

## Essay Review

# Sick Cities: Getting the Measure of Urban Public Health

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**Sally Sheard and Helen Power** (eds), *Body and city: histories of urban public health*, Historical Urban Studies, Aldershot, Ashgate, 2000, pp. xvii, 221, £49.50 (hardback 1-84014-675-3).

**Robert Woods**, *The demography of Victorian England and Wales*, Cambridge Studies in Population, Economy and Society in Past Time 35, Cambridge University Press, 2000, pp. xxv, 447, £45.00, \$69.95 (hardback 0-521-78254-6).

The quantification of the achievements of public health in history is certainly alive. But is it well? The arrival of these two volumes provides an opportune moment to assess the contribution made by historical demography to our understanding of the medical historical world. In some ways it is remarkable that a book adorned with the title *The demography of Victorian England and Wales* took so long to appear. Surely the Victorians—obsessive statisticians above almost all else—laid it on a plate for their empirical heirs to devour? The census, annual and decennial records of birth, marriage and death, statistical societies, not to mention the almost limitless opinionated outpourings of epidemiologically-informed doctors and civil servants; all are testimony to the nineteenth-century national zeal for “numbering the people”. In contrast, *Body and city* seems a more than apposite title for

a collection of papers on the history of urban public health invigorated relatively recently by writings on the history of the body.<sup>1</sup> This essay review evaluates these two books under three broad themes: the interaction and dynamic relationship of mortality with other demographic and non-demographic variables; the need to integrate demographic with cultural approaches to the history of health, illness and death; and the role of historical epidemiology for elucidating autonomous declines in the virulence and fatality of certain diseases.

Four chapters in *The demography of England and Wales*—the first and last two—outline and review demographic transition theories, systems and regimes as they apply to population change in nineteenth-century England and Wales.<sup>2</sup> The purpose is to make explicit the connections, balances and checks that existed between

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<sup>1</sup> Roy Porter, ‘History of the body reconsidered’, in Peter Burke (ed.), *New perspectives on historical writing*, 2nd ed., Cambridge, Polity Press, 2001.

<sup>2</sup> On the development of demographic transition theory, see Simon Szreter, ‘The idea of demographic transition and the study of fertility change: a critical intellectual history’, *Popul. Dev. Rev.*, 1993, 19: 659–701.

key demographic components—mortality, fertility, nuptiality, migration and population size. Based upon a range of comparative examples drawn from historical and contemporary societies, Woods' broad conclusion is that such explanatory models have limited value in an assessment of the demographic experience of England and Wales, where mortality—and particularly early childhood mortality—declined in the absence of effective medical therapies, and fertility was limited, if not controlled, in the absence of effective contraception.

Approximately one half of the book investigates patterns of mortality in relation to occupations and social groups, infants and children, specific diseases, and urbanization. Medical historians will find these sections of greatest interest, but it must be said that a considerable weakness is the decision not to deal with migration in a systematic way (although its influence on the spatial patterning of marriage and on urbanization is acknowledged). This is a surprising omission given that the author belongs to a geographic tradition that has served to make the study of migration very much a key component of the demographer's art.

Returning to mortality, elucidating the nature of the relationship between infant and child mortality on the one hand and fertility on the other has been a central strand of research by historical demographers in recent years. In particular, attention has focused on the apparent dichotomy that aggregate levels of fertility declined well in advance of infant mortality. Dichotomous because classic demographic

transition theory postulates that lower mortality levels—not least infant mortality—increases survival rates, thus acting as a stimulant to fertility control.<sup>3</sup> Given that the broad chronologies of decline for infant (under one year) and early childhood (1–4 years) mortality indicate that the latter was perhaps more closely related to family limitation than the former, it is disappointing that infant mortality receives the lion's share of attention in both *The demography of England and Wales* and the demographically-oriented chapters of *Body and city*.

According to Woods, pretty much everything was an important determinant of infant mortality and its decline: fertility, female education, sanitation and the infant welfare movement are all implicated (pp. 305–6).<sup>4</sup> The degree to which each of these was implicated is difficult to say with confidence, due both to the limitations of statistical modelling and to the lack of measurable independent variables. Incorporating information on infant mortality by cause and social class, Woods' work alters little the main conclusions to his now well-known papers on the decline of infant mortality in England and Wales, co-authored with Patti Watterson and John Woodward in 1989–90.<sup>5</sup> Here, it may prove useful to focus on two epistemological aspects of these papers. First, and to the palpable distaste of at least one commentator,<sup>6</sup> they helped stimulate statistically-driven research into the determinants of infant mortality change, an area that at the time was relatively neglected by comparison with social,

<sup>3</sup> See R Reves, 'Declining fertility in England and Wales as a major cause of the twentieth century decline in mortality: the role of changing family size and age structure in infectious disease mortality in infancy', *Am. J. Epidemiol.*, 1985, 122: 112–26.

<sup>4</sup> In this spirit of inclusivity, it is fabulously ironic that the diagram on page 12 showing the full demographic system should have an arrow indicating the "erogenous" influences (as opposed to the "exogenous" influences) on mortality!

<sup>5</sup> R I Woods, P A Watterson and J Woodward, 'The causes of rapid infant mortality decline in England and Wales, 1861–1921. Parts I and II', *Popul. Stud.*, 1988, 42: 343–66, and 1989, 43: 113–32.

<sup>6</sup> Roger Cooter, 'Introduction', in Roger Cooter (ed.), *In the name of the child: health and welfare, 1880–1940*, London, Routledge, 1992, pp. 1–18.

feminist and social constructionist historical studies.<sup>7</sup> The second epistemological point about the Woods, Watterson and Woodward papers is that they problematized infant mortality and its decline, at least to the minds of historical demographers. By careful interrogation of epidemiological statistics and a re-examination of the writings of influential contemporaries such as Arthur Newsholme, it became strikingly clear that no one dominating factor could be isolated to account for patterns and trends of infant mortality rates. Two chapters in *Body and city* deal with the German demographic experience of infant mortality in the late nineteenth and early twentieth centuries and illustrate these points to perfection. That by John C Brown explores the relationship between economics and infant mortality in German towns and cities by assessing the potential impact of a range of independent variables on the deaths of legitimate and illegitimate babies as well as infant mortality from diarrhoeal diseases and all other causes of death. Vögele, Woelk and Fehlemann also provide epidemiological background to the decline of mortality in urban areas of Germany. Emphasizing the point that gastro-intestinal diseases made a telling contribution to overall mortality reduction, and that these ailments were a major cause of death for infants, they go on

to assess the importance of infant welfare work in Düsseldorf. Taken together, these chapters suggest a muted contribution made by the infant welfare movement—maternal education, free medical assistance, municipal milk supply and so on—to the decline in infant mortality. As such, they complement studies that have come to similar conclusions for England and Wales and act as a counterbalance to the idea that infant welfare reform single-handedly brought about improved health conditions for babies.<sup>8</sup>

According to Brown, poverty and sanitary provision and practices were equally significant influences in urban Germany. For England, stubbornly high levels of urban infant mortality in the middle part of the nineteenth century do not sit happily with what is known about the chronology of investment in urban sanitary infrastructure in this period.<sup>9</sup> Indeed, commentators have cast doubt on the positive impact of public health reform on infant mortality rates, particularly when many families with young children continued to live in conditions of grinding poverty.<sup>10</sup> The apparent crudity of this assertion was exposed by work that has painstakingly recovered from published Local Taxation Returns the levels of infrastructural expenditure in a range of urban centres.<sup>11</sup> In *Body and city*, Millward

<sup>7</sup> See C Dyhouse, 'Working-class mothers and infant mortality in England, 1895–1914', *J. Soc. Hist.*, 1978, 12: 248–67; D Armstrong, 'The invention of infant mortality', *Sociol. Health Illn.*, 1986, 8: 211–32.

<sup>8</sup> M W Beaver, 'Population, infant mortality and milk', *Popul. Stud.*, 1973, 27: 243–54; D Dwork, *War is good for babies and other young children: a history of the infant and child welfare movement in England, 1898–1918*, London, Tavistock, 1987.

<sup>9</sup> S R S Szreter, 'The importance of social intervention in Britain's mortality decline, c. 1850–1914: a reinterpretation of the role of public health', *Soc. Hist. Med.*, 1988, 1 (1): 1–37.

<sup>10</sup> Robert Woods, 'The role of public health initiatives in the nineteenth century mortality decline', in J Caldwell, et al. (eds), *What we know*

*about the health transition*, Canberra, Australian National University, 1990, pp. 10–15; see also D C Ewbank and S Preston, 'Personal health behaviour and the decline in infant and child mortality', pp. 116–49 of the same volume; Graham Mooney, 'Did London pass the "Sanitary Test"? Seasonal infant mortality in London, 1870–1914', *J. Hist. Geog.*, 1994, 20 (2): 158–74.

<sup>11</sup> Robert Millward, 'Urban government, finance and public health in Victorian Britain', in R Morris and R Trainor (eds), *Governance in towns and cities*, Aldershot, Ashgate, 2000, pp. 47–68. Robert Millward and Frances Bell, 'Public health expenditures and mortality in England and Wales 1870–1914', *Continuity and Change*, 1998, 13 (2): 221–49.

and Bell show that local authority spending from the 1870s on functions related to public health—sewers, water supply and streets among them—peaked in the period 1899–1905, precisely the point at which the secular decline in infant mortality commenced. They argue that the accumulation of “established sanitary capacity was a key element in allowing mortality to fall by large amounts in the 1890s and especially in facilitating the precipitous fall in infant mortality in the early 1900s” (p. 164). While it is unfortunate that the full spectrum of public health activities is not captured by Millward and Bell’s data, the pitfalls of making even a “provisional conclusion” such as this on the basis of very weak statistical associations has already been confirmed by one of their own subsequent regression analyses. Examining levels of infant mortality between 1870 and 1905, they have now argued that the most powerful influence working to reduce infant mortality “was the improvement in the health of females in the child-bearing age range” facilitated by rising real incomes and falling fertility. Environmental factors also had an impact, but only “in a small way”.<sup>12</sup>

Concentrating on causes of death as opposed to overall or age-specific mortality, Woods’ formulation of the problem in *The demography of England and Wales* barely clarifies matters. He uses z-scores of epidemiologically-derived variables to categorize 614 English and Welsh districts into sixteen types of disease environment.<sup>13</sup> Armed with a weight of empirical evidence that other critics of the “McKeown thesis” frequently lack, Woods shows that a small number of heavily populated districts—overwhelmingly located in

London, the large cities of north and north-west England and south Wales—were responsible for a substantial proportion of mortality decline in key diseases that can be related to changes in the environment and public health interventions. He argues that “accounts like McKeown’s that stress the importance of improving nutrition within the context of rising average living standards during the nineteenth century must therefore come under renewed attack” (p. 353).

If the vigour of a discipline can be gauged from the extent of disagreement within it, then we have an answer to the question that opened this review: urban historical epidemiology would appear to be in rude health. But it is clear that much work remains to be done in order to reconcile those approaches dealing with cause-specific mortality with those that seek to relate broad changes in mortality to independent sets of variables. Arguably, this reconciliation requires greater aetiological awareness regarding the impact of human interventions on specific causes of illness, not to mention a candid admittance that many of the variables available for measuring change are too blunt to be of serious use. Whatever refinements are made in these directions, one durable problem with statistical analyses of aggregate demographic or epidemiological data is the way in which they tend to provide structural explanations that marginalize the actions and choices of individuals. Each of the three *Body and city* contributions discussed above acknowledges this dilemma. Millward and Bell speak of how physical environments affect health through the quality of housing, diets and sanitation, each existing “as the outcomes of decisions

<sup>12</sup> Robert Millward and Frances Bell, ‘Infant mortality in Victorian Britain: the mother as medium’, *Econ. Hist. Rev.*, 2001, 54 (4): 699–733. Quotes on p. 727.

<sup>13</sup> The variables are: infant diarrhoea and dysentery (representing “water”); measles in early childhood (“crowding”); respiratory disease

mortality in old age (“air”); phthisis in early adulthood is adopted as an environmentally-neutral indicator. See also Robert Woods and Nicola Shelton, ‘Disease environments in Victorian England and Wales’, *Historical Methods*, 2000, 33 (2): 73–82.

made by individuals and town councils, which involved often painful economic choices" (p. 160). Vögele, Woelk and Fehlemann comment on how some working class mothers in Düsseldorf chose not to attend infant care courses because they considered it "natural behaviour" anyway, or were ashamed because "young girls should not know about these matters" (p. 210). Thus, the main recipients of such education were not the class of women for whom it was intended—and amongst whom levels of infant mortality were the highest. This brings into question the propriety of using merely the existence of infant welfare centres as a variable to be factored into any regression equation, as does Brown. Yet none of these authors goes so far as Brown himself in couching statistical analyses of aggregate data in the language of individual, or household, behaviours. Thus, employment opportunities for, and the wages paid to, women are integrated into what is termed a "model of household choice", in which decision-making processes relating to a whole range of variables for a whole population of individuals can only be inferred.

Cultural historians may well be intrigued that a language of individual human behaviours is used to explore the associations between aggregate rates of infant mortality and reductive indicators of the collective social action. Perhaps the use of such language helps deflect the criticism sometimes levelled at historical demographers for being unable to integrate and explore the cultural influences on the population patterns that they observe.<sup>14</sup> At the other extreme, in an essay on the languages of plague in early modern France, Colin Jones's reading of more than 250 texts relating to plague—such as

treatises, advertisements, decrees, memoirs—leads him to suggest that plague historians have been far too willing "to plunder indiscriminately" plague literatures to establish "what actually happened" (p. 41). Jones contends that a systematic review of these documents warns against such arbitrary selections since the question of authorship is crucial to their interpretation. Although the metaphor of the violated body tends to be common, political, medical and religious writers addressed different audiences, advocated varied responses, proffered assorted remedies and aimed at diverse objectives. In a relatively brief contribution—pursual of these issues is taken up elsewhere<sup>15</sup>—Jones argues that the language of plague, particularly that of confinement, readily found expression in discourses surrounding the "Great Confinement of the Poor".

Metaphors of the violated body appear to have been common to both plague and Great Confinement works. Peregrine Horden, in his exemplary essay on ritual and public health, detects yet another: that of the military metaphor in religious documents. According to Jones's schema, religious writings by ecclesiastics sought Christian appeasement of God through living the "good" life and dying a "good" death. Spiritual salvation could be achieved with prayer and penance: "The ecclesiastic plague text was thus a pedagogic, pastoral, maybe even a propagandising document, a religious tool within an overarching strategy of Christianisation" (pp. 45–6). Propagandizing and military metaphors are likely bedfellows, but Horden's focus is on religion itself, believing its significance in public health and prevention to be greater than perhaps Jones would allow. Using an account of the 543 bubonic plague in

contribution to our knowledge of demographic history in this period.

<sup>15</sup> Colin Jones, 'Plague and its metaphors in early modern France', *Representations*, 1996, 53: 97–127.

<sup>14</sup> For one such example, see Sally Sheard's review of Robert Woods, *The demography of Victorian England and Wales*, in *Reviews in History*, <http://ihr.sas.ac.uk/ihr/reviews/> [19 November 2001]. It should be pointed out that Sheard is very complimentary about Woods'

Europe written by Gregory, Bishop of Tours in the 590s, Horden highlights themes concerning pathogenic terrorization of an enclosed urban space, social disintegration and salvation. He suggests that religious writings hold clues to responses to pestilence that should not be cast to the periphery, but should be an integral part of accounts of “what actually happened”.<sup>16</sup> In religious responses we find forms of collective action—processions around the city, vigils, prayers, singing—that demonstrate “not miraculous power operating in, as it were, a blinding flash but, rather, certain *techniques* for the reconfiguration of urban space” (p. 24; emphasis in the original). What is more, through dietary penitential, the church was actively involved in promoting notions of what was and was not clean, thus seemingly preventing disease as opposed to simply reacting when it erupted.

While the editors of *Body and city* note that the vigour and comprehensiveness of these “techniques” withstands comparison with the Health Boards of the Renaissance,<sup>17</sup> potential parallels with the modern period go unremarked. Yet similar parallels appear in other essays in this volume. On the administrative responses to plague in Copenhagen in 1711, Peter Christensen refers to the institution of a national day of prayer in Denmark. Flurin Condrau and Jakob Tanner recount how the social reformer Verena Conzett reminisced that her mother had advised her that prayer was the best form of prevention in the face of cholera in Zurich in 1867. Paul Laxton, meanwhile, mentions a Reverend Cecil Wray, the owner of five model lodging houses that seem to have been considered

anything but “model” by William Henry Duncan, Liverpool’s Medical Officer in the mid-nineteenth century.<sup>18</sup> I would not wish to push the religious/ritual theme too far in these instances, but there is doubtless further scope for pursuing such points in the light of Horden’s analysis.<sup>19</sup>

Alternatively, it is in these essays, plus those by Gerry Kearns and Marjaana Niemi, that a link between cultural and demographic histories of public health is forged by the authors’ focus on discourses of the “local”: what methods were used to render visible unhealthy neighbourhoods within a city? How were these environmentally-, socially- and economically-deprived places represented, visually and linguistically, statistically and scientifically? What forms of intervention were devised for these places, and did they differ from those taking place in healthier districts? In his article on central-local relations between Liverpool and London, Kearns uses the contested validity and interpretation of “sanitary intelligence”—public health reports, the detection of national epidemics and the monitoring of sanitary progress—from Liverpool to demonstrate how, in a report to the General Board of Health, the health of that city in the early 1850s was unfairly compared with Ely, a market town in Cambridgeshire. Whilst the most simplistic but damaging comparison of Liverpool with a rural district was avoided—Condrau and Tanner point out that such binary subdivisions were crucial to the scientific language of urban space—parallels were being drawn between two towns of entirely different character and Dr Duncan was quick to point out that a match with

<sup>16</sup> See also Sandra Cavallo, *Charity and power in early modern Italy: benefactors and their motives in Turin, 1541–1789*, Cambridge University Press, 1995.

<sup>17</sup> Carlo M Cipolla, *Miasmas and disease: public health and the environment in the pre-industrial age*, New Haven and London, Yale University Press, 1992.

<sup>18</sup> Doubtless Peregrine Horden would appreciate the pugilistic title of Laxton’s chapter, ‘Fighting for public health: Dr Duncan and his adversaries, 1847–1863’.

<sup>19</sup> Indeed, I am aware of co-authored work by Paul Laxton and Gerry Kearns that dissects the religious dimension of the responses to the typhus fever outbreak in Liverpool in 1847.

London's east end was far more appropriate. It did not help matters that the healthier Liverpool suburbs had been omitted from the calculation of the city's mortality rate. Later in the century, argues Niemi, the mapping of similarly healthy outlying areas in Birmingham alongside the rundown central districts assisted the direction of public health policies to the latter localities. Whether these policies were environmental (toilet facilities were at their worst in the city centre) or concerned with individual behaviours and attitudes (the first municipal health visitors worked predominantly in unhealthy wards), a boundary line could be drawn around them. This is significant culturally, because the authorities might have chosen as a focus for intervention the family or the individual irrespective of place of residence, as they did in the more socially-mixed Gothenburg. Niemi notes, however, that political and economic regulation of Birmingham was directed by the élite from the suburbs, so the idea of the "unhealthy district" simplified and spatialized urban health problems for them, and served to reinforce social and residential divides that already existed.

From these essays it emerges that the ruling classes' health-based fear of their spatially-segregated and "dangerous" counterparts ran alongside that of economic insecurity. Epidemic outbreaks might spell economic ruin for inland Birmingham or Zurich as well as stifling the lifeblood of trade from port cities such as Copenhagen, Liverpool and Gothenburg. This is a recurrent theme in urban public health history and one that deserves closer

attention from a local perspective.<sup>20</sup> In particular, exploration might focus on whether or not such economic, class and scientific based interpretations of urban health coalesced only in times of epidemic crises, as Condrau and Tanner argue in the case of cholera in Zurich.<sup>21</sup>

Estimates from the early twentieth century indicate that as much as 90 per cent of the British population was infected with tuberculosis, although the disease became active in only one per cent.<sup>22</sup> In the later nineteenth century, these startling levels of latent endemicity were betrayed by consistently high, though falling, mortality rates and individual suffering that was prolonged and painful. None the less, one common feature of discourses of cholera in the mid-nineteenth century and tuberculosis in the twentieth is the way in which scientific language and reasoning came to be incorporated into accounts of disease causation. Niemi notes how in Gothenburg, advances in bacteriology intertwined with botanical metaphors. Thus the "soil" and the "seed" metaphor helped medical professionals understand the relationship between housing and domestic living conditions (the soil) and bacilliary infection (the seed). Michael Worboys has demonstrated recently how this metaphor was dominant in British germ theories of disease.<sup>23</sup> Yet local councillors in Gothenburg failed to activate a programme of housing improvement, and hospitalization became the institutional method of tuberculosis control. In Birmingham the emphasis was put on educating the individual in health-preserving habits of temperance, diet, social contacts

<sup>20</sup> Peter Baldwin, *Contagion and the state in Europe, 1830–1930*, Cambridge University Press, 1999.

<sup>21</sup> For an American perspective on some of these issues, see the excellent Evelyn Maxine Hammonds, *Childhood's deadly scourge: the campaign to control diphtheria in New York City, 1880–1930*, Baltimore and London, Johns Hopkins University Press, 1999.

<sup>22</sup> Sheridan Delepine, *Astor Committee Final Report*, 2 (1913), p. 27, cited in Linda Bryder, *Below the magic mountain: a social history of tuberculosis in twentieth century Britain*, Oxford, Clarendon Press, 1988, p. 4.

<sup>23</sup> Michael Worboys, *Spreading germs: disease theories and medical practice in Britain, 1865–1900*, Cambridge University Press, 2000.

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and salubrious environments. This returns us to measuring the impact of health interventions. Analysing respiratory tuberculosis mortality across localities, Woods argues that autonomous change in the virulence of the disease organism is a possibility because respiratory tuberculosis mortality rates declined irrespective of place (pp. 332–40). In reviving an early-twentieth-

century hypothesis,<sup>24</sup> Woods argues that the diminution of the disease cannot have been simply due to some combination or other of improved living standards, better nutritional levels and human interventions that produced healthier domestic and work environments. Differences remained because of the variability of these factors at, yes, the *local* level.

<sup>24</sup> John Brownlee, *An investigation into the epidemiology of phthisis in Great Britain and Ireland, Parts I, II and III*, Medical Research Council, Special Reports Nos. 18 and 46, London, HMSO, 1918 and 1922. For more recent comment on the issue of the autonomous decline of disease, see Bill Luckin's review of Anne Hardy, *The epidemic streets: infectious disease and the rise of preventive medicine, 1856–1900* (Oxford, Clarendon Press, 1993), that appeared in *Soc. Hist.*, 1994, 19 (3): 407–14.