Science in the Industrial Revolution series

Making sense of modernity's maladies: health and disease in the Industrial Revolution

Michael Brown

School of History, University of Kent, Canterbury, Kent, UK CT2 7NX

The industrialization and urbanization of Britain during the 19th century gave the medical profession something to think about. In particular, were the radical changes taking place in society responsible for the sudden rise in endemic and epidemic disease? This article (part of the *Science in the Industrial Revolution* series) examines the reactions of two key figures in the history of British public health, James Philips Kay and Thomas South-wood Smith, to this question. Their outlooks typify the tendency of Victorian medical practitioners to construct economies of health that saw disease as a consequence of the violation of natural laws and cycles rather than as a product of industrial modernity.

A healthy economy?

In 1844 the British physician and public health pioneer, Thomas Southwood Smith, testified to the Royal Commission on the state of civic health in large towns and populous districts. Along with chemists, surveyors, engineers and other 'experts' whose emergence was so characteristic of Victorian modernity, Smith was asked for his opinion on the importance of environmental and sanitary factors in the health of the working population. As physician to several medical charities and a committed social investigator, he had considerable experience of the living conditions of the London poor, especially those of Whitechapel and Bethnal Green. In graphic detail, Smith endeavoured to communicate the dire state of the places he had visited (Figure 1).

> [One has] only to visit the Zoological Gardens, and to observe the state of society in that large room which is appointed to every class of animals, where every want is relieved, and every appetite and passion gratified in full view of the whole community. In the filthy and crowded streets in our large towns and cities you see human faces retrograding, sinking down to the level of these brute tribes, and you will find manners appropriate to the degradation. Can any one wonder that there is among these classes of the people so little intelligence, so slight an approach to humanity, so total an absence of domestic affection, and of moral and religious feeling [1]?

Corresponding author: Brown, M. (M.F.Brown@kent.ac.uk).
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Such comments, with their uncomfortably dehumanizing implications and imperialistic, ethnographic subtext, were representative of much early Victorian opinion concerning the so-called 'Condition of England'. The unequalled force of technological, industrial and economic modernity had left many commentators dizzy and unsteady. Just as they feared that their own nerves might be overwhelmed by such modern experiences as railway travel, apparent certainties about the poor, labour, charity and virtue were also left tattered and frayed by the pace of change [2].

In some cases the boundaries between humans and mechanical processes became blurred [3], and in others the repetitive nature of these processes tended towards the disaggregation of individuals. In a term made famous by Charles Dickens' *Hard Times*, people were abstracted into 'Hands'. In the case of Smith's testimony, the moral intemperance of the poor and the filthiness of their surroundings made it impossible to conceive of them in any other way than as animals. This was no mere rhetorical device. For Smith, as for many of his contemporaries, when the poor, depressed by the conditions associated with industrial modernity, sunk to the level of animals they did so in a literal, even physiognomic, sense.

Of all the confusions produced by the impact of industrialization, perhaps the greatest, and certainly that which fed most powerfully into the 'Condition of England' debate, was the perceived disparity, in terms of health, morals and material means, between the rich and the poor – and particularly between the manufacturing classes and the recently enfranchised middle class. How could it be, contemporaries asked, that in this age of unparalleled economic and technological progress there could be so many people living in such atrocious conditions and suffering from so much illness? For Victorians, most of whom were supremely confident of Britain's place at the centre of human civilization, such questions were deeply troubling. Could it be that the apparent 'progress' that resulted from their society was somehow pernicious, even inherently pathological?

The politics of progress

Some critics suggested just this. In works such as *Sign of the Times* (1829) and *Past and Present* (1843), Thomas
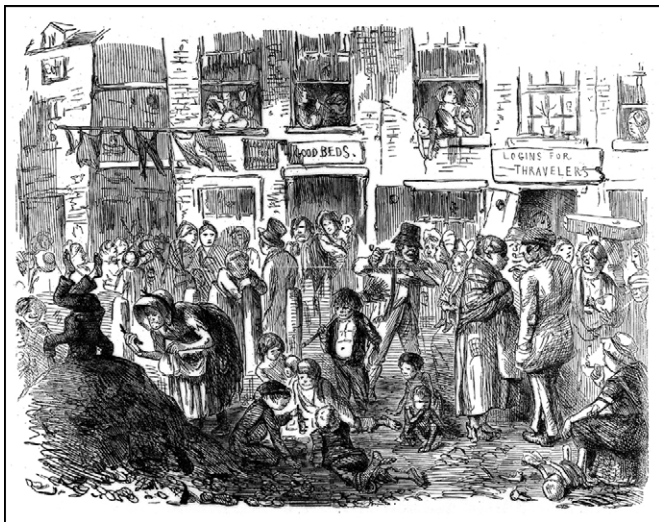
Figure 1. A court for King Cholera. The dire state of civic health in large towns and populous districts, particularly in the poorer areas. Reproduced with permission of Manchester Archives and Local Studies.

Carlyle – the Scottish satirist and historian – railed against the dehumanizing impact of mechanization and argued that industrial capitalism was itself a sickness that enfeebled the social body [4]. Others such as Friedrich Engels, and later John Ruskin and William Morris, also contended that the iniquities of capitalism were inherent in the system.

For the most part, however, Victorian commentators were loath to see the problems with industrialization as innate. To reconcile progress with its apparent effects, this period saw the construction of elaborate theoretical systems, such as the political frameworks of Adam Smith and David Ricardo, and the Christian ideology of the Scottish divine and moral philosopher Thomas Chalmers. These social, political and natural economies presented the picture of a perfect world, but also attempted to explain the evident deviation from this as the result of an imperfect attention to natural laws. Although different systems might have prioritized different values, most had a tendency to naturalize commerce, trade and industrialization, and render their more unhappy consequences as avoidable and exceptional [5].

Nowhere was this systematic impulse more evident than with medicine and public health. Traditionally, historians have tended to see the public health movement of the mid-19th century, which culminated in the passage of the Public Health Act in 1848, as a 'natural' response to the self-evident problems of poor health and inadequate sanitation amongst the labouring population. Certainly, with hindsight, the problems appear to have been glaring. Life expectancy amongst the manufacturing classes was low and infant mortality exceptionally high. In 1838–1839 consumption killed more than 60 000 people in England and Wales. Meanwhile, fevers such as typhus and typhoid were virtually endemic in the more deprived areas of industrial towns and cities. However, as Christopher Hamlin has demonstrated, public health, at least in its state-sanctioned form, had less to do with medicine than it did with poverty [6]. After all, the chief architect of the Public Health Act – Edwin Chadwick – was not a medical man,

but a lawyer and 'freelance civil servant' [7]. Moreover, his interest in the subject derived directly from his office as secretary to the Poor Law Commission. As a utilitarian and political economist, Chadwick was keen to eliminate the economic 'waste' of poverty. His radical restructuring of the Poor Law in 1834 having manifestly failed to accomplish this end, Chadwick came, in the latter years of the decade, to identify disease and ill health as the principal cause (not consequence) of poverty. By eliminating disease, one could, he suggested, effectively eliminate indigence.

Even for observers with a more explicitly medical outlook, the issue of public-health was still deeply embedded in wider cultural concerns. Before 1832 most discussions of contagious or epidemic disease had drawn on the historical experience of the plague or had been concerned with the colonial experience of diseases such as yellow fever. However, with the arrival of cholera several medical practitioners began to investigate the relationship between poverty and disease in a British context. The fact that cholera, like most fevers, was a disease of the working classes seemed obvious. It also seemed to be associated with industrialization, filth and moral and physical intemperance. The exact relationship between these different factors depended on how one sought to make sense of modernity. Efforts to do so tended to see disease and poverty not as the inevitable product of an iniquitous system of manufacture, but as an avoidable consequence of the violation of natural laws or cycles.

Manchester divided
James Philips Kay (later Kay-Shuttleworth) was born at Rochdale in 1804. At the age of 20, after a short spell working in a local bank, he enrolled as a medical student at the University of Edinburgh. Returning to Lancashire in 1827, he established a medical practice in Manchester and in 1829 was elected physician to the Ancoats and Ardwick Dispensary. With the arrival of cholera at Sunderland in October 1831 the Privy Council issued orders for the establishment of local Boards of Health to oversee preventative measures and to combat the disease once it had arrived. Kay was elected secretary to the one such board in Manchester, a position that introduced him to the poorest areas of this teeming and increasingly unwieldy metropolis.

His experiences during the cholera epidemic encouraged Kay to take an interest in the associations between poverty and disease, an interest that was to result in the 1832 publication of his famous *The Moral and Physical Condition of the Working Classes…in Manchester* [8]. As he stated: 'Thus occupied in tracing the means by which the contagious principle of cholera is disseminated, I have felt surprise at the singular frequency with which I have been led to the most loathsome haunts of poverty and vice' [9]. But what exactly was the nature of this association? Given that almost all of those living in these areas were employed or sought employment in the cotton industry, one might expect that he would have something to say about the nature of the manufacturing process itself. After all, the Leeds surgeon Charles Turner Thackrah, who published an expanded version of his study *Effects of Arts, Trades, and Professions on Health and Longevity* in the same year
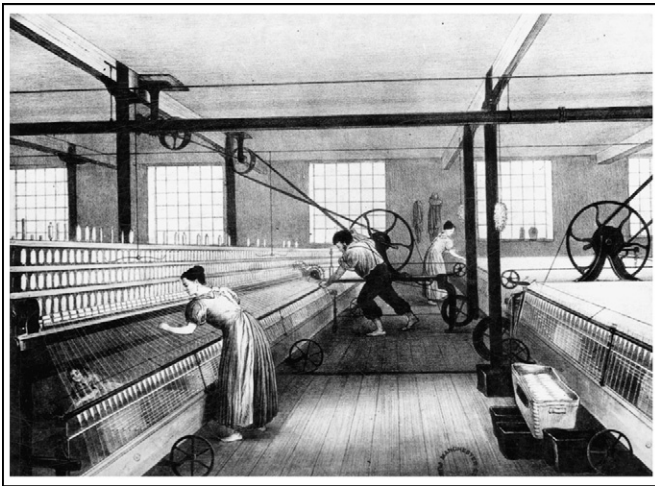
Figure 2. The monotonous and dispiriting nature of industrial labour had deleterious effects on the bodies of the poor. Reproduced with permission of the Wellcome Library, London.

as Kay published his treatise, was one of a growing number of contemporaries voicing concern about the effects of industrial labour on the bodies of the poor. Certainly, Kay was aware of the monotonous and dispiriting nature of such processes (Figure 2):

> Prolonged and exhausting labour. . .is not calculated to develop the intellectual and moral faculties of man. The dull routine of a ceaseless drudgery, in which the same mechanical process is incessantly repeated, resembles the torment of Sisyphus. . .The mind gathers neither stores nor strengths from the constant extension and retraction of the same muscles. The intellect slumbers in supine inertness; but the grosser parts of nature attain a rank development. To condemn man to such severity of toil is, in some measure to cultivate in him the habits of an animal [10].

Like Smith's degeneration of the East-Enders, Kay's commentary transforms Mancunian cotton workers into brute, unthinking animals. Yet for Kay this transformation was less physical than it was moral. Mechanical weaving might have made people dull, ignorant and uncultured, but it did not make them sick. Indeed, apart from this brief passage, Kay is virtually silent on the impact of working practices on the health of industrial workers, and also on how other such potential factors as wages and working hours might have affected their well-being. Kay observed that the power-loom weavers of Manchester were often required to work up to 11 hours a day, but he did not think that a reduction in working hours would, in itself, have any benefit, as the free time thus created would simply be spent 'in sloth and dissipation' [11]. Likewise, although he was aware that their wages were low, they were, in his opinion, 'sufficient to provide them with all the decent comforts of life' [12].

If neither work nor wages were responsible for the high levels of sickness among the working classes, then what was to blame? For Kay the most important factor in predisposing the poor to disease was the condition in which they lived. During the cholera epidemic he had discovered that the areas in which the disease was most prevalent

were invariably those that were filthiest: 'The confined air and noxious exhalations, which abound in such places, depress the health of the people, and on this account contagious disease are most rapidly propagated there' [13].

According to Kay, it was not just the environment that was filthy. The people were 'ill-fed, ill-clothed and uneconomical – at once spendthrifts and destitute' [14]. He felt that the moral intemperance of the poor was part of the explanation for their predicament. 'It is melancholy to perceive,' he wrote, 'how many of the evils suffered by the poor flow from their own ignorance or moral errors' [15]. Such moral shortcomings were evident not only in the state of their houses and streets but also, as Kay observed, in their attachment to intoxicating drink, the absence of domestic affection within their households and their evident sexual profligacy.

Kay was also aware of a deeper malaise. The late 18th and early 19th centuries had seen the influx of large numbers of Irish immigrants to Manchester. For Kay, these men and women were not only responsible for driving down wages and impoverishing native English workers; they were also a 'contagious example of barbarous disregard of forethought and economy' that had infected the native working population [16].

If the Irish risked turning the English working classes into feckless wastrels then it was up to the English middle classes to save them. Kay maintained that the very reason the Irish were able to have such a pernicious influence was the depersonalized 'pseudo-philanthropy' of the poor law, which had eroded the 'invisible chain of sympathy' that had once connected 'the higher and lower ranks of society'. Like Chadwick, Kay believed that the poor law, with its 'indiscriminate bounty', had rendered the poor dependent, destroyed traditional values of thrift, industry and frugality, and perpetuated 'improvidence, idleness and vice'. His solution to this problem, which was inspired by the Christian economics of Chalmers (to whom Kay's pamphlet was dedicated), was to establish a system of middle-class 'pastorship'. This involved gentlemen 'of high moral character' visiting the houses of the poor to teach them the values of self-reliance, to minister to their spiritual needs, to encourage personal and public cleanliness, and to strengthen the 'bonds of domestic sympathy' [17].

In his assertion that the absence of an appropriately paternalistic relationship between the higher and lower social orders was the ultimate cause of both pauperism and disease, Kay naturalized the economic and social relations that underpinned industrial capitalism. 'The evils here unreservedly exposed,' he claimed in the prefatory letter to Chalmers, 'so far from being the necessary consequences of the manufacturing system have a remote and accidental origin, and might, by *judicious management*, be entirely removed' [18]. Dismissing those who believed that 'the labouring classes are condemned for ever, by an inexorable fate, to the unmitigated curse of toil. . .visited by the horrors of hunger and disease,' Kay maintained that the 'natural tendency of unrestricted commerce. . .is to develop the energies of society, to increase the comforts and luxuries of life, and to elevate the physical condition of every member of the social body'. Thus, far from being the

product of industrialization, poverty and disease 'impair[ed] its energies' as 'the population gradually [became] physically less efficient as the producers of wealth' [19]. By promoting the naturally beneficial tendencies of free-trade, re-establishing the moral hierarchy between high and low, and encouraging a morally upstanding and self-reliant working class, Kay envisaged a system of industrial commerce that, despite its emphasis upon competition, low cost and high profits, might be free from poverty, hunger, destitution and illness.

Filth and faith

Like Kay, Smith was interested in the relationship between poverty and disease and in 1838–1839 he joined Kay and another physician, Neil Arnott, to investigate the prevalence of fever in London for Chadwick's Poor Law Commission. Whereas Kay sought to couch this relationship within a social hierarchy, Smith's economy of disease was more cosmological. Smith was a utilitarian, philosophically committed to the principal that the aggregate 'happiness' of man should be the ultimate purpose of government. However, unlike Chadwick, he was no arch political economist concerned only with the abstract qualities of efficiency and productivity. In fact, perhaps the single most important influence on Smith's thinking about disease, poverty and the world in general was his Unitarian faith [20].

Since rejecting his parents' Calvinism as a young man, Smith had aspired to become a Unitarian minister. He travelled to Edinburgh in 1812 as much to act as minister to the local congregation as to study medicine. Furthermore, when he returned to his native county of Somerset in 1816 he did so as both physician and minister [21]. While in Yeovil, Smith published his first major work: *Illustrations of Divine Government* (1816). This pamphlet outlined his understanding of the Unitarian doctrine of universal restoration, which maintained, in contrast to the capricious deity of Calvinism, that God was utterly and unconditionally benevolent and that the natural state for all living creatures was one of purity and happiness.

And yet when Smith entered the denizens of Bethnal Green and Whitechapel he saw anything but happiness. What he did see was filth. Filth was, for Smith, the single most important cause of disease and even of poverty itself:

> It appears that the streets, courts, alleys and houses in which fever first breaks out, and in which it becomes most prevalent and fatal, are invariably those in the immediate neighbourhood of uncovered sewers, stagnant ditches and ponds, gutters always full of putrefying matter, nightmen's yards, and privies the soil of which lies openly exposed, and is seldom or never removed [22].

Like Kay, Smith also believed that those who lived in such areas were often morally intemperate, dependent upon charity and lacking in domestic affection. However, unlike Kay, Smith saw poor morals as a product of filth. '[I]t tends to destroy everything approaching to, I will not say refinement, but the common decencies of human creatures' [23].

But if this was the case then how could God allow the poor to be destroyed by their own waste? How could it be

that something so seemingly 'natural' as excretion was inherently pathological? Smith's belief in the doctrine of universal restoration provided him with an answer. As God was infinitely loving and benevolent, he would 'suffer no event to happen which can prevent or impair the happiness he determines to bestow'. The idea that filth and disease were somehow divinely ordained was thus an anathema, for '[n]o one can believe that the Deity has chosen evil for its own sake…were he to cause the least degree of suffering, merely for the sake of producing pain, it would be utterly incompatible with benevolence'.

For Smith then, disease should not be understood for the suffering it caused as much as for what it compelled. It was a form of divine punishment; not base revenge, but a gentle chastisement: 'Punishment is the infliction of pain, in consequence of the neglect or violation of duty WITH A VIEW TO CORRECT THE EVIL' [24]. It was, in other words, God's way of drawing man's attention to sin and obliging him to change his ways. In the case of epidemic disease, the sin requiring redress was filth itself. Smith's rationale for this was that because human faeces and other such refuse were allowed to accumulate in the streets as 'waste', they thus were denied their inherent 'value' within a divinely ordained cycle of production and consumption [25]:

> [T]he very refuse of the materials which have served as food and clothing to the inhabitants of the crowded city and which, if allowed to accumulate there, invariably and inevitably taint the air, and render it pestilential – promptly removed and spread out on the surface of the surrounding country, not only give it healthfulness, but clothe it with verdure and endue it with inexhaustible fertility. These are the great laws of nature which are now well known to us; a due conformity with which would bring us health, plenty, and happiness, but which we cannot disregard any more than we can disregard any other physical law without suffering, and perhaps destruction [26].

If man heeded God's punishment, if filth was removed from the streets and returned to the countryside, and if the natural order was restored, one could rid society of disease and even, perhaps, of poverty itself.

Manufacturing consent

Despite the apparent differences between Kay's middle-class pastorship and Smith's salvation through sewerage, both men's models share one key similarity. With his emphasis upon filth, Smith's explanation for the prevalence of disease among the working classes marginalized a range of potential factors that would have implicated the system of industrial manufacture in the production of poverty and disease. Like Kay, Smith had comparatively little time for issues such as clothing, diet or working practices. Moreover, like Kay he did not think low wages or economic depravation contributed to the incidence of fever [27]. Although he admitted that the 'masses have not yet obtained their due share of the wealth they create', he retained an implicit faith in the value of commerce, trade and manufacture, claiming that 'the evidence is indubitable that the entire body of society, from its base to its apex,

stands on an elevated table-land which many centuries have been employed in raising and consolidating'. The plight of the poor was thus not a product of the present but a relic of the past. 'We still have epidemics,' he claimed '[b]ecause in all our towns there are large portions of the people who live in a state essentially the same as that which existed in the middle ages. The conditions are similar; the results are similar' [28].

Conclusion

The writings of both Kay and Smith represent a body of thinking in Victorian Britain about the relationship between industrialization, poverty and disease. They testify to the social and conceptual dislocation that accompanied the onset of industrial modernity, and demonstrate the tendency of many Victorian social thinkers to ignore the possibility that poverty and/or disease were in any way implicit parts in the system of industrial capitalism. This helps to explain why the first public-health legislation in Britain was not for better wages, better working conditions or social welfare, but for sewerage.

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