which time '...the sliding roof will be off and all the ventilators open, so that the air can be thoroughly renewed'.<sup>95</sup>

There were comments for and against restrictions on shows and changes to performance times. The Duke of Rutland, for example, writing from Belvoir Castle to the Mayor of Leicester, Alderman J. North, gave his support for the closing of cinemas,

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<sup>93</sup> *Leicester Mercury*, 31 October 1918, p. 3.

<sup>94</sup> *ibid*

<sup>95</sup> *Leicester Mercury*, 1 November 1918, p. 7.

theatres and churches during the influenza scourge, declaring this to be '...the universal opinion of all the doctors with whom I am constantly thrown'.<sup>96</sup>

Mr Oswald Stoll, on the other hand, took the opposite view, declaring that far from the epidemic being caused by people attending 'comfortable places of entertainment', it was much more likely the result of a diet lacking in fats and sugar. He went on to say: 'To keep warm in a well-aired theatre is a safeguard against infection, because it helps to maintain vitality. To scatter the people into fireless, cheerless rooms, or into cold, wet, and foggy streets is to help to reduce vitality and to spread disease.'<sup>97</sup> He concluded his remarks by suggested that the authorities 'encourage people to assemble in warm and dry buildings'. Despite the controversy, the move to shorter hours seems to have been short-lived in Leicester, as in less than two weeks the Leicester press was announcing that cinemas would be reverting to their usual opening times.<sup>98</sup>

In Nottinghamshire and Derbyshire at this time, similar moves were underway to discuss influenza and its implications for the entertainment industry. On 5 November 1918, a meeting of the Cinematograph Exhibitors' Association, for the two counties took place and discussions were held with regard to the dangers of infection. The secretary of the association, Mr Ensor, gave assurances that Nottinghamshire and Derbyshire cinemas were doing everything they could to protect patrons from the dangers of influenza infection as '...disinfectants were being lavishly used at frequent intervals, care was being taken to ensure that the air was kept perfectly fresh and pure, and in many cases automatic ventilators were still being improved'.<sup>99</sup>

As if to affirm the quality of the environment being produced in cinemas and theatres for the comfort and protection of members of the public, Mr Stone, chairman of the Nottingham branch of the association, pointed out that '...it was a noteworthy fact that cinema employees remained remarkably free from the prevailing epidemic'.<sup>100</sup>

However, with the Watch Committee of the Nottingham Corporation considering the closure of places of entertainment, it was agreed that, in line with practices agreed

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<sup>96</sup> *Leicester Evening Mail*, 2 November 1918, p. 1; *Leicester Daily Post*, 4 November 1918, p. 3.

<sup>97</sup> *Leicester Evening Mail*, 31 October 1918, p. 1.

<sup>98</sup> *ibid*, 9 November 1918, p. 3.

<sup>99</sup> *Nottingham Evening Post*, 6 November 1918, p. 2.

<sup>100</sup> *ibid*.

elsewhere, children under 14 would be barred from entry and there would be no performances between the hours of 5.00 and 6.00 each day to allow for doors and windows to be opened for thorough ventilation of buildings with further ventilation for ten minutes between the hours of 8.00 and 9.00 each evening.<sup>101</sup>

By 19 November 1918, problems for amusement houses increased with the issuing of a military order banning everyone in uniform, including nurses, from frequenting places of entertainment. The result was, naturally, very bad for business as attendance plummeted.<sup>102</sup>

By this time, however, the LGB had entered the debate, again some considerable time after local authorities had already come to decisions and implemented measures. Their order concerning the restriction of performances and ventilation of places of entertainment was sent to local authorities on 18 November 1918 and was announced as front page news in the Leicester press on 21 November.

In view of the continued prevalence of influenza, the Local Government Board have made regulations controlling the duration of public entertainments in England and Wales. The regulations now issued apply to every building used as a theatre, music hall, place for public singing, dancing or music, place for cinematograph exhibition, or other place of entertainment or amusement, to which the public are admitted by ticket or by payment, and require that the entertainment shall not be carried on for more than three consecutive hours, that there shall be an interval of at least 30 minutes between two successive entertainments, and that during the interval the building shall be effectually and thoroughly ventilated.<sup>103</sup>

Derby local authorities did not comply with the order until a week after the LGB regulations were publicised. At which point they announced similar measures to Nottingham, including ventilation and the spraying of disinfectants and congratulated themselves on taking prompt action to save the public from extraordinary risk of infection even though they admitted that the epidemic was abating. They added that

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<sup>101</sup> *ibid*, 9 November 1918, p. 2.

<sup>102</sup> *ibid*, 20 November 1918, p. 2.

<sup>103</sup> *Leicester Daily Post*, 21 November 1918, p. 1; *Nottingham Daily Express*, 21 November 1918, p. 3.

they felt sure the restrictions would only be necessary for two or three weeks.<sup>104</sup> Unusually, however, the Derbyshire boroughs of Bolsover and Swadlincote are recorded in the county MOH's annual report for 1918 as having closed their cinemas during the prevalence of the influenza pandemic in the autumn, whereas most other towns simply prevented the entrance of children and restricted their opening hours and performances.<sup>105</sup>

How damaging this whole process had been, at least for exhibitors in Nottingham, was made clear in press reports around Christmas and New Year. With influenza appearing to be on the wane over the festive period, the relaxing of regulations 'which have had such a prejudicial effect on the theatres and cinemas' was being considered.<sup>106</sup> When the ban on children going to cinemas was finally lifted on January 4<sup>th</sup> 1919, it was reported in the Nottingham press that:

The restriction has caused a loss of revenue estimated at several thousand pounds – not limited to the money that would have been paid for admittance in respect of the children, for the severest loss has been occasioned by the absence of patrons who would not, or could not, go inside because children were excluded. Many local cinemas, too, booked months ahead big and expensive pantomime films almost exclusively as an attraction for the children's matinee.<sup>107</sup>

Even so, with the third and final wave of Influenza appearing in the winter of 1919, questions of cinema restrictions and the enforcement of the Public Health (influenza) Regulations drawn up by the LGB the previous November were raised once again across the East Midlands.<sup>108</sup> In Leicester, the regulations were certainly enforced again as, as late as mid-March, members of the entertainment business were pressing for restrictions to be lifted with regard to the attendance of children and soldiers who, at that time, were also banned.<sup>109</sup>

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<sup>104</sup> *Derby Mercury*, 29 November 1918, p. 2.

<sup>105</sup> Barwise, *Report on the Health of Derbyshire for the Year 1918*, p. 76 and pp. 87-88.

<sup>106</sup> *Nottingham Daily Express*, 16 December 1918, p. 3.

<sup>107</sup> *ibid*, 4 January 1919, p. 3.

<sup>108</sup> *Nottingham Daily Express*, 28 February 1919, p. 5; *Derby Mercury*, 28 February 1919, p. 8; *Leicester Daily Post*, 24 February 1919, p. 3.

<sup>109</sup> *Leicester Mercury*, 12 March 1919, p. 2.

The real motivation behind the restriction of cinema performances and admissions during the influenza pandemic of 1918-19 has come under scrutiny in more recent times, some historians feeling that this was simply a witch-hunt against entertainment for the masses. For example, Tomkins argues, the restriction and, in some cases, closure of such establishments was 'patently absurd' and had more to do with notions of immoral behaviour within the dark interiors of cinemas than public health.<sup>110</sup> In 1918, one cinema manager protested in a letter to the editor of *The Sunday Times*.

Certain authorities and others have, with invidious unfairness, singled out places of entertainment for attack in connection with the influenza epidemic, as usual. Yet one has hardly heard a word of warning as to the dangers of, for instance, trains, tramcars, etc. The overcrowding of these during certain hours of the morning and evening is notorious. Such overcrowding is neither permissible nor possible in licensed places of entertainment.<sup>111</sup>

Such a protest was understandable since the general public, particularly in large urban centres, often gathered in crowded and ill-ventilated spaces, at work, at home, in public houses and many other situations. Places of entertainment did, at least, help to maintain morale by diverting attention away from the crisis, something which doctors believed to be beneficial. Despite this, regulations regarding opening, ventilation, admittance and duration of performances in theatres, music halls and cinemas were enforced in Britain and in many other countries, including Switzerland, Italy, Sweden, South Africa and New Zealand, evidence of which can be found in histories and in reports in national and provincial newspapers.<sup>112</sup> Many of these countries were not necessarily going to be in contact with Britain, especially while the war was still in progress so this measure was one which it seems individual countries and their respective authorities thought it was sensible to take and they did not just restrict them as Britain did, they closed them.

We know today that such a measure was doomed to failure since the level of separation required to halt the spread of infection could not be achieved, but in 1918 when viruses were not understood and public health authorities were faced with an

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<sup>110</sup>Tomkins, 'The Failure of Expertise', p. 443.

<sup>111</sup> Letter to the Editor, *The Sunday Times*, 3 November 1918, p. 2.

<sup>112</sup> *The Times*, 21 October 1918, p. 7, 22 October 1918, p. 5; *Leicester Evening Mail*, 8 October 1918, p. 1, 19 October 1918, p. 4; *Nottingham Daily Express*, 25 October 1918, p. 3; 29 October 1918, p. 1; *Derby Daily Telegraph*, 23 December 1918, p. 3; *Nottingham Evening Post*, 25 February 1919 p. 2.

infection that was killing thousands, desperate measures were called for and doing something, even if only to bolster public confidence, was better than doing nothing. What they did know was that the infection appeared to be passed by public contact, therefore, it was reasonable to try and limit that as much as possible. Since many of the places where large numbers of people gathered, such as factories and public transport, had to keep functioning for the sake of the war effort, the only remaining option was to restrict those places where people gathered for leisure.

Where Tomkins may have a point is that the British regulations did not go as far as those issued in certain other countries which included the closure not just of places of entertainment such as cinemas and dance halls, but also of libraries, churches, exhibition halls, saloons and public meeting places as well as sporting facilities such as shooting galleries and billiard rooms and events such as race meetings and other public spectacles.<sup>113</sup> There were some places in Britain that made additional local decisions about closures, including Wigan where lending libraries were closed<sup>114</sup> and away from the mainland, Jersey and the Isle of Man where as well as entertainments churches and chapels were closed and all public gatherings and private gatherings of more than twelve persons were banned during the third wave of the pandemic but these appear to be exceptions.<sup>115</sup>

There is also the issue of inconsistency in that certain events were allowed to go ahead even though they involved the gathering of large crowds. One such event was the Board of Trade British Industries Fair which opened on 24 February 1919 at the Pennington Street warehouse at the London Dock. Members of the royal family attended and the Leicester press recorded that the queen acquired a nasal douche which she felt would be useful to have during the influenza epidemic.<sup>116</sup>

Another event which took place, this time in Nottingham, was the Goose Fair. The Markets and Fairs Committee had considered whether this should go ahead as they had instructed during their last meeting that pleasure fairs should not be held. However, insisting that they had taken account of the views of the general public and

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<sup>113</sup> Crosby, *America's Forgotten Pandemic*, p. 95; Rice, *Black November*, p. 75.

<sup>114</sup> *Manchester Guardian*, 26 October 1918, p. 8; *Leicester Evening Mail*, 19 October 1918, p. 4.

<sup>115</sup> *Nottingham Evening Post*, 25 February 1919, p. 2.

<sup>116</sup> *Leicester Daily Post*, 25 February 1919, p. 4.

the assurances of the Market Traders Association, they decided the fair should be held and was to be situated in the market place.<sup>117</sup>

The matter of other events and entertainments and whether they should be allowed to go ahead was raised by a reporter for the *Leicester Daily Post* when he argued: 'It would not be fair to ask entertainment caterers and their staffs to make this sacrifice if other forms of entertainment, even for money-raising for war charities, are allowed to go forward. Doubtless the Watch Committee has this aspect of the matter in hand.'<sup>118</sup>

Many events, such as fund raising concerts and annual general meetings were either postponed or in some cases cancelled and Leicester newspapers contain a number of examples, including the postponement of a music festival, band concerts in aid of the Prisoners of War Fund, Boy Scout meetings, a masque ball and a V.A.D. dance.<sup>119</sup> However, these were voluntary decisions and not officially enforced. No indications of similar postponements were found in the Nottingham or Derby press.

Nonetheless, there were many social and cultural events which went ahead as planned. Again in the Leicester press it was announced in a somewhat defiant style that 'In spite of the influenza epidemic the whist drive at Mill Hill Hall yesterday arranged by the War Seals Committee was a great success and was very well attended.'<sup>120</sup>

Local newspapers contain many notices relating to events going ahead despite the pandemic. Most surprising of all, perhaps, was the planned visit of the king and queen to Leicester factories and hospitals, originally planned for 15 November 1918 although this event appears to have been overtaken by the Armistice.<sup>121</sup>

There was no indication in the press of the cancellation of outdoor sports such as football matches, horse races and hunts and it may have been because these were

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<sup>117</sup> *Nottingham Evening Post*, 27 February 1919, p. 3.

<sup>118</sup> *Leicester Daily Post*, 31 October 1918, p. 2.

<sup>119</sup> *Leicester Mercury*, 25 October, p. 2, 30 October, p. 2, 2 November, p. 3, 7 November, p. 2, 1918; *Leicester Evening Mail*, 8 November 1918, p. 4, 18 November 1918, p. 4.

<sup>120</sup> *Leicester Mercury*, 25 October 1918, p. 2.

<sup>121</sup> *ibid*, 7 November 1918, p. 2.

out in the open air, despite the crowds of spectators, that they were thought to be healthier and less likely to spread infection.

However, the most significant event at this time was undoubtedly the Armistice on 11 November which generated spontaneous celebrations, in many countries around the world. The great outpouring of joy and relief that the conflict had finally come to an end overflowed into a tide of emotional flag-waving, cheering, embracing and kissing as huge crowds poured into the streets. Street parties, dances, parades and similar festivities quickly followed, creating the perfect environment for the spread of influenza, but at such a momentous time, public health authorities would have had no chance of preventing this even if they had tried.

Rice describes what he calls 'Auckland's Armistice Epidemic', which followed a premature report that reached New Zealand on 8 November 1918 that the war had ended.<sup>122</sup> An eye witness recalled how the streets filled as if by magic and the town went mad with bells, sirens and cheers and people hugging and kissing. As the realisation that the report was false dawned on the revellers, they drifted home but by then, according to Dr Frengy the acting Chief Health Officer, the damage had already been done and influenza had been spread throughout Auckland. However, Rice casts doubt on this assessment by pointing out that peak mortality in the town was reached only a few days later which would indicate that maximum diffusion of infection must have occurred a week or more before 8 November.

In the East Midlands, Ben Beazley describes the events that took place in Leicester. The new mayor, Walter Lovell made the announcement of the ending of the war in Town Hall Square to a crowd of thousands and 'celebrations on a grand scale' then took place.<sup>123</sup> Buildings were decorated with flags, people filled the streets, church bells rang, bands played, there were torchlight parades and bonfires, church services of thanksgiving, a huge public celebration on Victoria Park and much more. But it appeared in some places that the celebrations that greeted the end of the war also resulted in thousands more deaths from influenza.

Dr Niven of Manchester was convinced that the Armistice Day celebrations in the city had been the cause of the alarming rise in mortality which had occurred just a week

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<sup>122</sup> Rice, *Black November*, pp. 75-76.

<sup>123</sup> B. Beazley, *Leicester during the Great War*, (Derby, 1999), p. 170.

later and continued until the end of the month when, in the final week, 383 deaths were recorded.<sup>124</sup> In the Nottingham press it was also reported that 130 out of 150 people who had attended a victory ball in Ellesmere had all been attacked by influenza within a fortnight and several were seriously ill. It was described as 'a remarkable feature'.<sup>125</sup>

More recently, Quinn contends that the victory celebrations which occurred across the United Kingdom on 11 November 1918 resulted in a sudden spike in influenza mortality the following week when 19,000 deaths were recorded.<sup>126</sup> As with other aspects of the pandemic it is difficult to say categorically that this was the case as the pattern was not universal. However, it is noticeable in the diagrams of weekly mortality presented by the RG for England and Wales in his report on the pandemic that, across all types of areas, there is evidence of a double peak in the second wave of the pandemic, the second of which started around the week beginning 16 November and peaked the week beginning 30 November, indicating a significant recrudescence of the disease in many places after the Armistice (see Figures 12 and 13, pp. 81-82 and 26 to 28, pp. 136-139).

Looking at the mortality figures for Leicester, Nottingham and Derby (Table 6, p. 91), it can be seen that in the week ending 9 November 1918, the death rate in Nottingham was already rising sharply, and it was also rising in Derby. During the following three weeks the death rates in both towns increased considerably, almost doubling in Derby and more than doubling in Nottingham. In Leicester, however, the peak mortality had already passed by 9 November and the situation continued to improve. It could be, therefore, that the Armistice celebrations were the cause of the rise in deaths in Nottingham and more particularly Derby as there was an increase in death rate there to 30.9 per 1000 in the week ending 30 November, having dropped from 27.8 to 24.3 the previous week and this is illustrated in Figure 17 (P. 92), but slight fluctuations of this type were not unusual so it could equally be that in those towns influenza had already reached its peak of dissemination by 11 November and the death rates that followed were the result of that and would have happened anyway. Certainly, the Armistice celebrations described above did not appear to have any effect on influenza mortality in Leicester during the second wave of the pandemic.

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<sup>124</sup> Honigsbaum, *Living with Enza*, pp. 101-102.

<sup>125</sup> *Nottingham Evening Post*, 27 Februaruy 1919, p. 3.

<sup>126</sup> Quinn, *Flu: A Social History of Influenza*, p. 148.

Outside of the county boroughs and looking at the mortality figures for the large towns and rural areas (Table 7, p. 94) there appears to be a slight recrudescence in Loughborough and Ilkeston and in the rural areas of Leicestershire, (see Figures 18 and 29, pp. 93 and 141), around the end of November but again, whether or not this was the result of the Armistice is not clear and fluctuations this small may not be of particular significance.

### Education

With regard to education, whether or not to close schools in an effort to halt the spread of infection was a topic which, just like others concerning the influenza pandemic, generated considerable debate and differing opinions. From previous experience of influenza epidemics doctors in 1918 were aware that children were particularly susceptible to influenza infection hence the recommendations by some MOHs to keep children away from homes that were already infected and it does appear from reports in the news media that the appearance of the first wave of the influenza pandemic affected an extraordinary number of school children. *The Times* noted that in Berlin, by early July 1918, about 80,000 children were affected,<sup>127</sup> while in Britain the Leicester press stated that 50 per cent of school children in Wales had fallen victim to influenza, children in Birmingham and Warwickshire were suffering greatly<sup>128</sup> and 7,000 children in Leicester<sup>129</sup> and 1,000 children in Loughborough were also down with influenza.<sup>130</sup>

The role of children in the dissemination of infections like influenza has been revealed in recent research in the USA, where S. C. Shoenbaum stated that it is largely school children who are the first to be attacked and they take infection, both primary and secondary, into their families, from where the virus then moves out into the wider community.<sup>131</sup> This view would seem to be supported by Colleen Wheeler et al, researching the effect of school closure during influenza epidemics, in which it was determined that 'children show earlier evidence of influenza'<sup>132</sup> and by research by Alma Adler and Ken Eames, as a part of a Europe-wide initiative called 'Flusurvey', aimed at monitoring influenza outbreaks and their spread. Dr Adler said of the

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<sup>127</sup> *The Times*, 8 July 1918, p. 7.

<sup>128</sup> *Leicester Catholic News*, 6 July 1918, p. 1.

<sup>129</sup> *Leicester Daily Post*, 11 July 1918, p. 1.

<sup>130</sup> *Leicester Evening Mail*, 19 July 1918, p. 3.

<sup>131</sup> In Phillips and Killingray(eds.), *The Spanish Influenza Pandemic of 1918-1919*, pp. 246-248.

<sup>132</sup> C. C. Wheeler et al 'Effect of School Closure on the Incidence of Influenza Among School –Age Children in Arizona.' *Public Health Reports* (1974-) 125/6 (2010), pp. 857-858.

findings 'Flu tends to be spread by direct contact so it is probably children who tend to drive the spread.'<sup>133</sup>

The closure of schools, therefore, would seem to have had some merit and indeed it became a common response to the influenza pandemic in many counties throughout the world. In mainland Europe where, as in Britain, the first wave of the pandemic struck in the summer of 1918, there is no information on school closure but in Britain national and provincial newspapers record that schools across the country were closed, many of them remaining so until after the long summer vacation.<sup>134</sup> One of the earliest reports of school closure in the East Midlands came from Derby where the Clarence Road School junior department had to be closed at the end of June because of the illness not only of students but also of members of staff.<sup>135</sup>

There were no reports of delayed openings for any schools in Britain at the start of the autumn term in 1918 as the first wave of the pandemic had disappeared by the end of August. The reappearance of the infection in October, however, in the more severe second wave, brought with it another surge of school closures, not only in Britain but in many other countries, some of which were experiencing the pandemic for the first time having not suffered the earlier summer wave.

Outside Europe, for example, in October 1918, all schools were closed in Pennsylvania in the USA.<sup>136</sup> By November 1918 many schools in New Zealand were closed and all schools in Natal, South Africa, had already been closed and were to remain so for four months until February 1919.<sup>137</sup> On Mainland Europe schools were reported as being closed across Germany and Switzerland due to influenza, and schools in Paris were closed from 26 October for the same reason.<sup>138</sup> In the East Midlands, local newspapers were full of reports of scholars absent, teachers sick and schools closed

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<sup>133</sup> R. Gray, 'Catching public transport does not give you flu', *Telegraph*, Health News, 6 June 2013

<sup>134</sup> *The Times*, 2 July, p. 3, 3 July p3, 9 July p. 3, 1918; *The Times Educational Supplement*, 4 July 1918, p. 286; *Leicester Catholic News*, 6 July 1918 p. 1; *Leicester Evening Mail*, 4 July p. 2, 18 July p. 1, 19 July p. 3, 1918; *Leicester Journal*, 19 July 1918, p. 4, 26 July 1918, p. 3; *Leicester Daily Post*, 3 July p. 1, 11 July p. 4, 19 July p. 3, 1918; *Loughborough Herald and North Leicestershire Gazette*, 4 July 1918, p. 5, 18 July 1918, p. 4; *Nottingham Evening Post*, 11 July 1918, p. 2; *Nottingham Daily Express*, 2 July p. 3, 4 July p. 3, 5 July p. 3, 6 July p. 5, 10 July p. 1, 11 July p.3, 1918; *Derby Daily Telegraph*, 28 June 1918, p. 4, 5 July 1918, p. 3; *Derby and Chesterfield Reporter*, 12 July 1918, p. 5; *Ilkeston Advertiser and Erewash Valley Weekly News*, 19 July 1918, p. 4.

<sup>135</sup> *Derby Daily Telegraph*, 28 June 1918, p. 4.

<sup>136</sup> *Manchester Guardian*, 28 October 1918, p. 3.

<sup>137</sup> *ibid*, 22 November, 1918, p. 10.

<sup>138</sup> *Manchester Guardian*, 21 October 1918, p. 4, 26 October 1918, p. 8; *Leicester Evening Mail*, 8 October 1918, p. 1, 21 October, 1918, p. 1.

not only within the region but also around the country and this continued until well into December.<sup>139</sup>

Nottingham authorities were reluctant to close schools but following a serious increase in the death rate in the city a special meeting of the Education Committee was convened on 25 November during which it was decided to close schools immediately for a fortnight with the intention to re-open on 9 December.<sup>140</sup> In fact, the compulsory order closing Nottingham schools was not lifted until 11 December and schools re-opened the following Monday, 16 December.<sup>141</sup> In Derbyshire, Dr Barwise provided an indication of how extensive the pandemic had been in that county by recording in his Annual Report for 1918 that 427 orders closing elementary schools had been made during the year because of the influenza outbreak which suggests that the influenza pandemic had been more serious than press reports had appeared to indicate.<sup>142</sup>

It was not only children who had no weekly classes to attend, adult schools and colleges were also closed as were Sunday schools in many places. In Leicester, Technical and Art Schools, both day and evening classes, were closed for two weeks as were the evening continuation schools and the schools for mothers. Evening classes at Vaughan Working Men's College were also temporarily suspended<sup>143</sup>

When the third wave of the pandemic appeared at the end of January in the north of England and around mid-February in the East Midlands, the schools were again closed for a further two to three weeks although this time it was reported much less in the

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<sup>139</sup> *Loughborough Herald and North Leicestershire Gazette*, 24 October p. 4, 31 October p. 4, 7 November p. 8, 1918; *Loughborough Monitor and News*, 24 October 1918, p. 4, 7 November 1918, p. 3; *Leicester Mercury*, 14 October p.3, 21 October p. 3, 22 October p. 2, 23 October p. 1, 29 November p. 2, 1918; *Lincoln, Rutland and Stamford Mercury*, 22 November 1918, p. 2; *Melton Mowbray Times*, 29 November 1918, p. 4; *Leicester Journal*, 25 October pp. 2-4, 1 November p. 3, 8 November pp. 3-4, 1918; *Leicester Daily Post*, 9 October p. 4, 10 October p. 3, 15 October p. 1, 18 October p. 3, 19 October p. 3, 22 October p. 3, 23 October p. 4, 28 October p. 1, 30 October p. 1, 1 November p. 3, 1918; *Leicester Evening Mail*, 15 October p. 1, 16 October p. 1, 19 October p. 4, 22 October p. 1, 23 October pp. 1-2, 26 October p. 4, 29 October p. 5, 2 December p. 3, 4 December p. 4, 18 December p. 4, 1918; *Nottingham Local News*, 30 November 1918, p. 1; *Nottingham Evening Post*, 17 October p. 2, 22 October p. 2, 23 October p. 2, 25 November p. 2, 27 November p. 2, 28 November p. 2, 29 November p. 2, 1918; *Nottingham Daily Express*, 19 October p.3, 30 October p. 1, 1 November p. 3, 15 November p. 3, 18 December p. 5, 1918; *Derby Mercury*, 29 November 1918, p. 3, 20 December 1918, p. 3; *Derby Daily Telegraph*, 23 October p. 3, 25 October p. 2, 31 October p. 3, 12 November p. 4, 1918; *Derby and Chesterfield Reporter*, 1 November 1918, p. 6, 29 November 1918, p. 1; *Matlock Visitor*, 16 November 1918, p. 3, 30 November 1918, p. 4; *Ilkeston Advertiser and Erewash Valley Weekly News*, 25 October 1918, p. 1, 1 November 1918, p. 2.

<sup>140</sup> *Nottingham Evening Post*, 25 November 1918, p. 2.

<sup>141</sup> *Nottingham Daily Express*, 11 December 1918, p. 3.

<sup>142</sup> Barwise, *Report on the Health of Derbyshire for the Year 1918*, p. 12.

<sup>143</sup> *Leicester Mercury*, 24 October 1918, p. 3; *Leicester Evening Mail*, 26 October 1918, p. 4.

newspapers.<sup>144</sup> One Derbyshire newspaper noted a difference in the incidence of morbidity in this wave, in that it seemed to be teachers who were suffering the most as opposed to the students which was 'hampering the work of education in the schools'.<sup>145</sup> This feature was not noted in any of the other local newspapers.

However, the illness of teachers, which in some cases forced schools to close, and a small number of teachers' deaths were reported during the course of the pandemic. The Derby press recorded the death of Mr Pettman, one of the teachers at the Royal Institute for the Deaf, on 26 November and the death of Mr Mellor, assistant master at Gladstone Street Boys School, on 8 November.<sup>146</sup> In the Leicester press the death of a Sunday school teacher, Miss Else, was reported on 6 December and in the Nottingham press the death of Mr King, Headmaster of the London Road Council Schools was also recorded.<sup>147</sup>

Despite widespread school closure during the pandemic in Britain and in many other countries, not everyone was in agreement with it as a preventive measure. Objections seemed to centre on the belief that at least in school, children could be closely monitored and action taken if influenza infection became apparent. It also ensured children were in warm, dry buildings and not running around the streets or congregating in houses where infection was already rife.

In recent research carried out in America where the majority of urban schools and colleges were closed 'for weeks if not months',<sup>148</sup> during the pandemic, A. M. Stern et al examined the refusal to close schools in three cities, New York, Chicago and New Haven. Those cities preferred instead to rely on rigorous, regular school inspection of students by medical staff so that early identification of infection could be made and appropriate action taken to isolate and home quarantine or hospitalise cases so that they received care and did not infect others. The success of this policy is unclear

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<sup>144</sup> *Leicester Mercury*, 18 February 1919, p. 5, 27 February 1919, p. 7; *Leicester Daily Post*, 19 February p. 2, 24 February p. 1, 25 February p. 3, 27 February p. 3, 28 February p. 2, 1919; *Nottingham Evening Post*, 10 February p. 1, 12 February p. 2, 19 February p. 2, 25 February p. 2, 27 February p.3, 1 March p. 2, 13 March p. 3, 1919; *Nottingham Daily Express*, 27 February 1919, p. 5, 28 February 1919, p. 5; *Ashbourne News and Dove Valley Record*, 24 January 1919, p. 3.

<sup>145</sup> *Ilkeston Advertiser and Erewash Valley Weekly News*, 14 March 1919, p. 1

<sup>146</sup> *Derby Daily Telegraph*, 29 November 1918, p. 3; *Ilkeston Advertiser and Erewash Valley Weekly News*, 15 November 1918, p. 5.

<sup>147</sup> *Leicester Journal*, 6 December 1918, p. 2; *Nottingham Evening Post*, 8 March 1919, p. 2.

<sup>148</sup> A. M. Stern et al., 'Better Off in School: School Medical Inspection as a Public Health Strategy During the 1918-1919 Influenza Pandemic in the United States', *Public Health Reports*, supplement 3/125 (2010), p. 64.

since the authors did not provide any statistical data on the percentage of students attacked. However, they did refer to the experience of Chicago where, despite schools remaining open, classrooms emptied by between 30 and 50 per cent, not just because of illness, but because of what the city's health commissioner, John D. Robertson, called 'fluphobia' by which anxious parents were keeping their children at home in an effort to avoid infection.<sup>149</sup> A similar situation was noted in New Haven where absenteeism peaked at around 33 per cent.

In Britain, London was notable for refusing to close schools despite the high levels of morbidity and mortality it experienced throughout the pandemic and this was reported in the national and provincial press. In October *The Times* carried the story.

In the London area the districts chiefly affected include Woolwich, Greenwich and Lewisham, Brixton, Lambeth, Balham, Clapham and Islington. The schools in these districts report that a large number of children are suffering... It has not been thought necessary or wise, however, to close these schools, the medical authorities being of opinion that such action would simply release the children and allow them to congregate in places where the danger of infection is greater.<sup>150</sup>

In the East Midlands, while no objections seem to have been raised in Leicestershire to school closure, there was doubt raised as to the efficacy of such a measure in Derbyshire and in Nottingham. During the first wave of the pandemic, Mr Cooper, secretary to the Derby Education Committee stated to a reporter: 'We shall not close the schools because children are absent, as we think it better that those who are well enough to attend should do so, rather than play about the streets.'<sup>151</sup>

Schools were eventually closed as much because of the absence of teachers as children, there being no one well enough to take classes. However, in the Annual Report for 1918 of the MOH for Derbyshire, Dr Stretton, MOH for Bolsover, also expressed his doubts as to the use of closing schools and other establishments in an effort to halt the spread of infection.<sup>152</sup>

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<sup>149</sup> *ibid*, p. 68.

<sup>150</sup> *The Times*, 23 October 1918, p. 3; *Manchester Guardian*, 30 October 1918, p. 4; *Nottingham Daily Express*, 8 November 1918, p. 1.

<sup>151</sup> *Derby and Chesterfield Reporter*, 12 July 1918, p. 5.

<sup>152</sup> Barwise, *Report on the Health of Derbyshire for the Year 1918*, p. 76.

In Nottingham, by the second wave of the pandemic, a city newspaper reported: 'The closing of schools has not been regarded in Nottingham as a satisfactory preventive or remedy, as the children appear to become affected just as easily when playing together in the street as when in school.'<sup>153</sup>

Again the report goes on to say that many schools had been closed nonetheless because so many teachers were away sick. Exactly who expressed dissatisfaction with school closure in the above report is not known but Dr Boobyer was quick to recommend the closure of schools and Sunday schools as the situation worsened towards the end of November and again in February 1919.<sup>154</sup>

#### Influenza in educational institutions

In 1919, an official attempt was made to assess the effects of the influenza pandemic in educational institutions. The Ministry of Health, represented by Dr S. Monckton Copeman, conducted a short inquiry into the effects of the pandemic in Cambridge, the results of which were included in the Ministry's Annual Report in 1920. The aim had been to establish how the pandemic had affected the university as compared to the borough of Cambridge, the reason for this being that the university was populated largely by young adults, the age group which had proved so unusually susceptible to infection. Additional interest lay in the fact that the university also had a contingent of 400 junior naval officers resident from 31 January 1919 doing a six month course.

The inquiry began by the students being given a questionnaire to fill in and return, giving details of their experience of the influenza outbreak. A total of 1,766 forms were returned and in analysing the information received, Copeman deduced that the influenza which had attacked the university residents had been extremely mild in the October to November wave as compared to that suffered by the population of the town. Between November 1918 and March 1919 a further outbreak had occurred, thought to have been introduced by one of the naval officers who was ill when he arrived. Some complications had resulted from this attack but there were very few fatalities. Copeman put these results down to the lifestyle of Cambridge students, it

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<sup>153</sup> *Nottingham Daily Express*, 1 November 1918, p. 3.

<sup>154</sup> *Nottingham Evening Post*, 29 November 1918, p. 2; *Nottingham Daily Express*, 29 November 1918, p. 3; *Nottingham Journal and Express*, 27 February 1919, p. 5.

being '...such as to favour escape from incidence of infectious disease, especially influenza'.<sup>155</sup>

In the borough of Cambridge the influenza pandemic had been much more virulent and this was attributed by Dr Laird, MOH for Cambridge who had been assisting Copeman, to the commonly identified causes of over-crowding, poor ventilation and close human contact in homes, workplaces and schools.

Five infant schools in Cambridge were recorded as part of the inquiry. These were St Paul's, St Philip's, St Barnabas', Sturton Street and East Road schools. The first cases reported were on 23 September, attributed by Dr Laird to soldiers returning home, and were two cases at St Paul's, two at Sturton Street and four at East Road. Further cases occurred on 14 October, with 63 children and two teachers at Sturton Street, two from St Philip's, 79 from St Barnabas and 144 from East Road. On 22 October all schools in Cambridge were closed, public meetings abandoned and entertainments barred from admitting children under 14. By that time 296 cases had been reported in the schools and the influenza pandemic had begun to take hold.

During the course of this inquiry, Copeman took the opportunity to look into the effects of the pandemic on the King's College School, Cambridge and the Friends' School Saffron Walden. The King's College School, which had been founded to provide education for the boys in the choir, also had a number of boarders and day-boys who were the sons of married members of the university. The Headmaster, Mr Jelf, revealed that during the first wave of the pandemic in July, all 24 of the boarders came down with influenza but all cases were mild and only seven needed medical attention. None of the boys was attacked during October and November when the town was severely attacked and during February and March 14 boarders were attacked for a second time but again all cases were mild, the July attack having been deemed to have conferred a degree of immunity. Little information was available on the day boys except that they had suffered fewer attacks than the boarders.

The situation at the Friends' School was very different to that of the King's College School. The school taught both boys and girls and, at the time of the inquiry, had 163 boarders, 14 day-pupils and 30 house staff. There were also three married masters

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<sup>155</sup> Ministry of Health, *Reports on Public Health No.4*, p. 394.

and three gardeners who lived in the town. The school had completely escaped the effects of the pandemic in October and November when the town was suffering from a serious outbreak and this was attributed to the boarders not being allowed into the town between September and December, initially to avoid a mumps outbreak but the regulation was continued when influenza appeared. In February, however, the school suffered what was described as 'an explosive outbreak' of 170 cases in three to four days.<sup>156</sup> The infection had run its course after about ten days but 182 people had been affected, some with serious complications, although remarkably there were no fatalities. However, the dissemination of the outbreak was put down to the conditions in the dormitories which were filled with so many beds that there was inadequate space and ventilation and this served to intensify human contact and thus spread infection.

A limited inquiry was also conducted in 1919 by the MRC into the effect of the influenza pandemic on schools and any effective preventive measures applied but their focus was on the 'chief public schools' only, fifteen of which responded to them, one of those being Repton in Derby.<sup>157</sup> The majority of scholars in these institutions were boarders although there were some day pupils. Johnson points out that the experience of the schools involved in the inquiry tended to be extreme, either virtually no incidence of influenza morbidity and mortality or a severe attack. Those noted as suffering severely included Wellington College, Cheltenham College and Old Blundell's School in Devon.<sup>158</sup>

In the East Midland press there were indications of serious outbreaks at Uppingham and possibly Repton. Although Johnson does not mention Repton among the public schools that suffered a serious attack, influenza was noted as very prevalent in the Repton district in November resulting in the closure of the village schools and a Repton master, Mr Gorringe, died from pneumonic complications following influenza.<sup>159</sup> Similarly, influenza was reported as raging in Uppingham in Leicestershire, where 400 of the 470 scholars and several members of staff were sick and one teacher died.<sup>160</sup>

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<sup>156</sup> *ibid* , pp. 410-411.

<sup>157</sup> Johnson, *Britain and the 1918-19 Influenza Pandemic*, p. 218 note 29

<sup>158</sup> *ibid*.

<sup>159</sup> *Derby Daily Telegraph*, 12 November 1918, p. 4, 27 November 1918, p. 3.

<sup>160</sup> *Leicester Evening Mail*, 12 November 1918, p. 3, 28 November 1918, p. 4.

In response to Collier's appeal for information referred to earlier, Mr L. Cox, a boarder at Trent College in Long Eaton, Nottinghamshire at the time of the pandemic, recalled that 'Virtually the whole school was smitten... Conditions at Trent were such that the Head was obliged to appeal to parents of boys who lived anywhere near, to come and help the overwhelmed staff.'<sup>161</sup>

It would appear, therefore, that in some cases the more exclusive, fee paying schools suffered just as seriously as local authority schools, particularly where there were boarders. A boarding school has the kind of discrete population to be found in other enclosed environments such as military camps, hospitals and on board ships where close human contact is unavoidable and once an infection is introduced, it runs swiftly through all available hosts.

Despite the high levels of morbidity amongst school age children, Johnson points out that there was little evidence of serious disruption to the school year. School closures tended to be incorporated into school holidays where possible and there was no indication of examinations having to be re-scheduled or term dates having to be adjusted.<sup>162</sup>

This chapter has focused on the effect that the influenza pandemic of 1918-19 had on the daily lives of people in the East Midlands and where possible comparisons have been made with communities in different parts of Britain and the rest of the world.

With the East Midlands being a largely industrial region, many citizens worked in manufacturing and extractive industries which were vital to the war effort thus, in spite of the serious difficulties being caused by the influenza pandemic, production had to be maintained and appears to have been so even if at a reduced rate. Unlike in some countries mentioned, there is little evidence of works being closed, with the exception of a Leicester hosiery factory and then only for a weekend. Even services managed to keep functioning at least to some degree despite high levels of staff absenteeism. The fact that many industries during this period depended largely on women may have provided enough flexibility in the workforce to allow this to happen.

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<sup>161</sup> L.Cox in Private Papers of Richard Collier.

<sup>162</sup> Johnson, *Britain and the 1918-19 Influenza Pandemic*, p. 111

By contrast, according to the memoranda which passed between the Board of Trade and the War Cabinet, the coal mining industry, which did not depend on a female workforce and a significant proportion of which was located in the East Midlands, was under extreme pressure and was only coping by diverting part of its output from domestic and industrial consumers at home to military use in Europe, a situation which threatened to throw thousands out of work and certainly could not have persisted beyond the winter of 1918. In which case the end of the war came not a moment too soon and the return of skilled miners following demobilisation would have been essential not only to build up depleted stocks and re-establish regular supplies to civilian consumers but also to offset the effects of the third wave of the pandemic which appeared in February 1919.

Leisure activities across the East Midlands did not seem to have been seriously curtailed by the pandemic. On mainland Britain only places of entertainment such as cinemas, theatres and music halls were subject to official regulations issued by the LGB regarding duration and number of performances, the barring of children from cinemas and the requirement to ventilate premises. Decisions regarding other establishments and events were left to local authorities, organisations or individuals involved. Even public houses, where crowded conditions were almost assured, were not required to close but this may have been because smoking and alcohol were thought to be of benefit in keeping germs at bay or because closure would have been to admit to an additional national emergency and generated alarm and anger.

The influenza pandemic and the restrictions which resulted because of it did appear to damage the entertainment business, however, as customers who would otherwise have attended performances, such as families with children under 14 years, were prevented from doing so and others would also have decided to stay away to avoid the danger of infection. Even so many events, especially if out of doors, seemed to go ahead as planned, possibly because being out in the fresh air was thought to be a sure way to avoid getting influenza. Sporting events seemed unaffected and even Nottingham's Goose Fair went ahead despite some misgivings. With certain other events, such as the Industries Fair in London, potential commercial advantages may have taken precedence over fears of infection.

Education also does not seem to have been seriously disrupted in the East Midlands or the rest of Britain. Although school children were affected by the pandemic, especially in the first wave, local authority schools were generally only closed for two to three weeks, and closures were, in some cases, incorporated into scheduled holidays, thus the school year appears not to have been unduly disrupted.

In private education, boarding schools where strict quarantine was not possible appear to have suffered severely, the close contact of boarders in dormitories ensuring swift dissemination of infection throughout the community and East Midland boarding schools were amongst those who suffered. However, those who were infected in the first wave may have achieved a measure of immunity from subsequent waves.

In these chapters, an exploration of the effects of the 1918-19 influenza pandemic on home and battle fronts has been presented and its impact across many different aspects of daily life in the East Midlands examined, making comparisons with the rest of Britain and other countries according to the sources available. In the following conclusion, the extent to which the research objectives of this thesis have been addressed and what this reveals about the East Midlands' experience of the pandemic and the impact it had on the life of its citizens will be considered, as will the contribution this study makes to a greater knowledge and understanding of the social history of the 1918-19 influenza pandemic event.

## CONCLUSION

In February, 1921, almost two years after the final wave of the influenza pandemic had taken its last victims, *The Times*, in an editorial entitled 'The Great Death', referred to the pandemic and its effects as '...the most fatal visitation in recorded history... sweeping away our youth in hundreds of thousands and leaving behind it a toll of sickness and infirmity which will not be reckoned in this generation'.<sup>1</sup> But the influenza pandemic of 1918-19 was a worldwide phenomenon and such was its effect on countries around the globe, as evidenced by the possible 100 million death toll placed on it by modern research.

On a national and even international level, as highlighted by Niall Johnson and many other writers and researchers on the topic, it is clear from primary and secondary accounts that many pandemic experiences appeared to be common, particularly mortality and morbidity levels, the unique age pattern of victims, the fate of pregnant women, the disruption to everyday life and the struggle of medical and public health authorities to handle the crisis.<sup>2</sup> In studies where primary evidence is missing, incomplete or not yet available, as is the case with British medical records for example, such widespread similarities may allow gaps to be filled. However, it is also the case that, as noted by Alfred Crosby and referred to in chapter 3, so many factors were at work in the pandemic that generalities are difficult to make. Thus, some historians have acknowledged that it is at local level that any differences in the pandemic's actions, their various effects on particular communities and the responses made to them, are most readily revealed and enable broader and more informed national studies to be constructed.

This study, therefore, has sought to contribute to that process by exploring the social impact of the influenza pandemic on a British region, that of the East Midlands. A regional study has the benefits of providing a wider and more diverse area to examine than a single town, city or county, thereby offering more opportunities for comparisons, but is still a manageable control group when using sources such as newspapers. This study has demonstrated the vital importance of newspapers as a contemporaneous source of evidence on the influenza pandemic, especially as other

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<sup>1</sup> *The Times*, 2 February 1921, p. 11.

<sup>2</sup> Johnson, *Aspects of the Historical Geography of the 1918-1919 Influenza Pandemic in Britain*, p. 423.

sources are limited, but as there was a general proliferation of newspapers in the early twentieth century, a national study would have required much more time and effort than a study of this type could accommodate.

Furthermore, while national newspapers were valuable in presenting the experiences and concerns of Britain, its government, its colonies and those of many other countries, local newspapers were crucial in revealing the experience of ordinary people; local men and women from all walks of life, their families, their co-workers or employees and, during war time, their comrades in arms. They put names, dates, places and incidents to these people and in so doing, put flesh on the bones of national accounts. Consequently, a thorough examination of newspapers, especially local newspapers, is an essential part of any research into the effects of the influenza pandemic in local and regional areas.

Therefore, by means of newspapers and a range of other primary and secondary sources as previously described, a number of issues about the influenza pandemic in general and its effects on the East Midlands in particular have been explored. The history of the infection and what is currently known about the virus and its unique characteristics have been discussed as have theories about the possible origins of the 1918-19 outbreak, the means of its spread between and within countries, and the apparent susceptibility to infection of specific communities.

In assessing the impact of the pandemic on the East Midlands, morbidity and mortality levels have been examined both in the military and civilian populations and comparisons have been made between county boroughs, large towns and rural areas and between communities of different socio-economic status. Furthermore, measures taken by local authorities to halt the spread of infection, to care for the sick and to bury the dead have been considered as have the range of treatments and remedies advertised or recommended. Finally, the effects of the pandemic on goods and service industries, particularly those essential to the war effort, together with leisure activities and education have been assessed.

This has revealed that, in common with many other places in Britain and other countries, influenza, having entered through the ports, would have reached and spread throughout the East Midlands by means of its railway network. Mortality in the

region, based on the figures of the RG, indicates that the East Midlands' experience, especially that of Leicestershire and Nottinghamshire, was amongst the most severe in Britain and similar to that of many northern towns, with Derbyshire suffering rather less overall. Furthermore, the negative effects of urbanisations, low socio-economic status and occupation, particularly with regard to mining, have been linked to this. However, the effects differed from wave to wave and between towns and villages even within the same county, confirming the extraordinary nature of the 1918-19 influenza pandemic.

The East Midlands' efforts to control the spread of the pandemic through the closure of schools and regulation of places of entertainment were in line with measures taken elsewhere in Britain although not as severe as in some countries. Attempts to encourage volunteers to take part in relief work appear to have received scant support in the region, although the work of the MOHs, particularly in Leicester and Nottingham, and of organisations such as the District Nurses and Health Visitors received high praise. Nottingham also boasted an emergency influenza hospital, a facility which Sandra Tomkins argues was not provided in Britain.<sup>3</sup> However, the use of masks and vaccines was not adopted in the region although they were favoured in some parts of Britain and in a number of other countries.

Influenza treatments in the region varied widely as the sources consulted suggest they did nationally and internationally. In Nottingham, fresh air was particularly favoured but other prescribed treatments included nasal douches and alcohol, while private attempts at medication included electro-therapy, again in Nottingham, a variety of 'over the counter' preparations from local chemists and a range of family remedies.

Significantly, the East Midlands, England's industrial heartland, did not stop working throughout the months of the influenza pandemic. Despite the difficulties caused by widespread absenteeism, industries and services, with one minor exception, did not close, as was the case in some countries, but continued to function, albeit at reduced levels during the worst days and this also seems to have been the case in other parts of Britain. Mines, however, were in a critical situation by the time the war ended.

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<sup>3</sup> Tomkins, *Britain and the Influenza Pandemic of 1918-1919*, p. 257.

From this study, a number of possible areas for further study have emerged. The mortality of ethnic communities in many countries was particularly high and an investigation of the experience of ethnic minorities in British regions may be revealing. Furthermore, as isolated communities in many countries, especially those on islands, also suffered heavy mortality, the experience of local communities on the many inhabited islands in the British Isles would be a valuable addition to a fuller understanding of the British experience of the influenza pandemic. Research into the extent of voluntary efforts in towns and cities across Britain would establish if the British response really was as 'sharply at variance' with that reported in other developed countries as Tomkins suggests,<sup>4</sup> as would research into regional provision of emergency influenza facilities beyond beds and wards in existing hospitals. The release of medical records in 2018 may also allow research into hospital treatments and the assessment of mortality levels of pregnant women and their infants. Moreover, some individual or family studies may be possible through the personal details revealed in local newspapers and in the records of soldiers who died during WWI, released by the War Office. This may go some way to filling the gap left by the lack of published personal writings on the influenza pandemic which is a mark of this event.

The opportunity to compare and contrast the East Midlands' experience of the pandemic with that of another British region is not available at this time as no similar study has yet been completed. However, it is hoped that the methods used and information revealed in this thesis and some of the suggested topics for further research will encourage other historians to undertake similar investigations in other regions and in so doing help to tell not only the particular story of their region but also the full story of Britain's experience of the influenza pandemic of 1918-19.

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<sup>4</sup> *ibid.*

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WO 95/2690/1	1/4 <sup>th</sup> Battalion
WO 95/2690/2	1/5 <sup>th</sup> Battalion
WO 95/3022/4	2/4 <sup>th</sup> Battalion
WO 95/3022/6	2/5 <sup>th</sup> Battalion

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# Appendices

# Appendix A

Regimental war diaries

WO95/4519 – Regimental War Diary of 1<sup>st</sup> Nottinghamshire and Derbyshire Yeomanry, 14<sup>th</sup> Cavalry Brigade, Sherwood Rangers (part of the Egyptian Expeditionary Force).  
 Commanding Officer's log of a contagious disease which broke out amongst the officers and men between July and August 1918.

Location	Date	Officers admitted.	Other Ranks admitted.	Officers returned.	Other Ranks returned.
Ghoraniyeh	20. 07. 18	Capt Foott			
	26. 07. 18	Lt Davidson			
	01. 08. 18	Lt Waddington	6		
	02. 08. 18		7		
	03. 08. 18	Lt Barlow	7		
	04. 03. 18		5		
	05. 08. 18		8		
	06.08.18	Lt Hills 2 <sup>nd</sup> Lt. Armitage	9		2
	07. 08. 18		6		
	08. 08. 18	Lt Clark	3		
	09. 08. 18		9		
	10. 08. 10		13		
	11.08.18	Lt Joule	6		
	12. 08. 18		7	Lt Hills	1
	13. 08. 18		7		
	14. 08. 18		8		2
	15. 08. 18		6		
Enab	16. 08. 18		7		
	17. 08. 18		7		
K H Dairen	18. 08. 18		6		
	19. 08. 18	Lt Anderson	7		
	20. 08. 18		8		
	21. 08. 18		4		4
	22. 08. 18	Lt Shemmonds	2		
	23. 08. 18		2		2
	24. 08. 18		2		7
	25. 08. 18		3		4
	26. 08. 18			Lt Anderson	2
	27. 08. 18		2		3
	29. 08. 18		1		1
	30. 08. 18		4		
	31. 08. 18		4		