

## "PESTILENCE MEASURED AND REGISTERED": VICTORIAN SANITARY REFORM AND THE MORAL ORDERING OF URBAN SPACE

David Storer

**I**n mid-nineteenth century Britain, sanitary reform was an issue of major significance. Reports that linked the period's epidemics of cholera and typhus to squalid urban conditions generated a heightened awareness and interest in the matter amongst the middle classes, and the best means of achieving sanitary reforms was the subject of considerable debate. Broadly speaking, this debate took place between two groups of reformers who subscribed to markedly different conceptions of disease causation. On the one hand there were the pietist sanitary reformers who adhered to a miasma theory of infectious disease. On the other hand there were those reformers who held a belief in a more directly physical causation of disease, and who postulated the contagious transmission of matter to be the source of epidemic and endemic disease. While it would be wrong to see the approaches of the two groups as wholly antithetical—there were in fact many similarities in their assumptions, methodology, and solutions—there existed between them substantial areas of dispute.

While there was a basic agreement on the need to service the metropolis with adequate drainage and clean drinking water, the pietist and contagionist reformers differed significantly in the way they addressed the unsanitary conditions prevalent amongst the urban poor. This disagreement was informed by their opposing views on disease causation and reflected their differing moral conceptions of social order. The pietists' rhetoric stressed the presence of filth and offensive odours and focussed on the indecency these unsanitary conditions were held to produce. On the basis of the *Sanitary Report* of Edwin Chadwick in 1842, representative of the pietist reformer's approach, it can be seen that this emphasis led to proposals that deflected attention away from the physical conditions inside the poor's dwellings. Instead, the pietists proposed solutions that preserved the spatial division of classes, maintaining the poor in crowded conditions removed from the wealthy middle-class areas of the metropolis, effectively occluding their economic plight and physical suffering. In contrast, the contagionist medical practitioners stressed the need to provide the poor with the basic necessities of life, not only sanitary conditions, but adequately sized dwellings, essential food and clothing, and a minimum wage. Their use of statistics directed the attention of the middle-class public to the conditions inside the dwellings of the poor and emphasised the moral necessity of meeting the poor's physical requirements. Selected writings of William Farr, the foremost medical statistician of the period, and of the Medical Officers of Health whom he influenced, demonstrate this contrary position.

The cholera epidemics of 1831-33 led to a sudden awareness by the middle class of the unsanitary conditions of the poor. When Doctors Kay, Arnott, and Southwood Smith submitted their reports to the Poor Law Commission in 1838, which "emphatically fixed the blame for the spread of disease on squalid urban conditions"

(Flinn, *Medical and Legal* 16), the need for an extensive sanitary investigation was established. Edwin Chadwick's *Report on the Sanitary Condition of the Labouring Population of Gt. Britain* was a major response to that need. The word sanitary was, at the time, of recent origin. Derived from the Latin word for health, it implied an ideal order to be achieved, and conveyed a sense of the moral nature of that order. Chadwick's *Sanitary Report* was as much an opening salvo in a moral crusade as it was a study of waste and the best means of its disposal.

Chadwick arrived at the conclusion that effective sanitation could be achieved by servicing towns and cities with adequate sewers which would remove waste from individual dwellings. A constant supply of water for drinking and ablutions would facilitate the removal of this waste. The body of work on sanitation in the early part of the nineteenth century had focussed largely upon the interior conditions of dwellings of the poorer class of people and had repeatedly drawn the link between poverty and disease (Flinn, *Sanitary Report* 8). Chadwick's solution was to focus instead upon the exterior, on the structural works needed to cleanse the city. For him and his fellow miasmatists, a clean body was a healthy body, its superficial appearance signifying an inner physical and moral well being.

In the *Sanitary Report* Chadwick advances a picture of widespread destitution and disease throughout England and Scotland. The conditions of the poor are said to be "so shocking that, without ocular proof, one would be disposed to doubt the possibility of the facts."<sup>25</sup> A report on local housing in Macclesfield is representative:

In a part of town called the Orchard, Watercoates, there are 34 houses without back doors, or other complete means of ventilation. . . . To these houses are three privvies uncovered; here little pools of water, with all kinds of offal, dead animal and vegetable matter are heaped together, a most foul and offensive smell; the fumes . . . [produce] different types of fever and disorder of the stomach and bowels. The people inhabiting these abodes are pale and unhealthy, and in one house are pale, bloated, and rickety. (91)

In accordance with Chadwick's miasmatist principles the report focuses on the filthy appearance of the slum—the sights and smells of uncovered privvies, pools of offal, and decaying matter—and identifies the corresponding "fever and disorder" within the houses of the poor. These unsanitary conditions are shown to have a vitiating effect upon the poor, whose bodies are "pale, bloated, and rickety."

By the conclusion of his report, however, Chadwick's attention to the suffering of the poor has been diverted, and his steady and purposeful argument leads him to write:

I would submit that it is shown by the evidence collected in the present inquiry, that the great preventives [are] drainage, street and house cleansing by means of supplies of water and improved

---

<sup>25</sup> Chadwick (98). Hereafter, references to Chadwick's *Sanitary Report* will be cited in the text by page number.

sewerage, and especially the introduction of cheaper and more efficient modes of removing all noxious refuse from the towns. (396)

These preventives, he goes on to add, "are operations for which aid must be sought from the science of the civil engineer" (396). The solution to the country's sanitation problems is fundamentally a structural one, the emphasis is on correctives exterior to the confines of lower-class housing. A clean city is a healthy city; drains and water mains have seemingly flushed away the poverty, destitution, and the "pale, bloated, and rickety" bodies inside the slums.

An examination of the section of the *Sanitary Report* entitled "Internal Economy and Domestic Habits" reveals the moral assumptions which underlie this shift in focus from the interior to the exterior. Here, Chadwick discusses the causes of disease and filth in the dwellings of the poorer class. He writes that medical attention has been drawn to "deficiency or bad quality of food, or to any cause but the true one,—want of ventilation" (187). Chadwick notes an instance of a school for the poor where, due to imperfect ventilation, "700 children were by illness awakening extensive sympathy," whereas following suitable changes "1100 now enjoy excellent health" (187). Overcrowding is thus redefined as inadequate ventilation. The size of dwellings and the numbers crowded into them is relatively unimportant, the circulation of fresh air and the removal of offensive odours is Chadwick's chief concern.

This elision of the cramped suffering of the poor, however, is but a first step. He next proceeds to erase poverty itself. He writes: "When considering the pecuniary means of defraying the expense of sanitary measures, it will be shown how much less of such consequences in most districts than may be supposed is ascribable to absolute poverty or real inability to pay for better accommodation" (194). Poverty, Chadwick argues, is the result of a "demoralization" brought about by the "inferior construction" of the housing of the poor whose habits soon become "'of a piece' with the dwelling" (194). The solution, as he sees it, is to enforce the building of suitable dwellings. Citing the sole testimony of a landlord Mr J. Clitheroe, who lists his tenants' income and rental costs and describes their profligate ways, Chadwick dismisses the notion that the poor will be unable to pay the extra cost of better housing. Money spent on alcohol and entertainments can be used instead for new accommodation. By removing "what may be termed the physical barriers to improvement," Chadwick contends that the poor's moral condition will improve and thus in turn their sanitary conditions (199). Both poverty and unsanitary conditions, he implies, are the result of immorality. Sanitary reforms must thus address what is injurious to morality.

The barrier to morality that Chadwick specifically identifies are the single room dwellings of the poor. In his investigation of the internal conditions of the poor's housing, Chadwick begins by briefly acknowledging the assessment by reporting medical officers that overcrowding is a source of disease. He is far more interested, however, in overcrowding's moral impact, that "overcrowding is also frequently noticed as a cause of extreme demoralization and recklessness" (190). He devotes the next seven pages to accounts of various kinds of depravity and moral degradation. Examples abound of young unmarried women forced to sleep in the same room, or worse to share the same bed, with grown men. The poor are described undressing in common view for want of another room in which to retire, and it is asserted by a Mr Barnett that "girls and

youths destitute of adequate house-room, and freed from parental control, are accustomed to gross immoralities" (193). The physical suffering of the crowded "pale, bloated, and rickety" bodies of the poor is effaced, to reappear as moral dissipation. The solution for Chadwick is not to address poverty or overcrowding, but rather to address the indecency which overcrowding is believed to cause, and the demoralisation which in turn perpetuates overcrowding: he proposes the construction of dwellings with at least one additional room in order to ensure that proper modesty is maintained. He argues that the construction of single room tenements has "manifestly an injurious operation on the moral as well as on the sanitary condition, independent of any overcrowding" (194). The poor, it seems, may continue to live crammed into confined spaces as long as they have a little domestic privacy.

Chadwick's reformulation of poverty as a moral problem and his emphasis upon the efficacy of ventilation are consistent with his pietist conception of miasmatic disease. The miasma theory of disease equated illness with immorality and disorder. Filth and poverty were signs of sin and social mismanagement. A belief in the contagious transmission of infectious disease was inimical to the pietists. The capricious exchange of undetectable infectious material was at odds with their conception of disease as a divine retribution for immorality. Instead, miasma theory held that poisonous vapour arising from filthy—perforce immoral—conditions produced disease (Turner 78-79). Dr Southwood Smith, a chief proponent of the miasma theory, asserted that "no fever produced by contamination of the air can be communicated to others in a pure air (qtd Wohl, *Endangered Lives* 87). Chadwick himself, held the belief that "all smell is disease" (qtd Finer 298).

The miasma theory of disease thus enables Chadwick to envisage a solution to the sanitary problem that avoids larger economic questions. Ventilation for fresh air and partitioning for propriety will instil the morality necessary for the lower classes to combat filth and rise above their poverty. Chadwick can therefore focus his attention away from the poor and their "pale, bloated, and rickety" bodies and instead direct himself to the external environment and the removal of waste. For Chadwick, reform is achieved through the moral ordering of an urban space, cleansed in baptismal fashion by a system of sanitary engineering.

This ordering and cleansing of urban space conforms to a specifically bourgeois notion of the social body prevalent at the time. The urban theorist Richard Sennett contends that throughout western history the body politic has employed a "master image of the body" which has influenced urban design and enforced the state's dominance. From the mid-eighteenth century on, he notes, "scrupulously cleaning excrement off the body became a specifically urban and middle-class practice" wherein the pores of the skin were to be unclogged so that "excremental humours would be able to be pumped free by the body": unrestricted circulation was the key to health (262). In the nineteenth century, he argues, the period's image of a clean and unfettered body influenced the development of wide thoroughfares and large parklands for the use of the wealthy middle class. As a consequence, the poor were progressively hidden from the bourgeois class, creating what he describes as "a spatial division akin to the division of labour," and establishing London as "a city of class homogenous spaces" (24).

Chadwick's conception of sanitary reform reproduces this nineteenth-century "master image of the body" and reinforces its social consequences. Sanitation becomes

a process which not only removes waste from the urban body in a manner akin to the middle-class cleansing of the physical body, but works to preserve the existing separation of classes. The poor are, in effect, to be maintained in crowded, well-ventilated, and moral conditions, out of sight of the bourgeois class who are free to stroll or ride in their carriages, oblivious to the poor, no longer threatened by contaminated and contaminating air.

Such a solution was by no means uncontested. Medical Officers of Health of the period rejected Chadwick and his fellow pietists' proposals and emphasised instead the interior and physical dimensions of the sanitary problem. The annual report of 1858 from the Medical Officer for the Strand demonstrates the grounds of the disagreement. He writes:

Let me urge the dismissal from your minds of the idea, long entertained by many, that sanitary improvements consist exclusively in works of drainage and of water supply. . . . [Overcrowding] is without doubt the most important, and at the same time the most difficult [subject], with which you are called upon to deal with. Houses and streets may be drained most perfectly, the District may be paved and lighted in such a manner as to excite jealous envy of other Local Authorities; new thoroughfares may be constructed and every house in the District furnished with a constant supply of pure water; the Thames may be embanked, and all entrance of sewerage into that river intercepted; but so long as twenty, thirty, or even forty individuals reside in houses originally built for the accommodation of a single family, so long will the evils pointed out in regard of health . . . continue to exist almost unchecked. (qtd Wohl, "Unfit" 611-12)

The source of these "evils" and the cause of overcrowding, Medical Officers' reports continued to assert, was poverty and the reports persisted in bringing to public attention the economic rather than the moral basis of this poverty. Stinks and vapours, noxious gases, filth and fever made excellent copy and, while Medical Officer reports were largely printed in specialised journals, extracts were printed in the national press and commented on by popular journals such as *Illustrated London News* and *Punch* (Wohl, *Endangered Lives*, 178-79). The immorality they revealed to the middle-class public was the failure of the state to meet the bodily needs of the labouring poor.

The Medical Officers of Health were, of course, a disparate group and their individual conceptions of disease doubtless ranged widely. They did, however, share one thing in common. They were schooled and trained in the accumulation of statistical data and the description and classification of communicable diseases by William Farr, the medical officer appointed in 1839 to the newly formed General Register Office. Farr's statistical methods are credited with constituting "the basic grammar" of the Medical Officer's annual reports (Eyler 33) and it is this influence which arguably produces the consistent response in these reports to sanitary problems. The key to the Medical Officers' position on sanitary reform and their continued stressing of the interior and physical dimensions of the problem, I suggest, are a result of their use of

what Farr termed his "vital statistics" and the conception of disease which informed his work.

Farr drew a comparison between the physiologist who studied the human body in its elementary units and the statistician who dealt with groups of men (Eyler 33). He believed that it was the task of the statistician to uncover the "laws of Human Life, and Mortality" that governed the social body (qtd Eyler 33). He played a major role in establishing mortality rates as criteria of human welfare, calculating life expectancies for different geographical areas. The efficacy of his work may be judged from the comment of the late-Victorian reformer Benjamin Ward Richardson who stated that, after Farr, the proverb that "'pestilence walketh in the dark' is no longer true; pestilence measured and registered, walketh, at last, in the open day" (qtd Eyler 128-29). Unlike the miasmatisers who focussed upon superficial appearances, Farr's statistical methods surveyed the otherwise hidden depths of the metropolis and laid them open to the public.

In his 1843 letter to the Register General, Farr includes a section on "The Causes of the High Mortality in Town Districts." He identifies that infectious disease accounts for the higher rate of mortality in towns compared to country areas. Seeking an explanation for this, he asserts that "the numbers who are attacked by an infectious disease depend upon—1st, the susceptibility of the persons exposed . . . 2ndly, the strength of the zymotic matter . . . and 3rdly, on the density and ventilation of the room."<sup>26</sup> The aim of his work is to determine "the share [these causes] have, single or combined, in the production of disease" using "the resources of chemistry, natural philosophy, medicine, and the mathematical sciences" (410).

Susceptibility, he argues, is partly attributable to poverty. He demonstrates the calculable effect upon a population if they are not sufficiently supplied with the "necessaries of life"—water, food, physic, clothing, firing, lodging, and cleansing (410). He proposes a mathematical formula for deriving the mean life of a labouring population when its income falls below what is accepted to be the subsistence level. Compared to Chadwick, his approach to poverty and disease focuses upon the physical requirements of the body and the economic ability to procure them.

According to Farr, the diseases associated with unsanitary conditions were produced by the random contagious spread of organic material—what he called zymotic matter. His conception of zymotic matter evolved until he came to identify it in the 1870s with the newly discovered bacteria. As early as 1843, however, he believed "that matters of contagion are highly organized particles of fixed matter" that, "taken from the bodies of the sick, produce, when introduced into other bodies," the infectious diseases. Zymotic matter, he contended "may find its way into the atmosphere . . . like the pollen of flowers, and remain for a time suspended in it" (417). Farr's organic rhetoric conveys his conception of the physical, rather than the moral, basis of outbreaks of infectious disease; the occurrence of epidemics is rendered explicable by the observable "laws of Human Life, and Mortality."

Farr's approach to ventilation is informed by this belief in physical laws that govern the social body. Using recent scientific work on the diffusion of particles suspended in air, he is able to calculate that ventilation is only a partial solution to

---

<sup>26</sup> Hereafter, all references to Farr's work are to the 1843 *Annual Report* unless otherwise stated.

overcrowding. Any given space is shown to have a maximum number of persons who can inhabit it in safety (419-25). The miasma theory of disease, of course, held that if the room was ventilated and the air appeared clean then there was no risk of disease. On this basis Chadwick was able to neglect the overcrowding of the poor. In contrast, Farr's conception of disease leads him in his 1843 report to emphasise the overcrowding and poverty of the poorer classes and recommend not only "a good, general system of sewers," but larger and more available housing for the poor and the creation of thoroughfares and parks in the crowded districts of the metropolis such as those found in the middle-class areas of the city (426).

Through his use of statistical methods, Farr conveyed a sense of morality opposed to that of the miasmatisists. Whereas for Chadwick, filth and disease originated from behaviour that affronted bourgeois notions of morality, for Farr the immorality of the city's slums and fever nests was society's failure to heed the physical laws of life. As a result, the widely disseminated reports of Farr, and the Medical Officers of Health whom he trained and influenced, directed the public to the moral necessity of redressing the physical state of the poorer class of people.

Farr's introduction to his first *Annual Report* in 1838 illustrates the rhetorical combination of moral discourse and "vital statistics" that informs his work during his long career:

The registry will show the agency of these causes [of disease] by numerical facts, and measure the intensity of their influence. The annual rate of mortality in some districts will be found to be 4 percent, while in another set of circumstances, which the registry will indicate, they do not live more than 25 years. In these wretched districts, nearly 8 percent are constantly sick, and the energy of the whole population is withered to the roots. Their arms are weak, their bodies wasted, and their sensations embittered by privation and suffering. (64-65)

Alongside the "numerical facts" and annual rates of mortality that chart the relative health of parts of the social body, Farr evokes the human cost conveyed by these figures, the physical suffering, the withering of energy, and the wasting of bodies.

Reports by Medical Officers of Health reveal the same juxtaposition of moral and statistical discourses. Dr Marshall's 1863 description of working-class housing in Greenock demonstrates Farr's influence:

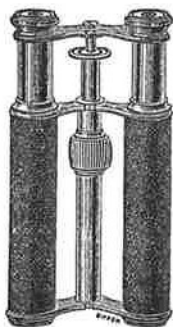
Thirty-two persons are living in apartments having less than 50 cubic feet of air! A supply so scanty, that it is difficult to understand how suffocation does not follow. 542 persons have less than 100 cubic feet. 1,179 persons have under 150 cubic feet. 3,437 persons have under 450 cubic feet, living and sleeping in a condition actually dangerous to life. . . . Individuals, are living and sleeping in habitations in which health cannot be maintained, and in a state the inevitable result of which must be that the springs of life must dry up, and may perhaps entirely fail. (qtd Stewart 51)

Combined with the emotive description of the physical suffering of the poor—conditions "dangerous to life," the drying up of "the springs of life"—there is, as advocated by Farr, a precise mathematical mapping of the bodily needs of the poor. Sympathy alone is insufficient, their needs are elaborated in terms of specific quantities of air.

The picture Farr and the Medical Officers of Health presented to the middle class was a disturbing one. Indeed, Marx's extensive use of their work in *Capital* (Scarry 268) suggests the capacity it had to challenge bourgeois assumptions of morality and social order. Sennett contends that a society's "master image of the body" inevitably produces "contradictions and ambivalences" that can give rise to alterations in urban form and serve to "generate the rights of, and to dignify, differing human bodies (24). As I have noted, Chadwick's proposed sanitary reforms endorsed the period's "master image of the body" and worked to maintain the class separation and inequality that it engendered. In comparison, by exposing precisely the physical needs of the "pale, bloated, and rickety bodies" of the poor, Farr and the medical reports he influenced confronted the wealthy middle class with the need to address the overcrowding and poverty which lay behind the grand mansions and wide thoroughfares they inhabited.

The difference in the approaches of Chadwick and Farr depends to a large extent on their conflicting conceptions of disease and morality. Their theories of disease were highly charged with social significance and influenced the solutions they proposed to the sanitary problems of the metropolis. Compared to Chadwick, Farr's work emphasised the interior rather than the exterior, the discovery of hidden laws rather than the visible and the superficial, and the physical suffering rather than the indecency of the poor. Underlying these opposing views were markedly different conceptions of what constituted a healthy social body. Sanitation was not just a matter of drains and water supply. At stake in the conflict between pietists and contagionists was the right to define the moral ordering of urban space.

## BINOCULAR TELESCOPES.



These Instruments are the most powerful Binoculars that can be made to be sufficiently portable for the tourist's use; their magnifying power is very great. They should be regarded as Telescopes; and where there is a sufficient amount of light, objects may be easily made out by them which would be invisible with any ordinary Binocular.

**BINOCULAR TELESCOPE,**  
with turning motion in centre  
to adjust it to the width of the  
eyes, in Solid Sling Leather  
Case ... .. £9

*Illustrated Catalogue of Binoculars post free.*

**JOHN BROWNING,**  
63 STRAND, LONDON, W.C.

## THE RACES. NEGRETTI & ZAMBRA'S



**CELEBRATED BINOCULARS.**

**TWO AND THREE GUINEAS,**  
AND UPWARDS, IN SLING CASE, COMPLETE.

**NEGRETTI & ZAMBRA,**  
SCIENTIFIC INSTRUMENT MAKERS TO THE QUEEN,  
HOLBORN VIADUCT, E.C.

Branches:—  
45 CORNHILL, 122 REGENT STREET.  
PHOTOGRAPHIC STUDIO—CRYSTAL PALACE, SYDENHAM.  
TELEPHONE No. 6583. Telegraphic Address—"NEGRETTI, LONDON."



### Works Cited

- Chadwick, Edwin. *Report on the Sanitary Condition of the Labouring Population of Gt. Britain*. Edinburgh: Edinburgh UP, 1965.
- Eyler, John M. *Victorian Social Medicine: The Ideas and Methods of William Farr*. Baltimore: John Hopkins UP, 1979.
- Farr, William. "Letter to the Register General by W. Farr, Esq." *Annual Report of the Register General of Births, Deaths, and Marriages in England and Wales*. 1838.
- . "Letter to the Register General by W. Farr, Esq." *Annual Report of the Register General of Births, Deaths, and Marriages in England and Wales*. 1843.
- Finer, S. E. *The Life and Times of Sir Edwin Chadwick*. New York: Barnes Noble, 1952.
- Flinn, M. W. "Introduction." Chadwick. 1-73
- . "Introduction." Stewart. 7-24.
- Scarry, Elaine. *The Body in Pain: The Making and the Unmaking of the World*. Oxford: Oxford UP, 1985.
- Sennett, Richard. *Flesh and Stone: The Body and the City in Western Civilization*. London: Faber, 1994.
- Stewart, Alexander P., and Edward Jenkins. *The Medical and Legal Aspects of Sanitary Reform*. 1867. Introd. M.W. Flinn. Victorian Library. New York: Humanities, 1969.
- Turner, Bryan. *The Body in Society: Explorations in Social Theory*. Oxford: Blackwood, 1984.
- Wohl, Anthony S. *Endangered Lives: Public Health in Victorian Britain*. London: Dent, 1983.
- . "Unfit For Human Habitation," *The Victorian City: Images and Realities*. Ed. H.J. Dyos and Michael Wolff. Vol 2. London: Routledge, 1973.