The beating heart of the system: the health of postal workers in Victorian London

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ABSTRACT

In the later decades of the nineteenth century, the United Kingdom experienced a shift in the causes of mortality, from infectious diseases to those more associated with ageing. This epidemiological transition from acute to chronic conditions was accompanied by an increase in longevity and a corresponding increase in morbidity, measured by rising rates of sickness absence. As longevity improved, the period between the onset of ill health and death lengthened. If we are to understand the daily lived experiences of health in different places during the epidemiological transition, it is necessary to explore the complex causes of morbidity rather than just focus on mortality. We argue that other reasons need to be considered alongside age as important influences on the incidence and duration of ill health, including urbanisation, occupational risks and cultural and institutional factors. Using evidence drawn from a sample of pension records of postal workers, we examine a variety of different factors that could have accounted for the changing pattern of morbidity observed in other studies. We conclude that age alone cannot account for the greater incidence of sickness absence and ill health and that other factors relating to the residential and working environment, as well as institutional arrangements for sick pay, need to be taken into account.

The beating heart of the system: the health of postal workers in Victorian London

During the nineteenth and early twentieth centuries, Britain and other western societies experienced what has been described as an epidemiological transition in which the primary causes of mortality shifted from infectious to degenerative, or age-related, diseases and during which mortality rates, particularly for infants, fell rapidly.[1] The shift from acute to chronic diseases was accompanied by improvements in longevity, which in turn had profound implications for understanding the pattern of ill health. As individuals aged, and as improvements in public health, healthcare and nutrition made survival of once-fatal disease more likely, so the incidence and duration of ill health at a population level increased.[2] In other words, with greater longevity came higher rates of morbidity and this increase in the incidence and duration of ill health posed significant problems for employers and workers alike.

Evidence of higher rates of sickness in western societies comes from a variety of sources. In Britain, for example, using friendly society records, James C. Riley and others have shown that the prevalence of sickness, defined as the amount of sick-time experienced by the

[1] A.R. Omran, The epidemiological transition: a theory of the epidemiology of population change [Reprinted from the *Milbank Memorial Fund Quarterly*, 49 (1971), 509–38], *Milbank Quarterly* 83 (2005) 731–757. For discussion of epidemiological changes in Britain see G. Mooney, Infectious diseases and epidemiologic transition in Victorian Britain? Definitely', *Social History of Medicine*, 20 (2007), 595–606.

[2] G. Alter and J.C. Riley, Frailty, sickness, and death: models of morbidity and mortality in historical populations, *Population Studies* 43 (1989) 25–45; J.C. Riley, Why sickness and death rates do not move parallel to one another over time, *Social History of Medicine* 12 (1999) 101–124; B. Harris, M. Gorsky, A. Guntupalli and A. Hinde, Ageing, sickness and health in England and Wales during the mortality transition, *Social History of Medicine* 24 (2011) 643–665; H. Castenbrandt, Trends in morbidity: national statistics on sickness claims among the working population in Sweden, 1892–1954, *Economic History Review* 71 (2018) 213–235.

population at risk over a given time period, increased during the course of the nineteenth century.[3] Similar patterns of sickness absence have also been noted in other Western countries, including the United States and Sweden.[4] The main explanation for this points to shifts in longevity, leading to a higher incidence of chronic illness associated with old age.[5] As the membership of friendly society insurance schemes aged, so the amount of time taken off for sickness by older subscribers increased, particularly noticeably with cohorts above the age of sixty. Riley and others attribute the rising prevalence of sickness claims in British friendly societies to greater longevity, though others have also pointed to behavioural and institutional changes relating to the cultural definition of sickness and the provision of sick pay that could also have played a part.[6]

In what follows we set out to explore the dimensions of ill health during the period of the epidemiological transition using evidence from the British Post Office, focusing on place as a significant explanatory variable that helps us to understand the geographical dimensions of sickness during this period. There have been attempts to establish the importance of

[3] J.C. Riley, The risk of being sick: morbidity trends in four countries, *Population and Development Review* 16 (1990) 403–432; J.C. Riley and G. Alter, The epidemiological transition and morbidity, *Annales de démographie historique* (1989) 199–213; C. Edwards, M. Gorsky, B. Harris and A. Hinde, Sickness, insurance and health: assessing trends in morbidity through friendly society records', *Annales de démographie historique*, 105 (2003), 131-167; M. Gorsky, B. Harris. and A. Hinde, Age, sickness, and longevity in the late nineteenth and the early twentieth centuries – evidence from the Hampshire Friendly Society', *Social Science History*, 30 (2006), 571-600; B. Harris, M. Gorsky, A. M. Guntupalli and A. Hinde, Long-term changes in sickness and health: further evidence from the Hampshire Friendly Society', *Economic History Review*, 65 (2012), 719-745.

[4] J.E. Murray, *The Origins of American Health Insurance: A History of Industrial Sickness Funds*, London, 2003; Castenbrandt, Trends in morbidity (2003).

[5] G. Alter and J.C. Riley, Frailty, sickness, and death. See also Edwards et al., Sickness, insurance and health; Gorsky et al., Age, sickness and longevity; Harris et al., Long term changes in sickness.

[6] S.R. Johansson, The health transition: the cultural inflation of morbidity during the decline of mortality, *Health Transition Review* 1 (1991) 39–68; Murray, *The Origins of American Health Insurance*. See also M. Gorsky, A. Guntupalli, B. Harris and A. Hinde, The 'cultural inflation of morbidity' during the English mortality decline: A new look, *Social Science & Medicine*, 73 (2011), 1775–1783.

geography in explanations of the mortality decline and the epidemiological transition but to date none have addressed this issue from the perspective of the health of individual workers.[7]

The Post Office was an extremely important national institution with a workforce of over 167,000 by 1900, one in five of whom were women, and included occupations that spanned the social spectrum from rural messenger and urban letter carrier to the postmaster general. It was, as Patrick Joyce has noted, an essential element of the infrastructure of the modern state.[8] It became a total communication system, encompassing the entire United Kingdom, and incorporating letters, parcels, the telegraph and, towards the end of the century, the telephone. Most importantly for the purposes of this article, as Joyce observes, as an institution the Post Office treated its staff as something to be improved, maintained and cultivated, rather than simply to be employed.[9] This was a crucial aspect for the efficient operation of the Post Office which relied not just on the technical infrastructure of buildings, machinery, stamps and forms that helped move daily the millions of letters, parcels and messages through the post, but on the bodies and minds of the workers themselves who sorted and delivered the mail and on an efficient bureaucracy to monitor their fitness.[10]

As part of that effort, the Post Office systematically monitored sickness, provided medical assistance, allowed sick leave and, ultimately, pensioned off workers who were physically or

[7] See R. Woods and N. Shelton, *An Atlas of Victorian Mortality*, Liverpool, 1997; R. Woods and N. Shelton, Disease environments in Victorian England and Wales, *Historical Methods* 33 (2002), 73–82.
[8] P. Joyce, *The State of Freedom: A Social History of the British State Since 1800*, Cambridge, 2013, 55.
[9] Joyce, *State of Freedom*, 83.
[10] For a discussion of how the Post Office functioned see M. Daunton, *Royal Mail: The Post Office Since 1840*, London, 1985 and C. R. Perry, *The Victorian Post Office: The Growth of a Bureaucracy*, Woodbridge, 1992.

mentally incapable of performing their roles.[11] The information gathered as a result of these efforts was summarised in the pension records of workers who retired from service and these provide an opportunity to gauge the health of the postal workforce in different parts of the country. Postal workers could retire at age sixty (sixty-five from 1890, when retirement at that age became mandatory), or earlier if certified as unfit to work. Provided they had served for at least ten years, they were entitled to receive a pension based on their final salary. Included in the pension records was information filled in by medical officers employed by the Post Office about sickness absence and the reason for retirement, including ill health. The template forms certified the eligibility of workers to retire, either on grounds of superannuation or early because of ill health, and were sent to the Treasury for approval. Enough details of the nature of workers' incapacity were given to justify their retirement, either specifying a diagnosed illness or describing symptoms that prevented them from continuing to work. Because sickness pay was granted during employment when the absence was certified by a medical officer, the number of days off for each of the previous ten years was also recorded (until 1908) and this too was noted on the pension form, alongside other information including place of employment, age, gender, length of service, occupation and salary.[12]

The pension records of such a large and geographically extensive organisation allow us to explore the causal relationships that underpinned variations in sickness absence in the late nineteenth and early twentieth centuries in a systematic way. In particular, in comparison to

[11] See K. McIlvenna, D.H.L. Brown and D.R. Green, 'The natural foundation of perfect efficiency': medical services and the Victorian Post Office, *Social History of Medicine*, hky123 (2019), https://doi.org/10.1093/shm/hky123.

[12] The Postal Museum, London [hereafter 'TPM'], POST 1. After 1900 the pension records do not specify the nature of sickness but merely refer to an accompanying medical certificate which no longer survives.

previous studies, which have either tended to focus on specific locations, or have adopted a regional categorisation of spatial variations, they allow us to examine the importance of geography at a more granular level.[13] For the research discussed below, details from the pensions correspondence were collected for all individuals who retired from the Post Office in the census years of 1861, 1871, 1881 and 1891, providing a sample of 1,230 workers in total for whom we have information on sickness rates and retirement causes.[14]

In this analysis we adopt a more functional and meaningful approach to identifying the geography of ill health, distinguishing urban and rural places. We use population size to distinguish the different kinds of places in which postal employees worked, classifying them either as London, urban (places with at least 100,000 population), town (places with a population of between 10,000 and 99,999) or rural (places with fewer than 10,000 people).[15] Although the pensions data are not without problems – not least of which are the sometimes cursory descriptions of the symptoms that resulted in a worker having to leave employment early – nevertheless by including information about sickness and location, as well as the characteristics of the workers themselves, they provide us with opportunities to examine morbidity rates for the established workforce, taking account of person, place and time.

[13] See, for example, Harris et al., Long-term changes in sickness and health; Riley, *Sick Not Dead*, 212–232.

[14] For further discussion of the pensions records see D.R. Green, D.H.L. Brown and K. McIlvenna, Addressing ill health: sickness and retirement in the Victorian Post Office, *Social History of Medicine*, hky081 (2018), https://doi.org/10.1093/shm/hky081.

[15] Populations were taken from H. Southall *et al.*, Vision of Britain, http://www.visionofbritain.org.uk, last accessed 5 December 2018, and referred to the census year that corresponded to the POST 1 pension entry. Places were classified according first to the population in the poor law union district with the same name as the entry. Where places were not their own union, the next lower spatial unit was chosen. Places in Ireland and the Isle of Man were identified in the relevant census abstracts.

THE URBAN PENALTY

London was the pivot around which the Post Office revolved and contained by far the largest concentration of postal workers in the country. Throughout the century, London employees accounted for around a third or more of the entire postal workforce in England and Wales, including both permanent or 'established' workers as well as those who worked part-time or on a temporary basis. In 1851 there were 3,248 established workers in London out of a total of over 10,000 and by 1895 this had risen to 21,974 out of a total of nearly 64,000. In that year, over a half of male clerks, superintendents, supervisors, overseers, countermen, sorters and telegraphists, and nearly half the female telegraphists, worked in London.[16] Although other large cities never matched the concentration of workers in the capital, they were also significant centres of postal employment in their own right. By 1893, Manchester, Liverpool and Glasgow each had in excess of 2,000 established workers and in that year eleven cities, including London, accounted for over half the permanent postal workforce.[17]

The concentration of postal work in London and other large cities provided a challenge for the Post Office in relation to maintaining a healthy workforce. In the second half of the nineteenth century living in a British city was far more harmful to health than living in the countryside: life expectancy at birth was consistently lower, at thirty-eight years for Londoners in the 1850s compared to forty-one for England and Wales as a whole, rising in

[16] British Parliamentary Papers [Hereafter 'PP'] 1852 XLIX.347, 353 [554], *Return of Salaries, Wages and Allowances of Post Office Dept., 1834–50*; PP 1895 XXVI.727 [C. 7852], *Forty-first report of the Postmaster General on the Post Office*, Appendix E, 60–61.

[17] The provincial cities were Belfast, Birmingham, Bristol, Dublin, Edinburgh, Glasgow, Leeds, Liverpool, Manchester and Newcastle. See TPM POST 64/16 Chief Medical Officer of the Post Office, *Annual Report* (1898).

the 1890s to forty-four for Londoners, against forty-six for England and Wales.[18] Working-age Londoners were particularly at risk of dying from tuberculosis and other respiratory diseases such as pneumonia, influenza and bronchitis, disorders of the circulatory, nervous and digestive systems, heart disease, cancer, and from violence and accidents.[19] Waterborne diseases, such as cholera and typhoid, were also important during epidemics although their significance waned as water supplies improved. However, other contributory factors remained stubbornly resistant to improvement, including overcrowding in central areas and poor air quality, both of which were especially problematic in London. Air pollution was particularly bad in large cities, including London, and was a factor in high rates of respiratory disease.[20] Estimates suggest, for example, that at least one in two hundred deaths in London in the nineteenth century could have been caused directly by air pollution.[21] Fog events in London peaked in intensity and frequency between the 1870s and 1890s, and medical doctors were increasingly aware of the relationships between adverse atmospheric conditions and respiratory disease, including pneumonia, bronchitis and asthma.[22] These different experiences are reflected both in the mortality statistics familiar to demographic historians and in the health information to be found in the Post Office

[18] S. Szreter and G. Mooney, Urbanization, mortality, and the standard of living debate: new estimates of the expectation of life at birth in nineteenth-century British cities, *Economic History Review* 51 (1998) 84–112, 88. For general discussions see G. Rosen, Disease, debility and death, in: H.J. Dyos and M. Wolff (Eds), *The Victorian City: Images and Realities*, London, 1973, 625–667, 625.

[19] R. Woods and N. Shelton, *An Atlas of Victorian Mortality*, Liverpool, 1997, 37.

[20] H.H. Lin, M. Ezzati and M. Murray, Tobacco smoke, indoor air pollution and tuberculosis: a systematic review and meta-analysis. *PLoS Med* 4 e20 (2007), https://doi.org/10.1371/journal.pmed.0040020; G.A. Tremblay, Historical statistics support a hypothesis linking tuberculosis and air pollution caused by coal*, International Journal of Tuberculosis and Lung Disease* 11 (2007) 722–732.

[21] Hanlon investigated the acute effects of pollution exposure, i.e. those occurring 'within three weeks of a fog event'. See W.W. Hanlon, London fog: a century of pollution and mortality, 1866–1965, NBER Working Paper 24488 (2018), 1.

[22] W. Luckin, Pollution in the city, in M. Daunton (Ed.), *The Cambridge Urban History of Britain*, Cambridge, 2001, vol 3, 223-224.

pension records. They add an important geographically specific dimension to our understanding of morbidity which is found neither in discussions of mortality nor in studies that rely on data from friendly societies that relate to sickness.[23]

The urban penalty was of particular concern for the Post Office because of the concentration of workers in large cities, especially in London. Postal workers were relatively well paid, with secure employment and comparatively generous levels of sick pay. But they were not immune to general living conditions and nor was the nature of urban postal work conducive to good health, particularly in London where shift work and night-time working were common. The result was that workers there and in the larger cities had worse health outcomes compared to those elsewhere measured both by sickness absence and by rates of premature retirement.

Sickness time

One way of exploring this is to consider the information provided in the Post Office pensions records relating to recruitment and retirement age and to the amount of time workers took off because of ill health in the ten years prior to their retirement. According to the evidence from the pension records, postal workers between 1861 and 1891 on average took 12.2 days sick per year – a relatively high total compared to teachers in London and to workers elsewhere. An investigation into the sickness rates of public elementary school teachers in London between 1904 and 1919 found that on average teachers took 7.1 days of sickness per year, a much lower figure than for postal workers over the same period.[24] Postal

[23] See note 3, above, for examples.

[24] J. Y. Hart, An investigation of sickness data of public elementary school teachers in London, 1904-1919, *Journal of the Royal Statistical Society*, 85 (1922), 352, 354.

workers also compared badly to members of the Hampshire Friendly Society, for example, who took between 7.9 and 10.8 days sick between 1880 and 1899, and to members of the Ancient Order of Foresters who averaged 10.6 days sick between 1881 and 1890.[25]

However, the headline figures mask the impact of age and location on postal workers' sickness rates. On average workers in urban places, including Londoners, started employment at the Post Office at a younger age, retired earlier and had between two and three times more days off sick than did their counterparts in smaller towns and rural places (Table 1). In terms of the number of sickness days, the long tail of the histogram for London shown in Fig. 1 demonstrates that more of the capital's postal workers took multiple sick days over the course of a year compared to those in other parts of the country. Inhabitants of other cities, though fewer in number, also show a similar distribution. By contrast, workers in rural areas and small towns were much more likely to take only a handful of days off per year. Although over the period there was a tendency for all workers to take more sickness time, the geographical variation remained broadly similar (Fig. 2). In other words, the amount of sickness time taken by Post Office workers was less to do with an ageing workforce and more to do with location. The wider implication is that geography needs to be taken into account when seeking to explain the rising rates of morbidity which other studies have attributed mainly to the effect of longevity or to cultural and institutional factors such as changes in the way that workers defined and responded to bouts of ill health.

[25] Edwards et al., Sickness, Insurance and Health, 142; Riley, *Sick Not Dead*, 161.

Early retirement

The problem of ill health at work was compounded by the inability to carry on postal duties leading to premature retirement, particularly in cities and in London. Overall, retirement for health reasons was relatively common in the Post Office compared to other branches of the civil service and this was exacerbated by the effects of urbanisation. In the ten years ending in 1901, for example, sixty-six per cent of Post Office employees retired for health reasons compared to thirty-eight per cent in the Admiralty and thirty-six per cent in the Inland Revenue.[26] As with sick days, this proportion hid a significant urban-rural difference. Despite the fact that workers in different types of areas tended to serve similar periods of time at the Post Office, those in London and other urban areas retired at much younger ages, primarily because of ill health, and half of them had retired because of illness by their mid-forties (Table 1). In our sample of pensioners for 1861, 1871, 1881 and 1891, sixty per cent of all retirements were early because of ill health, but this proportion was even greater in London. Despite the fact that workers there tended to be younger than elsewhere, over seventy-six per cent of those who were pensioned in the capital retired on grounds of ill health compared to a little over forty-seven per cent in rural areas and towns.

These disparities between places were significantly different to the overall proportion of the whole sample according to a chi-square test of independence (Table 2).[27] The chi-square figure is a measure of the difference between the actual numbers of retirements and the expected numbers. The expected values are what would be seen if the overall proportion for the whole sample were in fact the case for each location group. Standardised residuals in

[26] PP 1903 XXXIII.209, Cd. 1744. *Report of the Royal Commission on Superannuation in the Civil Service*, 192.
[27] X^2 (df = 3, N = 1,153) = 81.242, $p < 0.001$.

Table 2 greater than 1.96 or smaller than -1.96 for the location types show where the values are significantly different from the proportion of the total sample, at the $p = 0.05$ level. The proportion of urban workers retiring early is close to that of the sample as a whole, but the difference between London and the rest is striking. The capital's postal workers, despite their relative youthfulness, were, in summary, much more likely than those elsewhere to retire early with health problems. London and, to a lesser extent, other large cities, therefore posed a dilemma for the Post Office: workers appeared to wear out at younger ages there than in the countryside, creating problems not just for the efficient day-to-day running of the postal system but also for recruitment and retention.

IDENTIFYING THE CAUSES OF ILL HEALTH

The Post Office, and its paymaster, the Treasury, were very aware of the difficulties that ill health and premature retirement posed, not least because of the drain this imposed on the public purse. From the 1850s, when the Post Office medical service was created, all postal workers had to be certified as fit by medical practitioners before they were employed on a permanent basis. This was an important part of the recruitment process for two key reasons. First, the entire system depended on sorting and delivering mail rapidly and efficiently, and this was heavily reliant on a full complement of workers. Second, there was a high cost to the Treasury in having to pay sickness absence and in funding potentially long retirements for those who had worked for at least ten years but who had been forced to retire early. Any hint that premature retirement might have been the result of lax medical examination of candidates at the start of their employment was deemed unacceptable and it was the responsibility of the chief medical officer to ensure that the medical examinations

undertaken were both rigorous and systematic. He was also responsible for scrutinising all reports on candidates for which some abnormality had been recorded or where the local medical officer advised rejection. No recommendations for premature retirement on grounds of ill health were allowed to proceed until the chief medical officer had seen the medical evidence, and he was also required to take a view where there had been an appeal against the local doctor.[28]

From 1858 recruits to most positions had to pass a physical examination at the start and the end of their one-year probationary period, and by 1891 this period had been extended to two years.[29] Doctors employed by the Post Office had the responsibility for carrying out and reporting on the results of the examination. To ensure that the examinations were conducted in a uniform manner across the country, they were required to complete a lengthy form relating to a recruit's physical condition which contained not only a report on their health but also that of their family, including the state of health and cause of death of parents and siblings.[30] Instructions issued in the 1890s to medical officers employed to examine candidates outlined the importance of the process:

> The examination of candidates for appointment is, of course, very important; on its accuracy depends the proper selection of a person able to perform not only at present, but *continuously*, some proposed duty. The custom is to send the candidates to you with a form which will give you much information respecting him – his age, height, weight, family history, former illnesses, &c.; those particulars you will tabulate in the proper columns in your Examination Book within the cover of which you will find examples of examinations and a table of the average weight and chest measurement of persons at different ages and heights for your guidance.[31]

[28] H. Bashford, *The Post Office Medical Service*, 1936 (Post Office Green Paper, 31), 4–6.

[29] See POST 64/23, Probation and Medical Examinations: Report of Committee. 22 May 1894.

[30] POST 64/1 The Post Office Medical System, 1001–1002.

[31] POST 64/7 General Instructions Issued to Medical Officers, December 1880.

Any signs that a recruit might prove physically incapable of carrying heavy loads or walking long distances, had defective eyesight, showed signs of nervous disability or had previously contracted an infectious disease were grounds for rejection. In the 1860s between a quarter and a third of applicants to be letter carriers in London were rejected on medical grounds, a proportion that changed little in subsequent decades.[32] Postal workers, therefore, were relatively fit at the start of their employment; any subsequent ill health stemmed more probably from occupational risks or insanitary environmental conditions than from pre-existing conditions.

Identifying the broad causes of early retirement from the Post Office rests on categorising the disparate and sometimes imprecise medical reasons specific to each employee who became eligible for a pension.[33] Contemporary classifications such as those in the registrar-general's reports were based on causes of death and are therefore not necessarily appropriate for categorising a set of non-fatal conditions, and modern classifications such as ICD-10 rely on diagnostic techniques and conceptions of disease unavailable at the time.[34] For the purposes of this study the conditions noted in the pension records have been grouped into nine general disease categories based on the description of symptoms, plus a category for those reaching retirement age. Those made redundant or noted as having died have been excluded from the study unless otherwise specified. Appendix 1 identifies the

[32]POST 64/7 General Instructions Issued to Medical Officers, 974–83; Postmaster General, *Eighth Annual Report on the Post Office* (1862), 70; POST 64/27 Chief Medical Officer of the Post Office, *Annual Report* (1893), A2.

[33] This imprecision is not unique to the medical information in the pensions records. See A. Hardy, Death is the cure of all diseases: using the general register office cause of death statistics for 1837–1920, *Social History of Medicine*, 7 (1994), 472–492; G. Mooney, Diagnostic spaces: workhouse, hospital, and home in mid-Victorian London, *Social Science History*, 33 (2009), 357–390.

[34] World Health Organisation, International Statistical Classification of Diseases and Related Health Problems 10th Revision, https://icd.who.int/browse10/2019/en, last accessed 13 March 2020.

search terms used in this analysis to categorise the disease groups recorded in the pension records by the Post Office medical officers, alongside the variable names assigned to them for statistical analysis. Some categories cover a very wide range: 'BRAINEPI', for instance, contains a variety of neurological and other conditions such as palsy, which could include stroke; 'ORTHO' includes bone and joint problems, usually relating to the feet but including arthritis and fractures; and 'GENDEB' (general debility) covers any infirmity relating to failing strength. 'CONSUMP' (pulmonary tuberculosis) has its own category distinct from other pulmonary conditions ('LUNGNOTB') and is therefore more reliant than other categories on the specific contemporary diagnosis. Of these conditions, only tuberculosis was both a killer and a cause of early retirement, though its impact on the postal workforce varied according to place. The remaining conditions were largely chronic rather than acute and were likely to have resulted in incapacity rather than death.

Fig. 3 illustrates the nature of the London problem by showing the proportion of pensioners who retired because of specific conditions. London accounted for about thirty-five per cent of pensioners during the period, but poor mental health and vision problems were both markedly more important with around sixty per cent of pensioned workers with those sets of conditions living in the capital. Digestion and cardiovascular/circulatory problems also tended to be more evident among Londoners though the imbalance was less pronounced. Consumption was much more common in urban than rural workplaces, reflecting the fact that overcrowding in cities encouraged the spread of pulmonary tuberculosis, a finding confirmed by more recent analysis of the registrar general's reports.[35] Urbanisation,

[35] G. Cronjé, Tuberculosis and mortality decline in England and Wales, 1851–1910, in: R. Woods and J. Woodward (Eds), *Urban Disease and Mortality in Nineteenth-Century England*, London, 1984, 93–95.

overcrowding, problems of well-being including poverty and nutrition, and lack of knowledge about infection were considered key contributory factors.[36] It is perhaps surprising, therefore, that this condition was relatively unimportant in the London workforce. It might be explained by the fact that workers who contracted the disease had little or no chance of returning to employment, and if they had not served the statutory ten years to be eligible for a pension, they were likely to have been dismissed and therefore would not appear in our data. It also has to be borne in mind that in the capital other causes of premature retirement might have intervened at an earlier stage. The Post Office medical service was also vigilant about consumption in particular, not only because of the potential for spreading the disease through close contact with fellow workers but also because of the fear of spreading it through the mail itself.[37] Dr Waller Lewis, the first chief medical officer of the Post Office, was keen to emphasise that applicants at risk of developing consumption should be rejected at an early stage, arguing that

> In my opinion the utmost strictness should be used in excluding, not only such candidates as are actually at the time of presenting themselves suffering from this complaint, but also such as show a strongly marked hereditary tendency thereto; especially when this is combined with a weak frame of body.[38]

[36] A. Newsholme, An inquiry into the principal causes of the reduction in the death-rate from phthisis during the last forty years, with special reference to the segregation of phthisical patients in general institutions, *Journal of Hygiene* 6 (1906), 320.

[37] See L. Newman, 'Death germs through the post': postal pathology and workplace experiences of disease in Britain, c.1895–1935, *Social History of Medicine*, hkz054 (2019), 7, https://doi.org/10.1093/shm/hkz054.

[38] PP 1857-58 XXV.549, *Fourth report of the Postmaster General, on the Post Office,* 71. See also PP 1897 XLIV.37 [163] *Post Office Establishments*, evidence of Dr A. H. Wilson, qq. 6474–6487.

Problems with feet and other orthopaedic conditions were frequent among both urban and rural workers, perhaps as a result of having to walk long distances to deliver the mail in all kinds of conditions. Postal workers' representatives repeatedly brought up these issues with parliamentary committees, with one submitting that in London 'the immense increase in the practice of sending picture post-cards has made the stair-climbing feature of duty more acute, as the occupants of flats appear to indulge largely in this form of communication'.[39] It is worth contrasting this burden with that of some rural letter carriers, though, who were obliged to travel up to eighteen miles in six hours, carrying up to twenty-eight pounds (twelve kilograms) of mail when they set off.[40]

THE LONDON PROBLEM: OCCUPATIONAL RISK AND ILL HEALTH

The characteristics of place and person are key variables that affect health outcomes but it is difficult to identify whether environmental or social factors, such as age, or a combination of both, were the main causal factors influencing the incidence of ill health. London and other large cities were undoubtedly less healthy places in which to live compared to rural areas but over and above the broad environmental conditions responsible for the incidence and spread of disease, there were specific occupational risks associated with working in the Post Office.

One way of assessing the impact of occupational risks to health is to compare postal workers with other similar groups in the capital. We have evidence for the health of policemen in London, who similarly were required to pass a medical examination before

[39] PP 1906 XII Pt. 1, 11, pt. 2, 1 [380], *Post Office servants*, 8,073.
[40] PP 1906 XII Pt. 1, 11, pt. 2, 1 [380], *Post Office servants,* 8,420.

appointment and who, because they were required to walk for long periods of time, performed similar tasks to postmen. From a survey of the Metropolitan Police commissioner's reports to parliament for 1870 to 1888, the police were more prone to phthisis than postal workers (12.7 per cent of medical retirements among the police, compared with 7.6 per cent of London's postal workers), a reflection perhaps of the care taken by the Post Office medical service to monitor any signs of infectious disease in the workforce.[41] But London's postal workers were much more likely to retire early from vision problems than the police were (4.8 per cent for the police, 9.0 per cent for the Post Office), and very much more likely to have mental health problems leading to retirement (3.6 per cent for the police, 14.1 per cent for the Post Office). These differences could have been the outcome of variations in the medical examinations in the two services, or in the ways that pension awards were decided, or – if we are to take at face value the assertions of the medical officers that the conditions were not present at the time of appointment – they could indicate that working in the Post Office was harder on visual acuity and mental wellbeing than it was in the Metropolitan Police.[42]

Poor mental health, though notoriously vague as a category of illness, was a particularly common reason given for early retirement for London postal workers. Though this broad diagnosis covered a wide range of descriptive symptoms ranging from nervous debility and exhaustion to insanity, its frequency mirrored growing concerns in the medical profession about the incidence of nervous disorders in modern society.[43] The notes of the Post Office

[41] H. Shpayer-Makov, Police service in Victorian and Edwardian London: a somewhat atypical case of a hazardous occupation, *Medezin, Gesellschaft und Geschichte* 13, 1995, 71.

[42] POST 1/228/232.31; PP 1906 XII Pt. 1, 11, pt. 2, 1 [380], *Post Office servants*, 3,920.

[43] For discussion of mental health and the medical profession in this period see G. Drinka, *The Birth of Neurosis: Myth, Malady and the Victorians*, New York, 1984; J. Oppenheim, '*Shattered Nerves': Doctors,*

officials who compiled the pensions records occasionally shed light on the conditions which underpinned this broad set of symptoms, with the majority recorded as 'mental debility', 'mental depression', 'nervous debility', 'nervous exhaustion' or similar, without elaboration, and only with a note that the condition was not present on joining the Post Office. Of the ninety-six cases classified here under mental health, fifty-three were noted as nervous debility, exhaustion or prostration, with another thirty-three identified as insanity, lunacy, mental disturbance or mental incapacity. Workers, too, identified this constellation of problems as particularly prevalent in the capital, blaming it on stressful working conditions in different sections of the Post Office.[44]

This situation arose from several different but related factors. First, because London was the pivot around which the Royal Mail circulated the capital's workforce had to deal with a much larger volume of mail than elsewhere in the country. In the year ending 31 March 1880, for example, over 310 million letters were delivered in London, nearly a third of the entire total for England and Wales. By 1890 the total had risen to around 518 million,

Patients, and Depression in Victorian England, Oxford, 1991, 81–104; C. Lawrence, *Medicine in the Making of Modern Britain 1700–1920*, London, 1994, 71; M. Thompson, Neurasthenia in Britain: an overview, in: M. Gijswijt-Hofsra and R. Porter (Eds), *Cultures of Neurasthenia from Beard to the First World War*, Amsterdam, 2001, 77–95; C. Sengoopta, 'A mob of incoherent symptoms': Neurasthenia in British medical discourse 1860–1920, in Gijswijt-Hofstra and Porter (Eds), *Cultures of Neurasthenia*, 97–115. See also A. Bonea, M. Dickson, S. Shuttleworth and J. Wallis, *Anxious Times: Medicine and Modernity in Nineteenth-Century Britain*, Pittsburgh, 2019, 181–216.

[44] There is an extensive literature on the relationships between psychological stress and co-morbidities. See, for example, Y.H. Lin, C.Y. Chen and S.Y. Lu, Physical discomfort and psychosocial job stress among male and female operators at telecommunication call centers in Taiwan, *Applied Ergonomics,* 40, 2009, 561–568; A. Prior *et al*., The association between perceived stress and mortality among people with multimorbidity: a prospective population-based cohort study, *American Journal of Epidemiology,* 184, 2016, 199–210; D. Vancampfort *et al*, Perceived stress and its relationship with chronic medical conditions and multimorbidity among 229,293 community-dwelling adults in 44 low- and middle-income countries, *American Journal of Epidemiology,* 186, 2017, 979–989; A.E. Dembe, *Occupation and Disease,* London, 1996, 45–52.

placing immense pressure on both space and the workforce required to manage the post.[45] It was not just the volume of mail but the intensity with which it had to be sorted and despatched that was the problem. The pressure to sort the mail was particularly intense after the six p.m. rush to catch the last post to the country, which was by far the busiest, and an army of sorters worked throughout the night at high speed to sort the mail and to ensure that it was loaded on to the travelling sorting offices on the railways for distribution the following day. Henry Horsfall, a first class sorter who had worked in the Post Office since 1878, told the 'Tweedmouth' Committee on Post Office Establishments in 1897 how in the evening shift he had to deal with this flood of mail. He stated that to keep to schedule he would be expected to despatch between two-thousand and three-thousand letters in an hour and twenty-five minutes – equivalent to sorting about one letter every two or three seconds.[46] Horsfall and others noted that the threat of disciplinary action for mis-sorting letters always hung over the workforce, with consequent loss of earnings should they exceed a specified number. W.W. Young, representing the United Kingdom Postal Clerks' Association, also expressed concern about conditions in the sorting office some years later. Young blamed in particular the pressure of work, especially just before the departure of the mail in the evening, and the dusty atmosphere of the Post Office building.[47] He told the 1906 Select Committee on Post Office Servants that as a result, 'an abnormally large proportion of persons employed in the sorting sections of the Post Office break down in health prematurely'.[48]

[45] PP 1890 XXVI.679 [C.6171] *Thirty-Sixth Report of the Postmaster General*, Appendix A, 17.
[46] PP 1897 XLIV.37 [163] *Post Office Establishments*, 294.
[47] PP 1906 XII Pt. 1, 11, pt. 2, 1 [380], *Post Office servants*, 4,049.
[48] PP 1906 XII Pt. 1, 11, pt. 2, 1 [380], *Post Office servants* 3,920.

This pressure was made worse because of the way in which labour time was divided in London. Letter carriers and sorters often had to work irregular split shifts that required them to attend at four or five a.m. to sort and deliver the morning mail and again after five p.m. to deal with the evening delivery, which led to chronic sleep deprivation, irregular meals and, as a result, poor health. Split shifts were far more common in London than elsewhere and placed additional strains on the workers, who often lived several miles away from their place of employment.[49] As Henry Horsfall told the Tweedmouth Committee:

> [A] man with this over-pressure every night must suffer, especially a man suffering from an affection of the heart or the head, it must affect him a variety of ways. We have had many cases of insanity in the office, and I think the over-pressure is indirectly the cause of that. I should not like to assert that as a fact, but I believe it is to a great extent caused by our over-pressure.[50]

Dr A.H. Wilson, the Post Office's chief medical officer, also expressed concerns, telling the same committee that he did not consider the circulation office at St Martin's le Grand to be a sanitary place of work and that the sick rate among sorters there was higher than other workers.[51] He remarked how split shifts were particularly hard on the health of workers up to the age of twenty-five who had not yet learned to conserve their energy: 'being young and feeling strong they do not see the necessity of nursing their strength in the spare hours of the day, but spend these hours in violent exercise, as cycling, football, rowing, &c'.[52] Similar complaints continued to be heard in the following years and J.P. Dixon, representing

[49] See *The Times*, 7 May 1860; PP 1871 XVII [Cd. 438] *Seventeenth report of the Postmaster General on the Post Office*, 15; PP 1904 XXXIII [Cd.2171] *Committee on Post Office Wages. Part II. Minutes of Evidence*, 264.
[50] PP 1897 XLIV.37 [163] *Post Office Establishments*, 374.
[51] PP 1897 XLIV.37 [163] *Post Office Establishments*, 6,502–6,503.
[52] PP 1897 XLIV.37 [163] *Post Office Establishments*, 6,514.

the established postmen of London, echoed this view in front of the 1906 Select Committee on Post Office Servants, stating that frequent deliveries in London meant that many postmen made four rounds a day, meaning 'eight journeys from finishing place to home or the reverse...depriving the men of proper rest and recreation'.[53]

London also had a higher proportion of telegraph workers than elsewhere and this group, many of which were women, was thought to suffer from nervous complaints more than other workers as a result of having to work long hours at high intensity, needing to respond rapidly and accurately to a series of repeated clicks coming from a machine.[54] The prevailing view was that nervous debility, often described in the contemporary medical literature as neurasthenia, was the outcome of over-stimulation of the nervous system. Concerns about neurasthenia grew from the 1860s and the condition was increasingly viewed as a symptom of the pressures of modern life.[55] It was argued that constant bombardment of the senses led to overstimulation of the mind and the consequent exhaustion of nervous energy, potentially leading to the disruption of physiological functions and bodily health. The urban dweller's response, according to Georg Simmel, was a condition that he termed *anomie*, a blasé attitude that individuals developed as a means of protecting themselves against the constant bombardment of the senses in rapidly growing large urban centres.[56] Such conditions, reflecting the accelerating pace of modern life in cities, were typified most clearly in the speeding up of communication brought about by the telegraph. Medical

[53] PP 1906 XII Pt. 1, 11, pt. 2, 1 [380], *Post Office servants*, 8,073.

[54] See *Lancet*, 1 August 1885; PP 1897 XLIV.37 [163] *Post Office Establishments*, 2612, 2640, 4497.

[55] See note 42.

[56] G. Simmel, The metropolis and mental life [first published in 1903] in: R. Sennett (ed), *Classic Essays in the Culture of Cities*, Englewood Cliffs, 1969, 47–60.

doctors employed by the Post Office would have been keenly aware of these concerns and their diagnoses of ill health no doubt reflected this awareness.

Women, in particular, were thought by the medical profession to be more susceptible to this kind of complaint arising from a 'weak nervous system', and this belief might have influenced Post Office doctors' opinions as to the causes of premature retirement.[57] However, even for male telegraphists, nervous disorders were considered to be common. Charles Garland, a first class telegraphist with thirteen years' experience, noted in 1897 how the conditions of work 'combine to produce a nervous condition which may be defined as neurasthenic and which although not always resulting in serious mental disorders, materially impairs the efficiency of the staff causing much sick leave…'.[58] The Post Office was reluctant to accept this view, and on being questioned by the chair of the Tweedmouth Committee as to whether telegraphists were driven to nervous debility by the constant attention required in their work, Dr Wilson dismissed diagnoses of 'nervous debility, nerve exhaustion, and allied affections' as being symptoms of other complaints which originated elsewhere, blaming instead 'drink, financial worry, domestic worry, influenza, excessive venery, masturbation, and reading for higher examinations after official hours'.[59]

Nervous debility or mental incapacity were not the only problems to which telegraphists were prone. The development of eyesight problems was a particular risk. A key telegraphist had to watch the small slip of paper on which codes were output, looking out for those

[57] See J. Knelman, Nervous debility: a disorder made to order, *Victorian Review*, 22, 1996, 32–41. Interest in the social causes of insanity, including excitement of the nervous system, was of growing importance in psychiatric medicine during the period covered here. See L.J. Ray, Models of madness in Victorian asylum practice*, European Journal of Sociology* 22, 1981, 229–264; W. Bynum, A. Hardy, S. Jacyna, C. Lawrence and E.M. Tansey, *The Western Medical Tradition 1800 to 2000*, Cambridge, 2006, 200–202.
[58] PP 1897 XLIV.37 [163] *Post Office Establishments*, 2,599.
[59] PP 1897 XLIV.37 [163] *Post Office Establishments*, 6,556.

messages intended for their office. Until the last years of the century those who worked in the evenings and overnight had to do this by gaslight.[60] Telegraphists were also prone to a the condition known as 'telegraphists' spasm' or 'telegraphists' cramp' which arose as a result of repetitive use of the key on a telegraph machine, particularly the Morse machine which was becoming much more widespread.[61] The problem was exacerbated by lengthy shifts and working in cramped conditions – both typical of the main operations in London. The condition was first noted in 1875 but recognised in the 1880s by the Post Office as affecting more workers than commonly thought, and in 1908 this complaint was added to the definition of an industrial disease under the terms of the 1906 Workmen's Compensation Act.[62] A study by the Post Office of over eight thousand telegraphists in 1908 concluded that around two-thirds suffered from some kind of physical difficulty in operating their machines but that a telegraphist of 'nervous instability' was more likely to contract cramp from using the Morse machine compared to other instruments.[63] Indeed, reports in the press suggested that the physical symptoms were usually preceded by 'general nervous disturbance', such as palpitations, dizziness and even insomnia, and the committee therefore thought that the condition was more akin to a disease of the central nervous system rather than a muscular disorder.[64] Minor technical changes, such as introducing a

[60] PP 1897 XLIV.37 [163] *Post Office Establishments*, 4,679.

[61] In 1870, when the Post Office took over the telegraph companies, about 30 per cent of the machines were Morse but by the early 1900s this proportion had risen to 64 per cent and the problem therefore became more prominent. See POST 64/26, Departmental Committee on Compensation for Industrial Diseases: Second report, 1908, 4.

[62] PP 1897 XLIV.37 [163] *Post Office Establishments*, 9–18, 2599, 2612, 2644. The *British Medical Journal* noted in 1909 that this condition was considered to be an occupational illness: 'One who has had to suffer' [pseudonym], The Postmaster General and our profession, *British Medical Journal*, 10 July 1909, 111–112. See also Dembe, *Occupation and Disease*, 35–43.

[63] POST 64/26, Departmental Committee on Compensation for Industrial Diseases, 19.

[64] POST 64/26, Departmental Committee on Compensation for Industrial Diseases, 5. See also *Taunton Courier and Western Advertiser*, 10 April 1878.

spring to assist the keying process, helped ameliorate the incidence of cramp. However, because of the growing popularity of the Morse machine, it proved difficult to reallocate workers to different types of machine and therefore the only remedy was to remove them from duties for a prolonged period until their symptoms disappeared. For that reason it was very rare for telegraphists to retire purely on account of this complaint.[65]

The other set of conditions that characterised premature retirement in London related to poor eyesight. Workers entering employment at the Post Office were tested for vision, and it was one of the seven conditions that Dr A.H. Wilson, as chief medical officer, thought should govern the decision whether or not to grant employment.[66] Workers' concerns about the effects of having to decipher small handwritten letters in dim, gas-lit offices, often at night, for long periods of time, particularly in the sorting rooms of the main London Post Office, were echoed by those responsible for their welfare.[67] In 1857 Dr Waller Lewis, the first chief medical officer of the Post Office, noted that 'Scarcely a week passes without complaints being made of the bad effects on the general health or on the eyesight of the Sorters and other officers employed in the larger rooms lighted by gas'.[68] Most sorting was carried out under gaslight until the introduction of brighter electric lights towards the end of the century.

Although eye disease was relatively common in the population at large – including a broad set of conditions then known as 'ophthalmia', used to describe a variety of inflammatory and often highly contagious infections of the eye – the fact that applicants to the Post Office

[65] PP 1897 XLIV.37 [163] *Post Office Establishments*, 6,558.

[66] The National Archives, CSC 3/276: Health. Physical Qualifications Post Office (1897), Remarks of the Chief Medical Officer, 13.

[67] *British Medical Journal*, 1, 4 April 1857, 281–282.

[68] PP 1857 Session 1 IV.293 [2195], *Third Report of the Postmaster General, on the Post Office*, 54.

with poor vision were rejected meant that any problems relating to sight would have arisen whilst at work.[69] The Post Office acknowledged that sorters in their fifties were less efficient than those in their thirties, but having told the 1906 Parliamentary committee that this was a result of long periods of night work leading to eye strain, London's postal service controller Robert Bruce then returned the following day to correct himself, saying that poor eyesight was in fact unrelated to working conditions.[70] Our analysis suggests that he may have been right in his first statement, as a disproportionate number of London's postal workers retired early with problems relating to eyesight. Although poor vision could have been the outcome of a variety of ophthalmic conditions, as well as the natural process of ageing, its importance as a reason for premature retirement, particularly for relatively young workers in London, is striking compared to elsewhere.

CONCLUSION: INSTITUTIONS, BEHAVIOUR AND GEOGRAPHIES OF HEALTH

While some scholars have identified demographic factors as the key variable in explaining rising rates of morbidity, others have suggested that institutional and cultural factors might have been more important. According to some accounts, the availability of generous rates of sick pay, without strict control and detection of malingering, could have encouraged workers to report sick more often. John Murray and others explain this tendency in terms of

[69] C. Margo and L. Harman, Charles Dickens, trachoma, and blindness in pre-Victorian England, *Survey of Ophthalmology* 63 (2018), 275–280. Awareness of different forms of ophthalmia came about as a result of greater specialisation and improved medical instruments. See L. Davidson, 'Identities ascertained': British ophthalmology in the first half of the nineteenth century, *Social History of Medicine* 9 (1996), 313–333. In the 1860s, ophthalmoscopes were still relatively new but became of increasing importance in the diagnosis of eye disease. See J. V. Solomon, Notes on the surgery of the nineteenth century and the ophthalmoscope, *British Medical Journal,* 2, 396, 1 August 1868, 103–104.

[70] PP 1906 XII Pt. 1, 11, pt. 2, 1 [380] *Post Office servants*, 2211–2215, 2289–2292.

'moral hazard', pointing out, for example, that in different European sickness insurance schemes, the prevalence and duration of claims appeared to increase with the scale of sickness payment and the relative financial status of the scheme.[71] In other words, workers were more likely to report sick if their scheme was relatively well endowed and they knew that they would receive benefits. Others have pointed to behavioural shifts over time in the definitions of sickness and the propensity to take more time off work because of ill health.[72] According to this view, it was not that morbidity itself was rising but rather that attitudes to sickness were changing. While these arguments are important in identifying potential reasons to explain change over time, we argue here that they fail to explain the pattern of sickness that prevailed in the UK's Post Office, which was more related to geography than to other factors.

Over the period as a whole, there was a rising trend of sickness days in the Post Office that mirrored the pattern found elsewhere, although it was particularly marked in London and other large cities. However, there was very little change in the provision of sick pay to an individual, which up to 1890 was subject to the personal scrutiny and discretion of the postmaster general guided by the opinion of the chief medical officer in London. After that date, the practice was adopted of providing full sick pay for the first six months' absence and half pay for the next six months, providing that there was a reasonable chance of the employee returning to work.[73] Given that the practice of granting sick pay therefore remained virtually the same throughout our period, and that there were no changes to the pension fund itself, which was paid from the public purse, institutional factors cannot

[71] Murray, *The Origins of American Health Insurance.*

[72] Johansson, The health transition.

[73] For a discussion of sick pay see POST 64/4 Sick leave conditions 1857–1902: memorandum.

account either for the geographical variations in sickness or any changes over time. Nor can behavioural changes relating to the definition of sickness explain the differences over time and between places. For this to happen we would have to accept that urban and rural workers behaved differently in relation to their propensity to report in sick and there is no evidence suggesting this to be the case.

Two possible reasons for variations in morbidity could therefore remain: age and place. We have shown that age cannot explain the differences outlined here, as London's younger workforce exhibited higher rates of ill health retirements and sickness rates than their older counterparts elsewhere. This leaves the effects of place, particularly urbanisation, and its interaction with the workplace as the most likely set of factors in influencing morbidity rates. Two elements were particularly important here. The first was associated with the urban penalty. While improved sanitation, better medical knowledge and social conditions helped reduce mortality from acute infectious diseases over the period, chronic respiratory and cardiovascular diseases arising from poor air quality, which took longer to kill and were associated with lengthier bouts of ill health, became more important. It proved much more difficult to regulate the smoke problem in cities than it did to ensure clean water, and therefore urban workers, particularly those forced to walk for long periods in heavily polluted city air, faced additional health risks compared to those in rural areas.[74]

[74] P. Brimblecombe, *The Big Smoke: A History of Air Pollution in London since Medieval Times*, London, 1987; S. Mosley, *The Chimney of the World: A History of Smoke Pollution in Victorian and Edwardian Manchester*, Cambridge, 2001; S. Mosley, Fresh air and foul: the role of the open fireplace in ventilating the British home, 1837-1910, *Planning Perspectives*, 18 (2003), 1-21; D. Stradling and P. Thorsheim, The smoke of great cities – British and American efforts to control air pollution, 1860–1914, *Environmental History*, 4 (1999), 6–31.

The second element to consider is the specific form of occupational hazards in London associated with the nature of work in the capital. Lengthy delivery rounds carrying heavy mail sacks in all weathers took their toll on workers' bodies but in London late-night sorting and shift patterns added further to the stress of work. The problems were particularly acute in the capital and maintaining a healthy workforce there proved especially challenging. As a result, London postal workers appeared to wear out at much younger ages and were sick more frequently and for longer than those elsewhere. By the time they had reached their mid-forties, the majority had been forced to retire early because of illness. The health issues that forced a larger proportion of premature retirements in London were not attributable purely to insanitary living conditions as such, but rather to the difficult working practices that were peculiar to the capital. The incessant tapping of the un-ergonomic telegraph machine, the stress of working long hours over split shifts with little sleep, and the physical hardship of sorting mail in dimly lit and gas-laden offices all took their toll. Though by no means as hazardous as mining or other so-called 'dangerous trades', working for the Post Office in London for most employees meant premature retirement on grounds of ill health. London may have been the beating heart of the entire postal system, but it was very far from healthy.

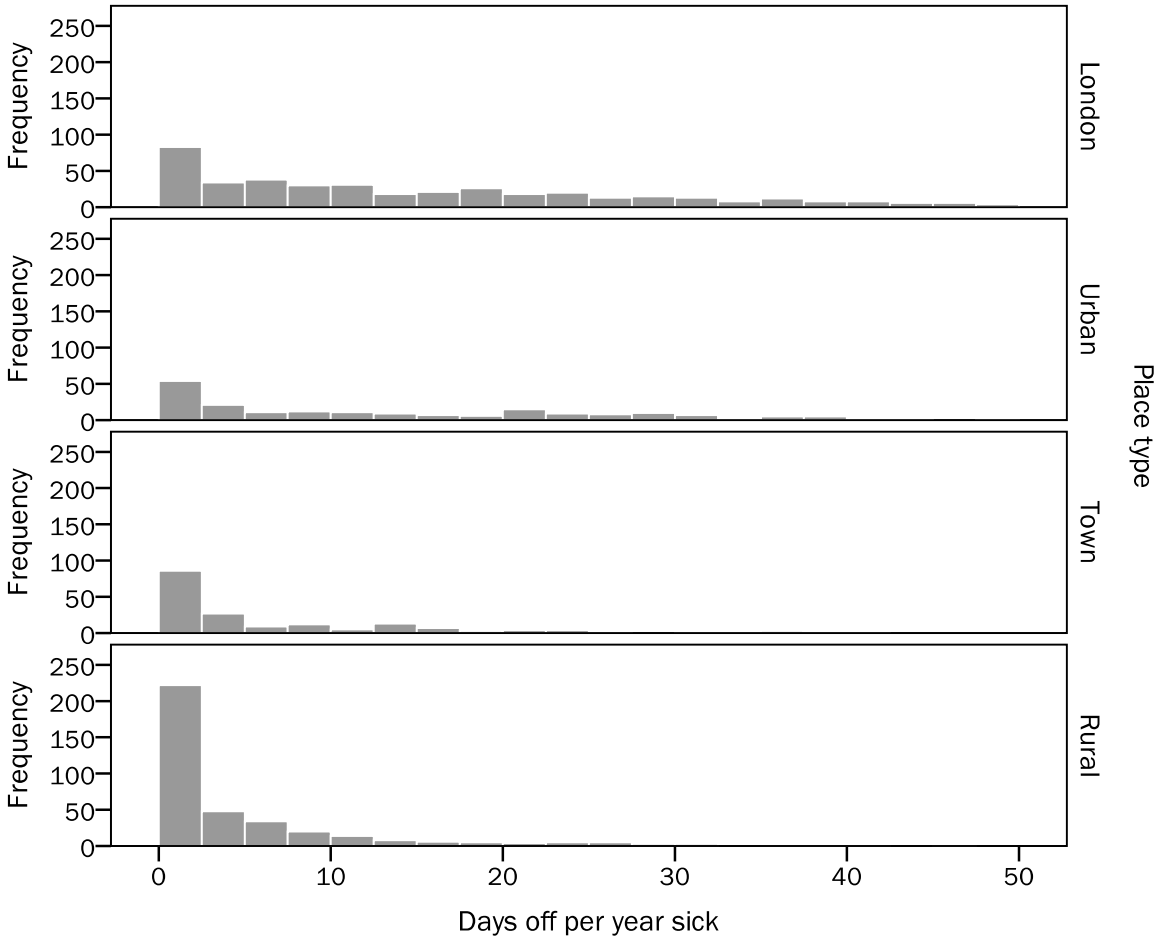

Fig. 1. Frequency of days off per year over previous ten years, by location type. Source: POST 1.

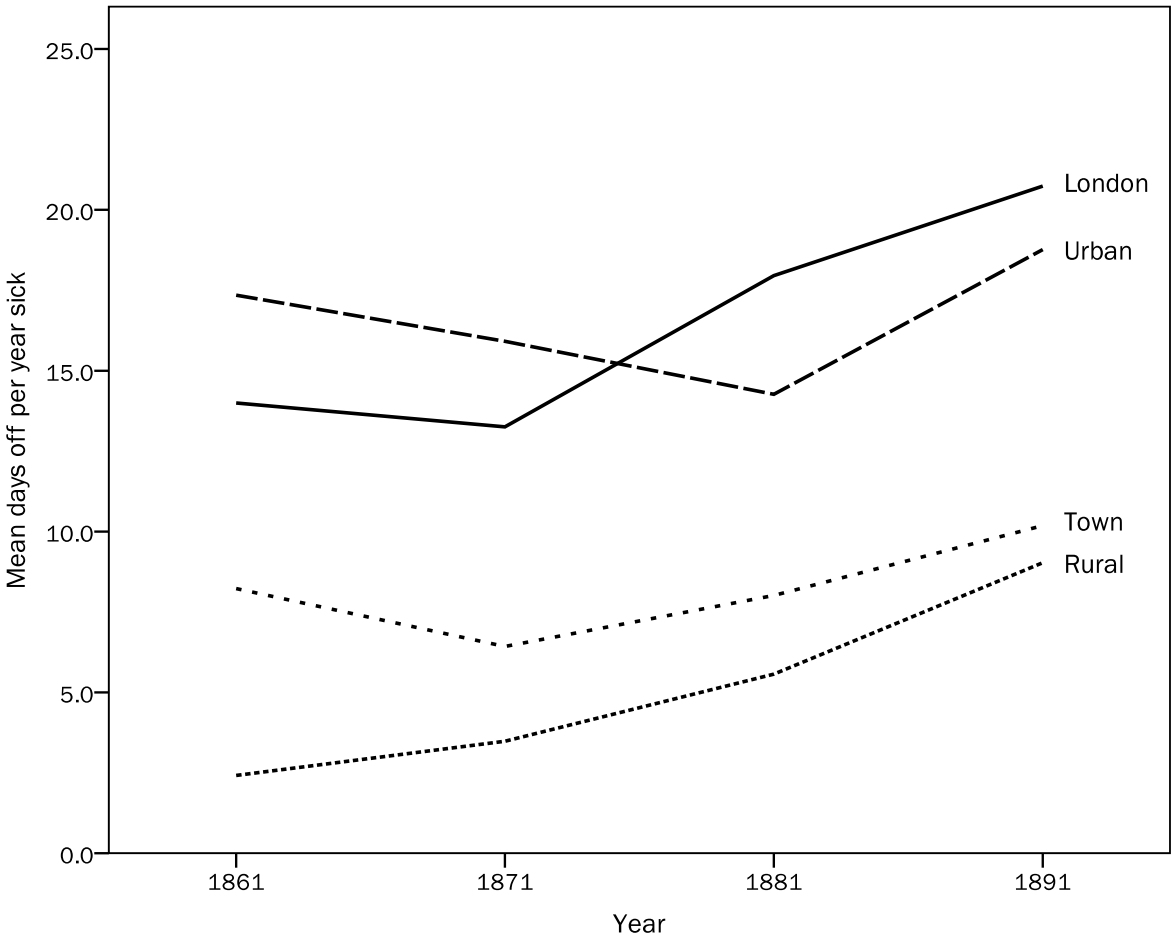

Fig. 2. Mean number of days off per year by location type. Source: POST 1.

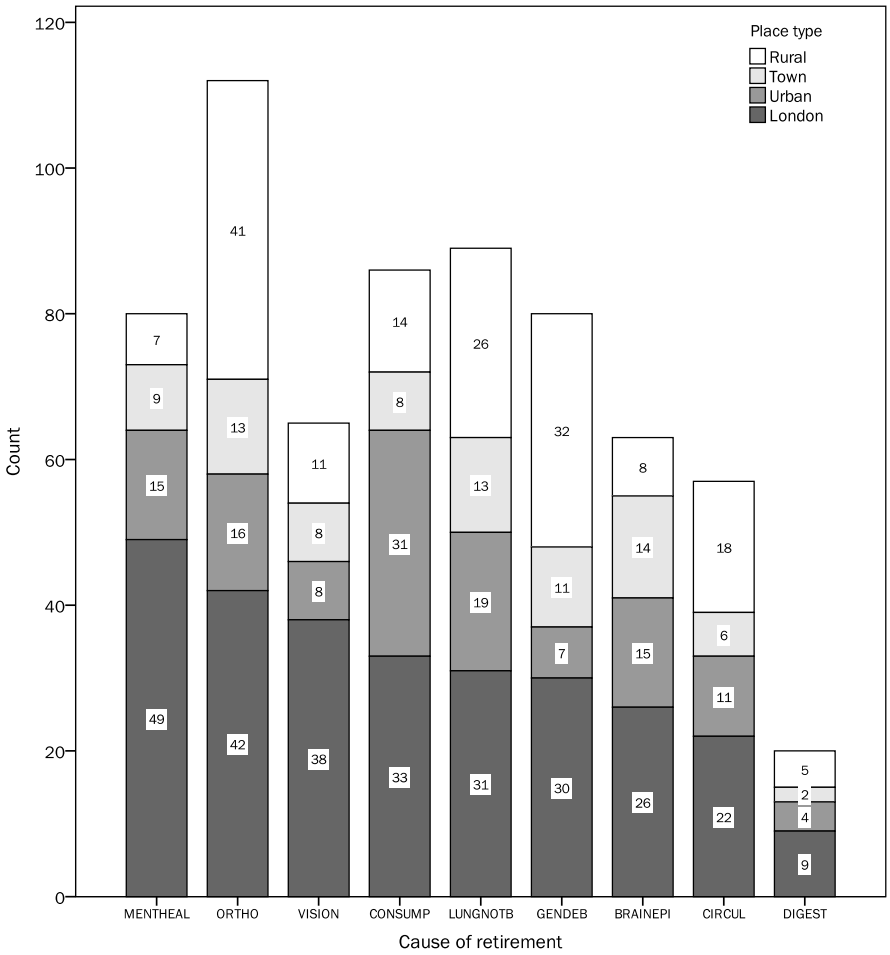

Fig. 3. Proportion of disease categories by location types. Source: POST 1.

	Number in sample	Mean start age	Mean retirement age	Mean service in years	Mean days off per year
London	432	24.4	47.3	22.9	17.7
Urban	210	23.2	46.7	23.5	17.0
Town	186	29.7	56.1	26.4	8.5
Rural	387	35.2	58.4	22.2	5.2
All	1,215	28.8	52.1	23.3	12.2

Table 1. Ages at retirement and mean days off per year over the previous ten years, 1861-1891, by location type. Source: POST 1. Note: Excludes fifteen who either had no place of work recorded or who were recorded as working outside the UK.

		Retired owing to ill health	Reached retirement age	Total
London	Count	297	94	391
	Expected Count	234.7	156.3	391.0
	% within Place type	76.0%	24.0%	100.0%
	Standardised Residual	4.1	-5.0	
Urban	Count	131	72	203
	Expected Count	121.8	81.2	203.0
	% within Place type	64.5%	35.5%	100.0%
	Standardised Residual	0.8	-1.0	
Town	Count	87	97	184
	Expected Count	110.4	73.6	184.0
	% within Place type	47.3%	52.7%	100.0%
	Standardised Residual	-2.2	2.7	
Rural	Count	177	198	375
	Expected Count	225.1	149.9	375.0
	% within Place type	47.2%	52.8%	100.0%
	Standardised Residual	-3.2	3.9	
Total	Count	692	461	1,153
	% within Place type	60.0%	40.0%	100.0%
X^2 (df = 3, N = 1,153) = 81.242, $p < 0.001$.				

Table 2. Cross-tabulation of retirement causes by location types. Source: POST 1. Excludes redundancy, death and unspecified causes and locations.