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Report
on

**THE
SANITARY
CONDITION**

**OF THE
LABOURING
POPULATION OF
GT. BRITAIN**

by
Edwin Chadwick
1842

edited with an introduction by

M.W.FLINN

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Chadwick • FLINN

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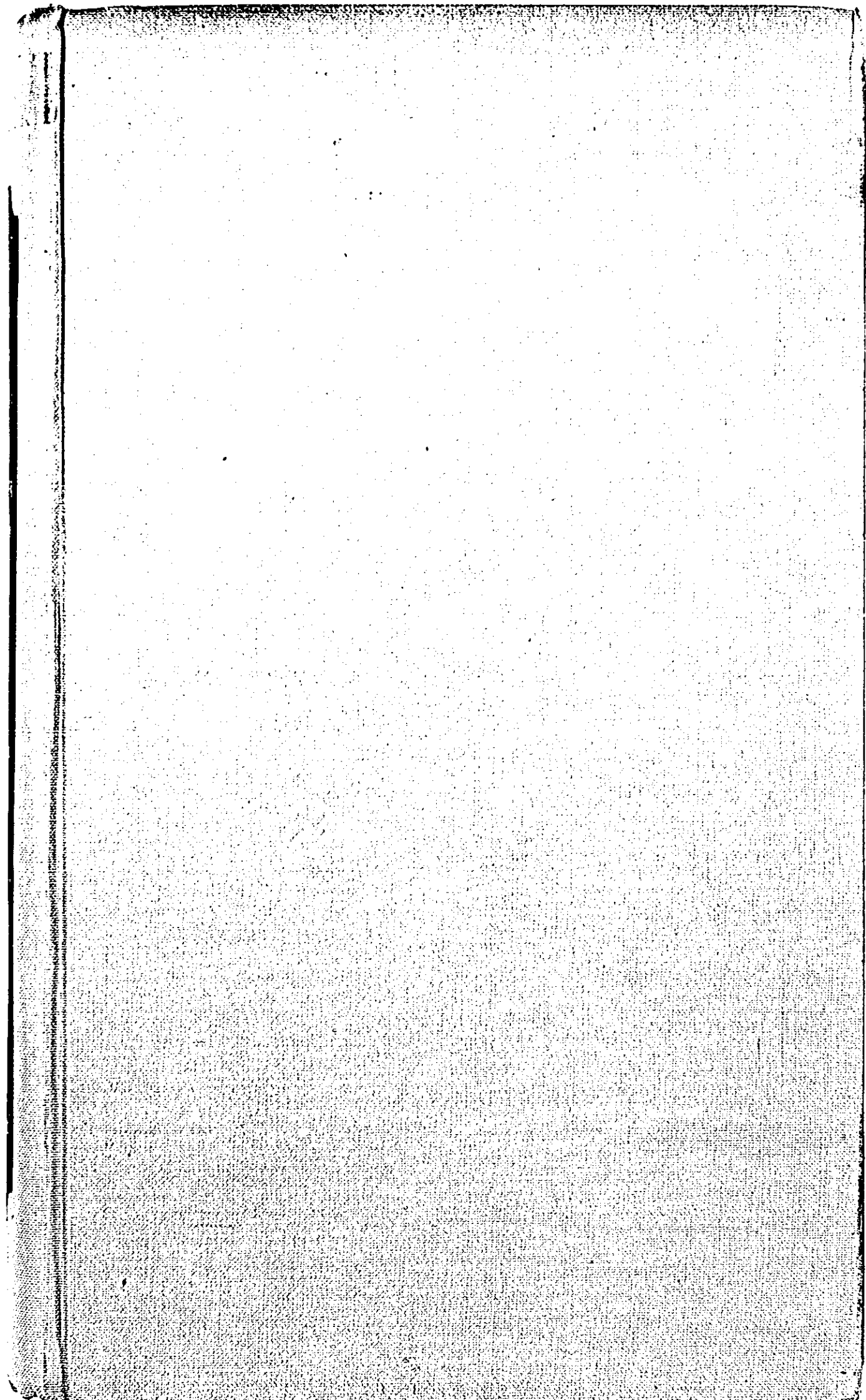
REPORT ON THE
SANITARY CONDITION
OF THE LABOURING POPULATION
OF GREAT BRITAIN 1842.
EDWIN CHADWICK.

¶ Few books will have a more honoured place than this on the working shelves of so many members of different professions. To historians of every dye - political, social and economic - to practitioners of social medicine, to planners and architects, to everyone, in fact, concerned with the renewal of the human urban environment, CHADWICK is a great primary source. Lewis Mumford, writing of the men who first began to lay the ideological basis for a New Order, says: 'In the piecemeal improvement of cities, the work of sanitarians like Chadwick and Richardson . . . laid the concrete basis for a collective environment in which the needs of reproduction and nurture, & psychological development, & the social processes themselves, would be adequately served'.

¶ Until the mid-nineteenth century, the creation of healthy living conditions in towns was not considered the responsibility of the central government. Sporadic remedial attempts by Improvements Commissioners inevitably fought losing battles against the rising flood of squalor in the new towns. It fell to Sir Edwin Chadwick, Secretary to the Poor Law Commissioners, to argue that it was cheaper in the end to eradicate poverty than to palliate it by increased poor relief expenditure. Chadwick's great report of 1842, which showed that poverty was closely linked to the ill-health created by appalling sanitary conditions, led to the Public Health Act of 1848 and the authorisation of local Boards of Health. He has therefore rightly been called the Father of the Public Health Movement.

¶ This famous parliamentary paper has for long been all but unobtainable. It is here reprinted in full, with the exception of certain appendixes, and with a detailed introduction devoted to the broad aspects of the birth of the Public Health Movement in Britain. Annotations to the text are, in general, concerned with identification, whenever possible, of printed sources.

¶ Edited, with an introduction by, M. W. Flinn.
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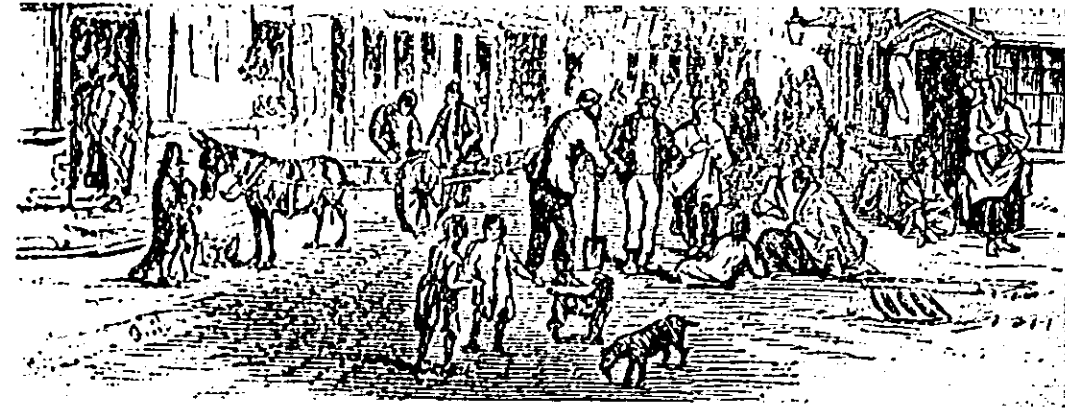
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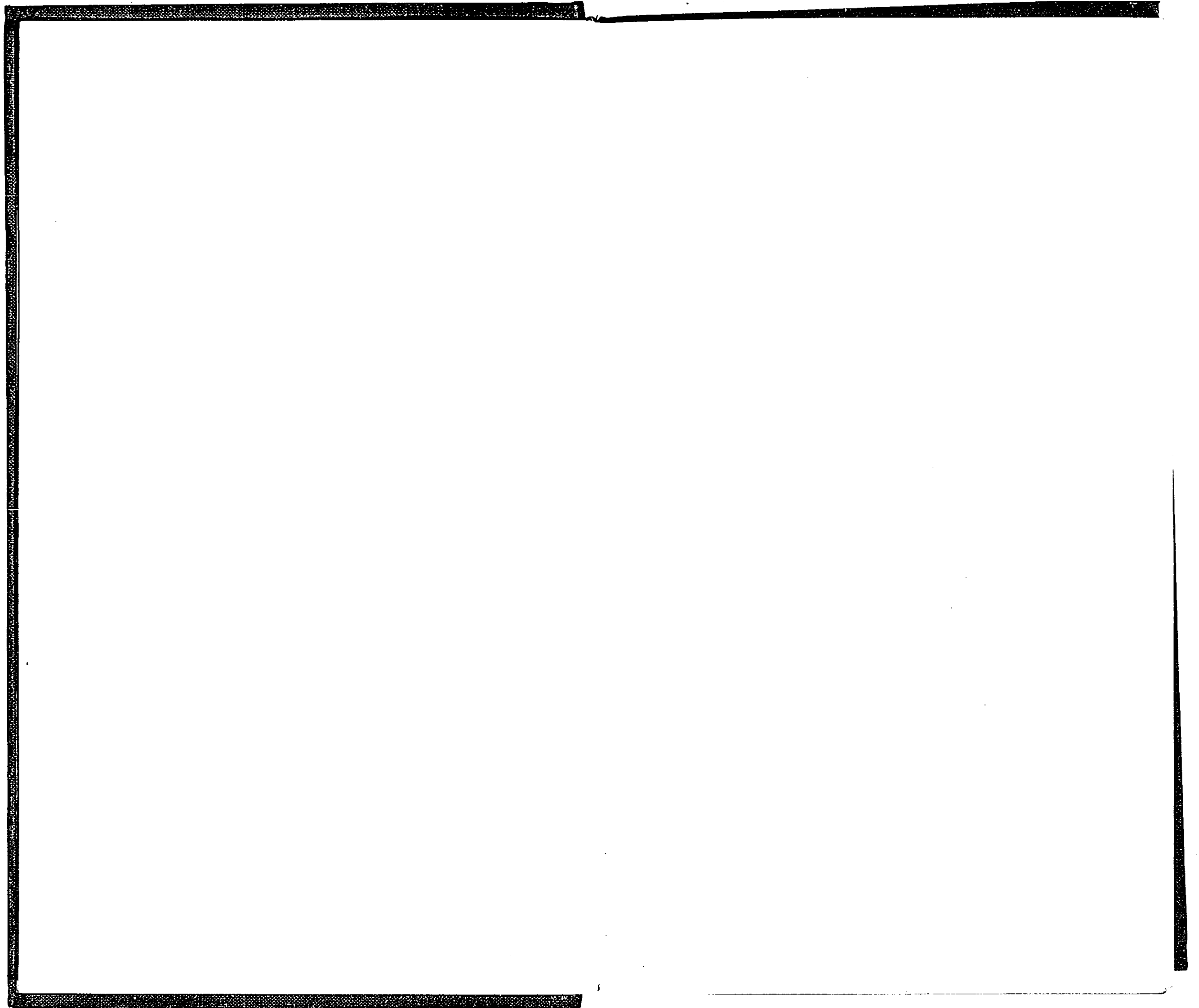
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REPORT ON THE SANITARY CONDITION OF THE



LABOURING POPULATION OF GREAT BRITAIN





Edwin Chadwick in 1848

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PREFACE

The task of preparing this edition of Edwin Chadwick's best-known report has been immensely facilitated by the existence of two first-class studies of his life and work.¹ Both these works tell the story of the events leading up to the Public Health Act of 1848 in ample detail. To avoid unnecessary repetition, much of this detail has not been recapitulated in the *Introduction* to this edition, only a brief summary of the narrative being given. For the same reason, it is unnecessary to burden the *Introduction* with anything more than essential biographical material. As a consequence, it has been possible to devote more attention to some broader aspects of the birth of the public health movement in Britain.

Annotations to the *Report* itself have been restricted, for the most part, to the identification, wherever possible, of the printed sources. Chadwick, it will be seen, drew upon a wide range of official, unofficial, and foreign sources. Although some of the material he collected specially for the *Sanitary Report* was published separately in the two volumes of *Local Reports*, or as appendices to the main *Report*, much of it never found its way into print. Most of the passages quoted by Chadwick in the *Report* which have not been identified in print (and annotated below accordingly) may be assumed to have been drawn from such unpublished sources. It will be noticed that there are a number of quotations from material published by the Children's Employment Commission. The reports of this Commission were published in 1842 and 1843, after the publication of the *Sanitary Report*. The material was almost certainly made available to Chadwick, before publication, by Dr Southwood Smith, who was a member of the Commission, or by Dr Charles Barham, who prepared an important report for the Commission.

The original edition of this *Report* included a large number of appendices, one or two town maps, and some illustrations of model cottages. These have all been omitted from this edition, but full details are given in footnotes of any references to them in the text of the *Report*. The pagination of such references, as well as of references to the prefix to the *Report*, refers to the original 1842 edition. Cross-references to the main text of the *Report* use the page numbers of the present edition. Chadwick's original footnotes may be distinguished from my own editorial footnotes by the use of conventional symbols (asterisk, etc.) and arabic numbers respectively.

I would like to take this opportunity to thank Professor S. B. Saul and Dr T. C. Smout for reading through the typescript of the *Introduction*, and for making a great many helpful comments and suggestions; Dr A. S. Milward for valuable assistance in checking some French bibliographical references; Dr W. H. Chaloner for reading the proofs of the *Report* and eliminating many small errors; and the Wellcome Trust for a generous guarantee which has made possible the publication of this edition in its present form.

M. W. Flinn, Edinburgh, September 1964

¹ S. E. Finer, *The Life and Times of Sir Edwin Chadwick* (1952);
R. A. Lewis, *Edwin Chadwick and the Public Health Movement, 1832-48* (1952).

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THE SANITARY REPORT

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ABBREVIATIONS USED IN FOOTNOTES

B.M.Add.MSS.	British Museum, Additional Manuscripts.
Econ.H.R.	<i>Economic History Review</i> .
Finer	S. E. Finer, <i>The Life and Times of Sir Edwin Chadwick</i> (1952).
J.R.S.S.	<i>Journal of the Royal Statistical Society</i> .
Lewis	R. A. Lewis, <i>Edwin Chadwick and the Public Health Movement, 1832-48</i> (1952).
Local Repts. E. & W.	<i>Reports on the Sanitary Condition of the Labouring Population of England</i> (1842).
Local Repts. Scot.	<i>Reports on the Sanitary Condition of the Labouring Population of Scotland</i> (1842).
P.R.O.	Public Record Office.
San. Rep.	<i>Report on the Sanitary Condition of the Labouring Population of Great Britain</i> (1842).
P.P.	<i>Parliamentary Papers</i> .

Except where another source is quoted, all letters referred to in footnotes are in the Chadwick Collection in the library of University College, London.

INTRODUCTION

On 9 July 1842, at the height of a summer marked by perhaps a greater incidence of unemployment, destitution, and social protest than any other in the nineteenth century, Edwin Chadwick, Secretary to the Poor Law Commission, presented to the House of Lords his *Report on the Sanitary Condition of the Labouring Population of Great Britain*, the product of three years' vigorous work. The *Report's* ultimate outcome was the Public Health Act of 1848, by which, for the first time, the British Government charged itself with a measure of responsibility for safeguarding the health of the population. Although an unconscionable time elapsed between the presentation of the *Report* and the passing of the Act; though the Act itself was a poor shadow of the measure Chadwick and other 'sanitary' reformers had worked for; and though the early history of state action in the sphere of public health was to be chequered, to say the least, a beginning had been made.

The compilation of the *Report* was wholly the work of Chadwick. When it came to publication, the three Poor Law Commissioners who were nominally responsible for its production were unwilling to accept responsibility for so radical a document, and the compromise solution of issuing it over Chadwick's name alone was adopted. Yet there were two senses in which the *Report* was not wholly Chadwick's work. Readers of the following pages will quickly observe that much of the *Report* is devoted to direct and extensive quotation from the contributions of a small army of local investigators. More significantly, the *Report* was the culmination of a movement that had been gathering momentum long before Chadwick gave it the benefit of his prodigious energy. Indeed, to ascribe the *Report* and its consequences solely to the genius of a single reformer, however considerable his influence may have been, would be to over-simplify the course of events, and to do injustice to the memories of other men with voices perhaps less strident and compelling than Chadwick's, but whose patient and devoted labours laid the foundations on which Chadwick's enduring edifice was subsequently built.

Chadwick himself was deeply affronted by any suggestion that he was not the sole author of public health reform. When, in 1848, a suggestion was made that some of the credit should go to Southwood Smith, one of his closest collaborators, he was up in arms immediately. In a letter to Southwood Smith, he wrote:

Surprise has been excited on the part of many persons by statements recently made in your behalf, which charge the Government with injustice towards you, and with implications on myself, which if I do not notice, I must appear to admit. Dr Gavin¹ is reported to have stated at a public meeting that there could be no doubt that you were the originator of sanitary reform. Again, it is stated, that you first directed public attention to

1. Hector Gavin, a leading member of the Health of Towns Association (see below, pp. 68-9).

the subject. Further, it is set forth in your behalf, that you occupy the same position in relation to Sanitary reform that Mr Rowland Hill occupied in relation to postage reform. Believing these allegations to be untrue, and the charges founded upon them to be unjust, I think it incumbent upon you to disclaim them.

I must aver, that the sanitary measures now in progress had strictly and exclusively an official origin; that they arose as a consequence, tho' an indirect and perhaps an accidental one, of measures directed by the Government in 1832, namely the enquiry into the administration of the poor laws; that in the course of some investigations with the view to discriminate the causes of pauperism, excessive sickness and its preventible causes, were suggested by the circumstances which appeared in the course of that enquiry and are noticed as one of the topics of examination in my report laid before Parliament with others: (*Selections*, 1833); that afterwards, under the administrative Commission in 1838, when a heavy amount of claims to relief appeared, as a consequence of the prevalence of an epidemic, I felt it my duty to call the attention of the Commissioners to a large proportion of these cases, and recommend a special investigation of them. Up to that time, I am unaware of any public agitation whatsoever upon the subject, and I am warranted in saying that in directing the inquiry, the Commissioners were influenced by the circumstances which appeared before them in the course of the business of the day, and by no representations of yours, or, that I am aware, of any person whatsoever . . .¹

Some allowance ought clearly to be made for the emotional strain under which Chadwick was labouring when he drafted this letter. His indignation—not entirely unjustified—at being denied credit for results, however meagre, of ten years of dedicated labour, led him into two errors. On a purely factual plane, he was over-stating his own early interest in the public health question: the ample report which he wrote in 1833 ('my report laid before Parliament with others . . . in 1833') contains only two short paragraphs that have any bearing on the relationship between preventable 'excessive sickness' and poverty, and the recommendations with which he concluded this report made no reference to this aspect of the problem.² Nor, it might be added, since Chadwick fixed as his starting-point of public health reform the initiation of the poor law enquiry in 1832, did the famous *Report* of 1834, the joint work of Chadwick and Nassau Senior, give any hint that at that stage the Commissioners recognised preventable ill-health as a cause of poverty.³ More serious, however, was the misconception, understandable in an official mind, that the ultimate involvement of the state in the field of public health 'had strictly and exclusively an official origin'.

1. Chadwick to Southwood Smith, n.d., but probably 1848. This is a draft of a letter, and there is no evidence that it was actually sent. It must nevertheless accurately mirror Chadwick's feelings on this question.
2. Edwin Chadwick, 'Report from London and Berkshire', *Extracts from the Information received by His Majesty's Commissioners as to the Administration and Operation of the Poor Laws* (1833) p. 316.
3. It is only fair to add, however, that though the correlation between insanitary conditions and poverty did not find its way into the main report, some of the many volumes of evidence which supported the 1834 *Report* contained material relating poverty to poor public health conditions.

Taking the short view, Chadwick was right, of course. The 1838 enquiries of Drs Kay, Arnott and Southwood Smith in London which preceded the sanitary enquiry were directly and exclusively initiated by the Poor Law Commission.¹ Yet it is odd that a man with Chadwick's immense breadth of imagination should so seriously have deceived himself into thinking that even he could have taken the decision to set the three doctors to work in a vacuum. He was, of course, as much a symptom of the changing intellectual climate as he was influenced by its consequences. He saw himself as guiding events, rather than being carried along in their tide: he assumed that *he* was the public health movement, and that sanitary reform would have gone by default, at least in the early Victorian era, had he not personally taken it in hand. He lacked the stature to acknowledge how far he had climbed on other men's shoulders.

In the first part of this introduction, some attempt will be made to look beyond the narrowness of Chadwick's version of the genesis of Victorian public health reform by scrutinising the various intellectual strands which converged on Chadwick in the late 1830s. The second part will concern itself much more closely with the details of Chadwick's claim.

I

THE ROOTS OF THE SANITARY IDEA

The deterioration of public health conditions

In general, the social reforms of the nineteenth century were responses to evils which were not only pressing, but growing. This was as true of public health reform as it was of factory, prison, poor law, emigration, local government, and parliamentary reform. Public health in the early nineteenth century was largely a matter of the sanitary state of working-class dwellings. Recent years have seen much difference of opinion between historians over the questions of the changing fortunes of the working class in the late eighteenth century and the first half of the nineteenth century. There is no doubt, however, that there were substantial increases in both aggregate real income and average real incomes during the first half of the nineteenth century.² Average incomes, however, tell nothing of the distribution of income, and very few of the participants in this important debate have been able to throw much light on the trends in real income of, say, the bottom fifty per cent, or the bottom twenty per cent of the income scales. Pollard has argued that the known economic changes of the period inevitably demanded some progressive inequality of income distribution³; but even if this argument is conceded, not enough is known about *changes* in income distribution to determine with any certainty whether the growth of average real income during the early nineteenth century offset an increasingly unequal distribution

1. See below, pp. 43-4.
2. Phyllis Deane & W. A. Cole, *British Economic Growth 1688-1959* (Cambridge 1962) pp. 19-28, 148-53.
3. S. Pollard, 'Investment, consumption and the Industrial Revolution', *Econ. H. R.* 2nd ser. XI (1958) 215-26.

sufficiently to raise the real income of the lowest income groups, or the reverse.

It remains likely, nevertheless, that all but a small, least-fortunate section of the working population—the traditionally-quoted handloom weavers, other workers in declining domestic industries, and, possibly, agricultural labourers—did benefit from the growing wealth of the economy to the extent of a persistent, if slow, increase in the purchasing power of their incomes. But there is more in a standard of living than what money can buy. Living conditions which were increasingly deleterious to health were by no means incompatible with rising real incomes; nor were they even incompatible with 'better' housing, in the sense of bigger and more solidly-built houses. What mattered from the point of view of health was housing densities—the number of houses per acre, and the number of people per house—and the supply of the basic public amenities—water, sanitation, paving and street cleansing. It is important to recognise that historians cannot yet determine—and may never be able to determine precisely—what proportion of the population at any point of the eighteenth or nineteenth centuries lived under housing conditions that were conducive to good, or bad health. But the assumption that there is an automatic correlation between levels of income and public health conditions can at least be avoided. 'High prosperity in respect to employment and wages, and various and abundant food', argued Chadwick, 'have afforded to the labouring classes no exemptions from attacks of epidemic disease'.¹ 'Commerce', echoed Southey, 'sends in no returns of its killed and wounded'.²

Most of the more intransigent social problems of this period grew out of the ever-increasing concentration of the population into towns. Some towns expanded during the early nineteenth century at rates that would bring cold sweat to the brows of twentieth-century housing committees. Glasgow's population grew by 37 per cent between 1831 and 1841; Manchester's and Salford's jointly between 1821 and 1831 by 47 per cent; Bradford's in the same period by 78 per cent; while West Bromwich's rose by 60 per cent between the years 1821 and 1831, and a further 70 per cent in the following decade, and Dukinfield's nearly trebled between 1821 and 1831.³ Such statistics as are available leave some room for doubt as to whether this rapid urbanisation involved, for the country as a whole, more or less overcrowding. The number of people per inhabited house fell, according to the Census Commissioners, between 1831 and 1841; but the fall was not a very large one, and the 1831 figure had been virtually unchanged through all the previous censuses.⁴ Chadwick

1. *San. Rep.* p. 422.

2. Robert Southey, *Letters from England* (ed. J. Simmons 1951) p. 197.

3. *Population Census, 1841, P.P. 1843, XVIII, 10.*

4. The figures were:

Census	Number of people per inhabited house
1801	5.6
1811	5.6
1821	5.7
1831	5.6
1841	5.4

challenged the conclusion of falling density between 1831 and 1841, on the ground that a different definition of 'house' had been adopted in the later census, rendering any comparison invalid.¹ What interested Chadwick far more than any national average of this kind were the extensive local departures from the national averages. The increase in *per capita* income during the first four decades of the century must certainly have produced some improvements in housing densities which are most likely to have increased house-space for those in the upper half of the income scale. Many of these would be upper working-class families who would use the rise in incomes to reduce the number of people per house—a process still going on in the upper working-class in the mid-twentieth century. In this event, the constancy of the national density over the whole period must, as a result, have involved increased crowding of those in the lower income groups. The 1841 Census itself confirms this. Liverpool, for example, with probably more than its share of the lower income ranges, experienced an increase in the number of people per house from 6.4 in 1831 to 6.9 in 1841. It was claimed, on the basis of census data that, while the population of Glasgow had increased by 36.8 per cent between 1831 and 1841, the number of inhabited houses increased only by 18.5 per cent during the same period. 'In Blackfriars parish (Glasgow) alone,' continued the same commentator, 'where there has been little or no building for ten years back, the population has absolutely increased upwards of forty per cent'.² Robert Cowan, Professor of Medicine in Glasgow University, also spoke of 'the rapid increase in the amount of the labouring population without any corresponding amount of accommodation being provided for them'.³

The most serious deterioration in this respect was on an extremely local scale. Chadwick's conviction that overcrowding had been increasing was the fruit of endless investigations of particular streets, courts and tenements. One such street was the subject of an enquiry by the London Statistical Society in 1847. This was Church Lane, in the notorious St Giles district of London. The Society's investigators found that, whereas in 1841 the twenty-seven houses (averaging five rooms) in this street had housed 655 people, by 1847 their inhabitants had increased to no less than 1,095 people. This increase in density from about twenty-four persons per house to just over forty in six years was attributed to 'improvements' in the neighbourhood, which, by pulling down old property to widen streets, had crowded the existing population into the smaller number of remaining houses; and to the Irish famine of

1. *San. Rep.*, pp. 188-9. And see Sir John Clapham, *An Economic History of Modern Britain* (Cambridge 1926) I, 546. A further difficulty with these figures is one inherent in all statistics which select isolated years—that of relating the selected years to the short-run trends, in this case the building cycle. Years falling two or three years either side of the census years might conceivably have shown different results.

2. Strang, the Census Superintendent in Glasgow in 1841, quoted by Sir Archibald Alison, 'Social and moral condition of the manufacturing districts in Scotland', *Blackwood's Edinburgh Magazine*, L (1841) 669.

3. R. Cowan, *J.R.S.S.*, III (1840) 269.

1845-6, which had led to a considerable influx of fresh immigrants into this preponderantly 'Irish' district of London.¹

Studies of house-building later in the nineteenth century, when more detailed statistics are available, make it clear that, in the short run at least, there was no automatic correlation between trends in demand and supply.² Supply fluctuated far more widely than demand, although in the long run, as the Census figures indicate, there was a rough equation between the two factors. Middlesex, for example, apparently experienced a sharp falling-off of new building in relation to population growth in the 1830s,³ and though the balance may have been restored in the following decade, the pressure on housing was possibly at its most acute just at the moment when Chadwick and his poor law colleagues focused their attention on it.

One symptom of increasing housing density (in terms of houses per acre, rather than of people per house) in the early nineteenth century, which conduced to ill-health, was the spread of back-to-back housing, an innovation of the late eighteenth century, as a regular practice rather than an exception. By the third and fourth decades of the nineteenth century, back-to-back houses were very common in many towns. In 1840 between 7,000 and 8,000 of Nottingham's 11,000 houses were reported to be back-to-back.⁴ As early as 1797 it was estimated that 9,000 of Liverpool's population of 63,000 lived in back-to-back houses.⁵ There was a similar extension of cellar dwellings, even more injurious to human health.⁶

This sort of population pressure on housing must certainly have been reflected in trends of rents, and one of the more frustrating *lacunae* in the study of nineteenth-century economic and social history is the absence of any statistical study of house-rents. No doubt the problem of defining with any precision over a long period of time the extent of a house, flat, room, or lodging, would make such a study difficult, if not impossible. Under the circumstances, about the only observation that can be made with any degree of certainty is that, square foot for square

1. 'Report on the state of the inhabitants and their dwellings in Church Lane, St Giles's', *J.R.S.S.*, XI (1848) 2-3.
2. S. B. Saul, 'House building in England, 1890-1914', *Econ. H. R.* 2nd ser. XV (1962) 131-2.
3. A. K. Cairncross & B. Weber, 'Fluctuations in building in Great Britain, 1785-1849', *Econ. H. R.* 2nd ser. IX (1956) 293-5.
4. *JRSS*, II (1839) 457.
5. James Currie, *Medical Reports* (Liverpool 1797) p. 202.
6. Out of 175,000 persons in Liverpool in 1841, 38,000 lived in cellars (*Report of the Condition of the Hand-loom Weavers*, P.P. 1841, X, 74). Another estimate of the same time gave a figure of only 24,072 (*Report of the Select Committee on Building Regulations and Improvement of Boroughs*, P.P. 1842, X, App. I, p. 133); and another gave 'upwards of 39,000' (*Report of Select Committee on the Health of Towns*, P.P. 1840, XI, p. viii). Estimates of Manchester's cellar population at this period vary widely. One report gave the figure for 1840 as 3,571 (*J.R.S.S.*, III (1840) 7), while another estimated 'nearly 15,000, being 12 per cent of the working population' (*Report of the Select Committee on the Health of Towns*, p. viii).

foot, urban rents for labourers' dwellings were appreciably higher than their rural equivalents—more than double, according to a comparison of average rents in Bedfordshire and the Manchester district.¹ This being so, the substantial increase in the urban proportion of the population in the first half of the nineteenth century must have involved an increased proportionate expenditure on rent from working-class incomes. In a careful study of housing in Leeds, Rimmer has estimated that whereas in the early 1790s the working man spent 5 per cent of his income on rent, by the 1830s wage-earners spent between 10 per cent and 20 per cent in this way.² There is probably just sufficient evidence to say that the increasing share of the national income going to rent indicated a steadily mounting pressure of urban population on the supply of housing.³

The real measurement of the quality of urban industrial life involves, of course, the widest possible social spectrum. Our understanding of the early nineteenth century has been persistently befogged by partial scrutiny. Some historians have considered trends in real income, because these are the only measurable criteria, as though they are the only valid ones. But, in terms of life itself, it really mattered little how a labourer's wage varied between, say, 12s and 25s a week, if a dwelling-house with water supply, sewers and sanitation, in a paved and drained street—one capable, in other words, of safeguarding a normal span of human life⁴—could not be afforded on *any* income under, say, 30s a week. Other historians have studied housing in terms of bricks and mortar per acre, or people per house, as though a few cubic feet more or less made all the difference. The quality and duration of life are social variables which have always depended upon an almost infinite range of economic and social factors, the most important of which in modern times are levels of real income, the degree of adulteration of food,⁵ the quantity and quality of housing, sanitation, paving, sewerage, water supply, open spaces, working conditions, and the public provision of the basic social services, of which education stands at the head of the list. Only some of these factors are capable of statistical measurement, and while the careful and impartial use of such statistical material as is relevant to this historical problem continues to make valuable contribution to the understanding of the social history of this period, it remains true that what is measurable is but a part of the whole.

There was a correlation, at least in the early nineteenth century,

1. *San. Rep.* p. 222.
2. W. G. Rimmer, 'Working men's cottages in Leeds, 1770-1840', *Publications of the Thoresby Society*, XLVI, Pt. 2 (1961) 192-4.
3. Rents and dwellings were estimated to receive 5.3 per cent of Gross National Income in 1801, and 8.2 per cent in 1841. (B. R. Mitchell & P. Deane, *Abstract of British Historical Statistics* (Cambridge 1962) p. 366.)
4. 'Normal', that is, by the standards of healthy areas of that age.
5. A factor still seriously under-rated in the study of nineteenth century social history. See John Burnett, unpublished London University Ph.D. thesis, 'The history of food adulteration in Great Britain in the nineteenth century, with special reference to bread, tea and beer', summarised in *Bulletin of the Institute of Historical Research*, XXXII (1959) 104-7.

between overcrowding and disease; but although many medical writers of the first half of the nineteenth century were firmly convinced of a growth in the incidence of epidemic diseases, statistics of any kind bearing on this problem are exiguous in the extreme. There were, indeed, some respects in which a clear case could be made out for a reduction in the incidence of disease in this period. There was no more bubonic plague in Britain: the visitation of 1665 was happily the last. The discovery of vaccination by Jenner had provided the means of conquering smallpox. But so far as other diseases were concerned, there is more evidence in the 1830s and '40s of increase rather than diminution, and even the simple generalisation that the spread of vaccination after 1800 steadily and inexorably reduced the mortality resulting from smallpox requires some modification. Initially, vaccination did its work with astonishing rapidity. In Glasgow, where between 1793 and 1802 smallpox had accounted for 32 per cent of all deaths, it claimed only 9 per cent in the succeeding decade.¹ But the initial enthusiasm for vaccination soon waned, and Cowan detected by the 1830s a resurgence, albeit on a much smaller scale than formerly, of smallpox, which he attributed to a growing neglect of vaccination.²

A possible slight increase in the incidence of smallpox was, however, less serious than some other developments. A new and alarming disease, cholera, appeared. Cholera first struck Britain in 1831-32, and returned in 1848-49, 1854, and 1867. Though the cholera epidemics never reached the scale of those of bubonic plague which have left so indelible a mark on the pages of history, they struck down many hundreds of thousands of victims, killing tens of thousands. Cholera struck swiftly and sharply, raising local death rates dramatically if ephemerally. Cholera frightened people. It stirred even the moribund, degraded, unreformed municipal corporations into fits of unwonted sanitary activity. It was the clearest warning of the lethal propensities of the swollen towns of the new industrial era.

But cholera went as quickly as it came: its prevention was relatively simple as soon as its cause in bad water supplies was recognised.³ Epidemics were brief, memories short, and municipal purses tight. Public health was troublesome as well as expensive, and there was no established tradition of regular preventive action. Cholera was not, in the long run, statistically very significant. But if cholera could be ignored, at least most of the time, typhus and consumption could not. The history of British towns in the first half of the nineteenth century is, to a considerable degree, the history of typhus and consumption. The *Sanitary Report* is mainly concerned with the prevention of typhus. Typhus, commonly called simply 'fever' in this period, was both epidemic and endemic: it was the constant accompaniment to life in the courts, closes

1. Robert Cowan, *Statistics of Fever and Smallpox in Glasgow* (Glasgow 1837) p. 31.
2. *Ibid.* In Dundee, for example, in the three years 1837-39, there were 280 deaths from smallpox out of a population of about 59,000. (*San. Rep.* p. 275.)
3. A discovery made by Snow only during the second epidemic in 1848. See John Snow, *On the Mode of Communication of Cholera* (1849).

and wynds; yet serious epidemic outbreaks were also a feature of the disease in this period. Though the fever was not unknown in the eighteenth century and earlier, it was sufficiently uncommon for at least one historian of public health to describe the epidemic of 1818, mistakenly, as 'the first recorded epidemic' in this country.¹ There is little doubt that the epidemic of 1818 was on a more devastating scale than most earlier epidemics in this country: Creighton records a general absence of serious fever epidemics over the whole period from 1770 to 1815.²

Epidemics apart, typhus was certainly active on an endemic scale in the first decades of the nineteenth century, and in the eighteenth century as well. Dr Currie recorded an average of over 3,000 cases yearly in Liverpool in the decade 1787-1796.³ After 1818, however, although typhus retained its endemic character and claimed its annual toll, the disease attracted attention mainly on account of its epidemical nature. Medical writers became interested in its methods of propagation. There were outbreaks in 1826-27, 1831-32, 1837, and 1846.⁴ The correlation of these epidemics with periods of bad trade was noted by physicians. Southwood Smith had observed as early as 1830 that 'whatever diminishes the vigorous action of the organs, impairs their functions, and so weakens the general strength of the system, is capable of becoming a predisposing cause of fever'.⁵ Richard Millar, the Glasgow professor of medicine, drawing attention to the connection between poverty and susceptibility to disease, observed that typhus 'so often attacks the more indigent portion of our operatives during those periodical suspensions of industry that of late years have caused so much distress among that part of our population'.⁶ Robert Cowan described typhus as 'that unerring index of destitution',⁷ and Richard Howard asserted that 'it is a matter of notoriety that fever usually prevails extensively during periods of distress and scarcity'.⁸

The trade cycle may account in part for the short-run fluctuations in the incidence of typhus in this period, but its growth in the long run in the second quarter of the nineteenth century was more closely related to trends in living conditions. By the 1830s, the incidence of the disease,

1. A. K. Chalmers, *The Health of Glasgow 1818-1925* (Glasgow 1930) p. 3.
2. Charles Creighton, *A History of Epidemics in Britain* (Cambridge 1894) I, 133-67. The one exception was a 'dearth-epidemic' of the war years of 1799-1802.
3. James Currie, *Medical Reports* (Liverpool 1797) p. 204.
4. Charles Creighton, *A History of Epidemics in Britain* (Cambridge 1894) II, 181-98.
5. Southwood Smith, *A Treatise on Fever* (1830) p. 369.
6. Richard Millar, *Clinical Lectures on the Contagious Typhus epidemic in Glasgow and the Vicinity during the Years 1831 and 1832* (Glasgow 1833) p. 11.
7. Robert Cowan, 'Vital Statistics of Glasgow, illustrating the sanitary condition of the population', *J.R.S.S.*, III (1840) 289.
8. Richard B. Howard, *An Inquiry into the Morbid Effects of Deficiency of Food* (1839) p. 38. The correlation was also noticed in a wider European context by August Hirsch (trans. C. Creighton), *Handbook of Geographical and Historical Pathology*, Vol. I (1883) 578-81.

which every medical writer from the 1780s onwards insisted (quite rightly) was the direct product of overcrowded slums and insanitary squalor, was growing steadily. The disease remained endemic, but epidemics became more frequent and intense. 'From 1816, indeed, until the early seventies of the last century', wrote Chalmers, 'the closes and wynds of the City were devastated by recurring epidemics of infectious diseases of several kinds, and of considerable magnitude. Nor did these stand alone; they formed only the higher peaks of an elevated table-land of disease, which was capable of maintaining an annual death rate, oscillating frequently between 30 and 40 per 1,000, and of rising, in occasional years, under the influence of epidemic prevalences, to 46, as in 1832, during the first cholera epidemic; and 56, as in 1846, when typhus fever alone caused a death rate approaching 14 per 1,000, or only a little lower than the average death rate from all causes at the present time'.¹ In Glasgow, possibly the filthiest and unhealthiest of all the British towns of this period,² typhus became steadily more menacing. Whereas in the first fifteen years of the nineteenth century, less than 10 per cent of the patients admitted to the Royal Infirmary suffered from typhus, in the next fifteen years typhus patients accounted for between 31 per cent and 36 per cent of total admissions, and in the first half of the 1830s, for exactly half of the admissions.³

There is a wide range of social attitudes and responses to different kinds of diseases: much depends upon the social class they afflict, upon whether they are commonly epidemic or endemic, and upon the nature of the diseases themselves. Cholera was swift, dramatic, highly lethal while it lasted, and extremely contagious: it struck terror into the minds of the middle and upper classes who ruled the cities and the country, and accordingly led, as no other disease did in the first half of the nineteenth century, to immediate, vigorous, administrative action. Cholera constituted a more direct threat to the wealthier classes because it was a water-borne disease, and these classes enjoyed more liberal access to a supply of water than did the inferior classes. Typhus, on the other hand, 'might not inaptly be termed the *poor man's disease*'⁴: it was the product of squalor, insanitation and overcrowding, a perquisite of working-class housing. It was less frequently a feature of middle- and upper-class society. But because the disease was frequently lethal; because, even when not fatal, it was always serious; and, more important, because it acquired a sharply epidemical character in the early nineteenth century, it dominated the lives and work of doctors practising in working-class districts. While cholera had briefly galvanised otherwise moribund corporations into temporary frantic activity, typhus stimulated in the

1. A. K. Chalmers, *The Health of Glasgow 1818-1925* (Glasgow 1930) pp. 2-3.

2. 'It might admit of dispute, but, on the whole, it appeared to us that both the structural arrangements and the condition of the population of Glasgow was the worst of any we had seen in any part of Great Britain.' (*San. Rep.* p. 99.)

3. Robert Cowan, *Statistics of Fever and Small-pox in Glasgow* (Glasgow 1837) p. 9.

4. Millar, *Clinical Lectures*, p. 11.

medical profession concern, investigation, and indignation. All three reactions were to assist in the slow process of defeating the disease.

As killers, however, both cholera and typhus were dwarfed by tuberculosis; and tuberculosis scarcely stirred the imagination of any social group in this period. It was so much a part of life, so inevitable, so little understood, that it was accepted mutely. Tuberculosis takes many forms, and there was little diagnostic precision in this period. What may well have been tuberculosis was very frequently diagnosed as another disease; medical assessments of the extent of tuberculosis almost certainly under-estimated the incidence and fatality of the disease, rather than the reverse. In spite of this tendency, tuberculosis was still estimated by contemporaries to be the most lethal disease of the nineteenth century, and probably of several centuries before. In the early nineteenth century it may have accounted for one-third of all deaths. A London physician, Robert Willan, found that, out of 246 of his patients who died in the two years 1795 and 1796, 77 (31.4 per cent) died from pulmonary consumption. This corresponded very closely to the proportion for the whole of London in 1796, as indicated by the Bills of Mortality (5,264 deaths from pulmonary disease out of a total of 17,648).¹ In 1839, according to the first analysis by the Registrar-General, identifiable consumption alone accounted for 17.6 per cent of all deaths.²

Tuberculosis thrives in deprived bodies: its allies are under-nourishment, debilitation, unventilated living and working accommodation, and squalor. Until the end of the nineteenth century, it was almost exclusively an urban disease. Logically, then, the significant increase during the first half of the nineteenth century in the proportion of the population of Britain living and working in the urban environments favourable to the spread of tuberculosis must have led to an increase in its incidence and morbidity. At least one historian of the disease takes this view, believing the fate of the Brontës, Shelley, Keats, Chopin, Paganini, as well as Mimi of *La Bohème*, to be a fair reflection of the health of society at this time.³

It is unlikely that this apparently reasonable belief will ever be corroborated by satisfactory statistics. On the basis of information in the London Bills of Mortality, Brownlee showed that the proportion of all deaths due to tuberculosis in London rose throughout the eighteenth century, reaching a peak in the half-century between 1780 and 1830, and falling steadily thereafter.⁴ The Registrar-General's returns starting in 1837, however, show very little decline in deaths due to tuberculosis in the first few years of registration, and some recent investigators believe that the effective turning-point in the mortality due to tuberculosis came in 1847.⁵

1. Robert Willan, *Miscellaneous Works* (1821) pp. 198-9.

2. See table reproduced below, pp. 76-7.

3. R. & J. Dubos, *The White Plague* (1953).

4. J. Brownlee, *An Investigation into the Epidemiology of Phthisis in Great Britain and Ireland*, Medical Research Council, Special Reports Series, No. 18 (1918) Table XXV.

5. T. McKeown & R. G. Record, 'Reasons for the decline of mortality in England and Wales during the nineteenth century', *Population Studies*, XVI (1963) 113.

Whatever the precise timing, there was clearly a rise and fall in a long epidemic of tuberculosis in Britain. 'Epidemic diseases, like empires, rise, decline and fall.'¹ The slow course of this disease, sometimes afflicting its victims for decades, means that the epidemic cycle must be of far longer duration than that of most other diseases. Thus the historians of tuberculosis prefer to regard the decline of tuberculosis in the second half of the nineteenth century as 'the ebb of a long epidemic wave', rather than as the necessary and inevitable result of public health measures or dietetic improvements.² It remains clear that, whether rising, constant, or falling, the incidence of tuberculosis was extremely high in the 1830s and that tuberculosis was overwhelmingly the most important single cause of death.

Thus, while there have been no outbreaks of bubonic plague since the seventeenth century, and while it has been said of the high mortality of 1741-42 that 'the age of massacre by epidemics was over',³ there are nevertheless grounds for believing that increasing urban overcrowding and insanitation was producing, by the early decades of the nineteenth century, a renewed flowing of the tide of disease. How far was this reflected in the trend of death rates?

For the last dozen years, demographic historians have been debating the causes of the unmistakable rise in the rate of growth of population in the eighteenth century. Though they have been tending recently to show more interest in changes in the birth rate as the most important variable in this acceleration,⁴ some informed contemporaries were convinced that the most significant demographic trend of the eighteenth century was a marked fall in the death rate. Using statistical evidence from an enormous sample of government annuities, tontines, and service pensions, John Finlaison, the gifted and conscientious actuary at the National Debt Office of the Treasury, showed increases of between 20 per cent and 35 per cent (varying with age-groups) in the expectation of lives between the early eighteenth century and the early nineteenth century.⁵ Joshua Milne, actuary to the Sun Life Assurance Society, calculated that the mortality rate in Northampton, which between 1710 and 1780 had been estimated to average 35.7 per 1,000, fell to 20.4 in the first decade of the nineteenth century, and to 19.6 in the second.⁶ A

1. Dubos, *The White Plague*, p. 18.

2. Introduction by the Medical Research Council to Brownlee, *An Investigation into the Epidemiology of Phthisis*.

3. J. D. Chambers, 'Population change in a provincial town: Nottingham, 1700-1800', in L. S. Pressnell (ed.), *Studies in the Industrial Revolution* (1960) p. 110.

4. H. J. Habakkuk, 'English population in the eighteenth century', *Econ. H. R.* 2nd ser. VI (1953) 117-33; J. T. Krause, 'Changes in English fertility and mortality, 1781-1850', *Econ. H. R.* 2nd ser. XI (1958) 52-70.

5. *First Report of the Select Committee on the Laws respecting Friendly Societies*, P.P. 1825, IV, App. B.1, pp. 125-6.

6. *Second Report of the Select Committee on the Laws respecting Friendly Societies*, P.P. 1826-7, III, 65. The figure of 35.7 for 1710-80 may well, however, be inaccurate. It was taken from the unreliable actuarial calculations of Dr Richard Price.

reduction of the death rate would not, of course, preclude a subsequent increase in the birth rate: indeed, there are obvious ways in which these two trends are automatically interrelated.

In the present context, the important fact is that national death rates were falling at least until the beginning of the nineteenth century. Towards the end of the eighteenth century, however, this downward tendency in the death rate was beginning to be affected by two other demographic trends: first, for an increasing proportion of the population to live in towns, probably, in this early phase of urbanisation, at an accelerating rate; and second, for urban death rates constantly to be substantially higher than rural death rates. The first trend is obvious enough to require no illustration beyond what the early censuses unmistakably revealed. The second assertion, however, calls for some scrutiny of such figures as are available.

Whereas, according to calculations made for the Friendly Societies Committee in the 1820s, the national death rate in the decade 1811-1820 was 19.3 per 1,000, in Leeds it was 20.9, in Carlisle 23.7, in Birmingham 25.1, and in Liverpool, 26.0.¹ William Farr noticed in 1840 that diseases incidental to childhood were twice as fatal in the town districts as they were in the country. He estimated the mortality in country districts in the period 1831-39 to have been 18.2 per 1,000, compared with a rate of 26.2 per 1,000 for town districts.² Even within towns, there were substantial variations in death rates. It was estimated in 1840, that while the death rate in the suburb of Broughton, Manchester, was 15.8 per 1,000, nearer to the town centre in Ardwick the rate was 28.6, and in 'inner Manchester' the rate rose to 35.2, more than twice that of the middle-class districts.³ Similarly in Edinburgh in the early 1860s, while the death rate in the exclusively working-class district of Grassmarket was 32.5 per 1,000, in the middle-class suburb of Grange the rate was 13.8.⁴

In spite, in other words, of the general tendency of the national death rate to decline, an ever-growing section of the population was being subjected to the less favourable demographic environment of the towns. This, in itself, might not have been sufficient to offset the general downward tendency of the death rate; but there is some evidence that, in the early nineteenth century, the already relatively high death rates in towns began to move upwards to an extent sufficient to halt the decline in the national death rate, and even, for a short time, to reverse it. Some Glasgow figures illustrate this trend. Ignoring the exceptionally high years of 1832 (the cholera epidemic, when a death rate of 49.1 per 1,000 was recorded) and 1836 (when typhus drove the death rate up to 37.5), the Glasgow death rate rose from an average of 28.6 over the whole of the 1820s, to 30.6 in the 1830s. If the two epidemic years are included—

1. *Second Report of the Select Committee on the Laws respecting Friendly Societies*, P.P. 1826-7, III, 74.

2. *Third Annual Report of the Registrar-General* (1839-40) pp. 98-9.

3. *Report of a Committee of the Manchester Statistical Society on Bills of Mortality* (Manchester (?) 1842) p. 16.

4. H. D. Littlejohn, *Report on the Sanitary Condition of the City of Edinburgh* (Edinburgh 1865) pp. 15, 18.

and it was the very increase in the frequency and intensity of epidemics that was at the root of the rising mortality of this period—the rate had risen to 34.2 in the 1830s.¹ This retrograde trend evidently continued until at least the late 1840s, after which improved and more widespread public health activity began to remove the more obvious sources of disease.

The resurgence of national mortality rates in the first half of the nineteenth century cannot, of course, be substantiated unequivocally by sound statistical evidence. The early censuses of population were simply enumerations which do not permit the calculation of trends in birth and death rates. The registration of births and deaths began only in 1837, and there are consequently no relevant official statistics before that date. Nevertheless, it was the Census Commissioners in 1831 who first² drew attention to the upturn in national mortality rates: they estimated that while the rate for 1816-20 had been 17.6 per 1,000, ten years later it had risen to 18.5.³ Probably no person knew more about demographic trends in this period than William Farr, Compiler of Abstracts to the Registrar-General. He joined with Finlaison in believing there to have been a marked reduction in the death rate during the eighteenth century. But 'since 1816', he wrote in 1849, 'the returns indicate a retrograde movement. The mortality has apparently increased.'⁴

It is not possible, at least from the statistical material at present available, to date this upturn in mortality rates with greater exactitude than to say that it appears to have occurred during the first two or three decades in the nineteenth century; it was, in any case, from its nature, an extremely gradual movement. Until this time, medical, economic, and environmental forces had slowly, though probably not regularly, depressed the national death rate for perhaps one hundred years to an extent sufficiently great to offset the increasing, though still relatively small, concentration of population in the comparatively lethal environment of towns. But thereafter the solid accumulation of disease-carrying filth in the urban growth of the Industrial Revolution gradually began to offset these improvements, and, in the end, to more than offset them. The 1830s and 1840s saw the appearance of a kind of Malthusian bogey, not, in the terms commonly linked with Malthus, of the positive check of famine—economic advance took care of that; but of retribution by disease. The population of this country was beginning to exceed its capacity—or willingness—to house itself healthily.

There is no inconsistency between this postulated increase in the death

1. Robert Cowan, *Statistics of Fever and Small-Pox in Glasgow* (Glasgow, 1837) p. 7. These, of course, are crude death rates, and may reflect, to some extent, a changing age-composition of the population.
2. With the exception of John Finlaison, who already in 1829 had shown from actuarial sources that, for the younger age-groups, there was a turn to rising death rates during the war period from 1793-1815. (*Report by John Finlaison*, P.P. 1829, III, 66-7.)
3. *Comparative Account of the Population of Britain, 1831*, P.P. 1831, XVIII, 15. Their estimates for earlier periods were rates of 20.8 for 1796-1800, and 19.6 for 1806-10.
4. William Farr, *Vital Statistics* (1885) p. 150.

rate and the continued rapid growth of the population. The rate of growth of population did, as it happens, reach its maximum in the second decade of the nineteenth century, falling slightly thereafter, but there are good grounds for believing that birth rates remained high.¹ Chadwick himself was satisfied that, in the conditions of early nineteenth-century towns, birth rates moved directly with death rates, a view supported by one of the best informed of nineteenth-century sociologists, William Alison,² as well as by the greatest of vital statisticians, William Farr.³

One school of thought attributed the rising incidence of disease in the first half of the nineteenth century quite simply to the Irish immigration. Several witnesses before the Irish Poor Inquiry of 1836 stressed the role of the Irish in disseminating disease. 'The Irish in Birmingham are the very pests of Society', said one, 'they generate contagion.' And the Commissioners themselves concluded that, 'from the filthy conditions of the bedding, the want of the commonest articles of furniture, the uncleanly habits of the inmates themselves, and the numbers which, without distinction of age or sex, are closely crowded together, they [the Irish] are frequently the means of generating and communicating infectious disease'.⁴ The President of the Manchester Statistical Society in 1859 went so far as to assert, with reference to the typhus epidemic of 1846-7, that 'its dissemination and virulence were co-extensive, not with the prevalence of nuisances, but rather with the current of Irish immigration so remarkable in that year'.⁵ This explanation of the spread of typhus has found favour with at least one influential medical historian.⁶ The chronology and geography of the 1817-18 epidemic substantiated the belief that Irish immigrants were the means of diffusing the disease.⁷ Typhus was a deficiency disease which struck hardest in times and regions of famine: its home in this era was, above all, in Ireland.⁸

The great weight of medical opinion, nevertheless, preferred to attribute the resurgence of disease to increasing overcrowding and lack of sanitation. As early as 1797, Dr Currie of Liverpool had observed that typhus infection arose from 'a want of cleanliness and ventilation'.⁹

1. Glass has shown, for example, that birth rates remained virtually unchanged from 1841 to 1880, quinquennial averages fluctuating only between a minimum of 34.8 per 1,000 and a maximum of 35.8. (D. V. Glass, 'A note on the under-registration of births in Britain in the 19th century', *Population Studies*, V (1951-2) 85.)
2. W. P. Alison, *Observations on the Management of the Poor in Scotland and its Effects on the Health of Great Towns* (Edinburgh 1840) p. 98.
3. *Fourth Report of the Registrar-General* (1840-41) p. 143.
4. *Report of the Poor Inquiry (Ireland) Commission, App. G*, 'Report of the State of the Irish Poor in Great Britain', P.P. 1836, XXXIV, pp. 6, xi.
5. T. S. Ashton, *Economic and Social Investigations in Manchester, 1833-1933* (1934) pp. 52-3.
6. August Hirsch (trans. C. Creighton), *Handbook of Geographical and Historical Pathology*, Vol. I (1883) 556-8.
7. Review article on epidemic fever in *Edinburgh Medical and Surgical Journal*, XIV (1818) 531.
8. R. Hare, *Pomp and Pestilence* (1945) p. 96.
9. James Currie, *Medical Reports* (Liverpool 1797) p. 214.

Commenting on an early epidemic of 1806 in Dublin, the physicians there asserted that 'we have many reasons for supposing that fever is often generated by causes independent of contagion, namely by the concurrence of filth, bad air, and accumulated animal effluvia. . .'.¹ 'Typhus so generally makes its first appearance', wrote another experienced doctor in 1833, 'as well as rages with its highest intensity, in the narrow, airless, and crowded lanes, and alleys, of our great cities.'² A group of doctors petitioned the House of Commons as early as 1834 on the subject of the state of London's sewers, and drew attention to the adverse effects on public health of defective sewerage.³ Dr Yule, the physician to the public dispensary in Edinburgh, believed that 'on the whole, it appears that typhus fever is a disease originating from the re-absorption of a specific poison expelled from the human body, even in a state of health, allowed to accumulate not only in jails, ships, hospitals, etc., but in the close and crowded dwellings of the people'.⁴ It was, however, principally the famous reports of Doctors Kay, Arnott and Southwood Smith to the Poor Law Commission in 1838, to which reference is made below, that most emphatically fixed the blame for the spread of disease on squalid urban conditions.

Somewhat paradoxically, the deterioration of urban public health conditions in the second quarter of the nineteenth century went hand-in-hand with an increased attention to public health and sanitation by some local authorities. The work of the bodies variously known as 'Police', 'Lighting', or 'Paving' Commissions, or more generally as 'Improvement' Commissions, is well known, and calls for no additional comment here.⁵ Local Boards of Health sprang into existence on the occasion of the more severe epidemics, such as the typhus outbreak in Manchester of 1795-6, and the cholera epidemic in many large towns in 1831-2.⁶ A long series of Building Acts endowed local authorities with limited powers of regulation over the quality, design, and location of buildings. Liverpool secured such Acts in 1825, 1839, and 1842, and London in 1774.⁷ It was a local Building Act of 1846 which authorised the Corporation of Liverpool to appoint the nation's first local Medical Officer of Health.⁸ But

1. *First Report on the Object and Effects of the House of Recovery in Cork Street, Dublin, by the Physicians to that Institution* (Dublin 1806) p. 9.
2. Richard Millar, *Clinical Lectures on the Contagious Typhus* (Glasgow 1833) p. 10.
3. *Report of the Select Committee on Metropolis Sewers, P.P. 1834, XV, 52-63.*
4. J. Yule, *Observations on the Cure and Prevention of the Contagious Fever* (Edinburgh 1818) p. 23.
5. See S. & B. Webb, *Statutory Authorities for Special Purposes* (Vol. IV of *English Local Government*), chap. IV. For a full study of the work and achievements of one such commission, see A. Redford and I. S. Russell, *The History of Local Government in Manchester* (1939) I, chaps. IX-XIV.
6. E. P. Hennock, 'Urban sanitary reform a generation before Chadwick', *Econ. H. R.* 2nd ser. X (1957) 113-20; and see W. H. Chaloner, 'Manchester in the latter half of the eighteenth century', *Bulletin of the John Rylands Library*, XLII (1959) 56.
7. *Report of the Select Committee on Building Regulations and Improvement of Boroughs, P.P. 1842, X, 133.*
8. W. M. Frazer, *Duncan of Liverpool* (1947) pp. 35-6.

the local Boards of Health were disbanded, on the waning of the epidemics, with even more haste than they had been constituted, while the improvement commissioners too often concentrated their attention solely on the middle-class districts of their towns, leaving the greater number of streets inhabited by the poorer classes wholly without essential services.¹ However valiantly the improvement commissioners might struggle to cope with the flood-tide of urbanisation—and few of them struggled very valiantly—they were fighting losing battles. Constitutionally, financially, administratively, technically, and ideologically ill-equipped to cope with the frightening immensity of the task in the field of public health alone, they seldom touched more than the outer fringes of the problem. For every step they took forward, they fell back two.

The most fundamental weakness of the improvement commissions was constitutional. The constitutional history of local government took its most decisive turn in 1835 with the passing of the Municipal Corporations Act. Thereafter, those boroughs which took advantage of its provisions to fit themselves out with a local government worthy of the name were tolerably armed to cleanse the Augean stables of their working-class housing districts. Many set to work energetically and effectively from the 1840s; others were tardier, and many small towns and large industrial villages had to wait another generation or more for the establishment of local government authorities capable of tackling, and authorised to spend money on, matters relating to public health. That proportion—a relatively small one—of the population fortunate enough to be served by a modern apparatus of local government after 1835 was reasonably assured of a steady reduction in preventable mortality. Although the first generation governed by the new municipal corporations might still die normally in its forties, its sons could live into their fifties, and its grandsons into their sixties. For these town-dwellers the need for national legislation and centralised administrative supervision on the lines attempted after 1848 was less urgent. But it is important to notice that the work of the new corporations was only beginning in the 1840s, and could hardly pay dividends in the shape of reduced mortality until the following decades. The problem, then, was still unsolved while Chadwick was at the Poor Law Commission. For the great bulk of the population outside the new corporate boroughs the need was for administrative reform of any kind, local or national.

If the decline of the death rate had continued after the first decade of the nineteenth century, it is just possible that existing institutions and existing policies might have been able to cope with the social problems of urban development. But the earlier reduction of mortality was itself the means of releasing upon the hapless cities a flood of immigrants from the surrounding countryside which inflated the subsequent difficulties beyond all hope of solution under existing regimes. However, so inured were the men of the eighteenth and early nineteenth centuries to the toll of disease, to the shortness of the span of urban human life, that they were unlikely to be moved by only a slight rise in the death rate, which, in any case, was not easily detectable in the short-run fluctuations pro-

1. *San. Rep.* pp. 115, 125, 166.

duced by epidemics. It would take time. But the pressure grew remorselessly, each fresh epidemic giving the screw a sharper twist. In Glasgow, for example, whereas the fever epidemic of 1836-7 pushed the death rate up to 41 per 1,000, that of 1847 drove the rate up to 56.4 per 1,000.¹

The contribution of the medical profession

The economic and social background to the public health question of the first half of the nineteenth century has been sketched in at some length because, in the long run, it was the progressive deterioration of living conditions in the cities which, above all, stimulated action within the small group of men aware of the situation. But because this kind of mill grinds slowly, it might not necessarily have produced for several decades the kind of reformation which, thanks to Chadwick's efforts, subsequently transformed British town life within barely two generations. The timing of the beginning of operations was the product of many other factors.

Perhaps the most significant of these other factors was the rise during the late eighteenth and early nineteenth centuries in both the numbers and professional skill of medical practitioners. Even in the mid-nineteenth century, qualified doctors were very few in number, and many, possibly a majority, of the inhabitants of this country lived their lives without ever meeting a medical man. There was, of course, a considerable periphery of ill-qualified practitioners, but the value of the work of these apothecaries in changing the course of national mortality rates may be doubted. Although in the late eighteenth century both the English and Scottish universities possessed medical schools, most produced very few graduates, while the value of the medical training at Oxford and Cambridge which, even in the late eighteenth century, involved 'no patients, no clinical lectures, which are the *sine qua non* of a medical education',² must have been negligible. Although the colleges of physicians and surgeons contributed in this period to the increase in the number of skilled practitioners, there can be little doubt that the best doctors were trained in the medical schools of the Scottish universities, and that, of these, Edinburgh led by a long way. There was, it is true, some small augmentation of the supply from Leyden and other universities abroad, but many of those from Britain who studied overseas were already medical graduates of Edinburgh or other universities. In the late eighteenth century, Edinburgh was training pitifully small numbers of medical graduates—213 in the whole of the 1770s, 280 in the 1780s, and 394 in 1790s. Thereafter there was a dramatic increase in the production of doctors at Edinburgh, rising to a peak in the 1820s, when 1,139 graduated.³ In 1828 the Edinburgh medical school was supplemented by University College, London, where the medical school was one of the most important faculties from the start.

1. A. K. Chalmers, *The Health of Glasgow, 1818-1925* (Glasgow 1930) p. 3.

2. B. Hamilton, 'The medical profession in the eighteenth century', *Econ. H. R.* 2nd ser. IV (1951) 148.

3. *List of Graduates in Medicine in the University of Edinburgh from 1728 to 1866* (Edinburgh 1867).

Whether more doctors inevitably meant better health is another question. Until fairly recently it was customary to assume, without going very deeply into details, that it did. Indeed, the common interpretations of the demographic changes of the eighteenth and early nineteenth century depended very largely on this assumption. Recently, however, some disbelief has been cast on this assumption. McKeown and Brown, in a now famous article,¹ insist that there were no medical advances in the eighteenth century likely to reduce the death rate more than marginally; that all surgery in that period was highly lethal, so that the more surgery there was, the higher would mortality become; that institutional confinement was associated with far higher maternal death rates than was domiciliary confinement on account of the higher risk of puerperal infection, so that the spread of lying-in hospitals involved an increase rather than a reduction of the death rate; and that the eighteenth- and early nineteenth-century hospitals spread infection, thus increasing a patient's prospect of dying from a disease other than the one he entered a hospital to have cured. They quote with approval Florence Nightingale's dictum that the first requirement of a hospital was 'that it should do the sick no harm', and conclude that 'the chief indictment of hospital work at this period is not that it did no good, but that it positively did harm'. It followed that not until the basic principles of bacteriology were understood (a development of the last quarter of the nineteenth century) could any reduction of the death rate through the work of doctors and hospitals be expected.

Most of this is undoubtedly true, but it does not point out that not all successful medical treatment in this period depended upon advances in medical knowledge. Much could be accomplished by the application of some very elementary medical principles not unrecognised even in the late eighteenth century. If hospitals were places where infection was spread, they can hardly have been more infectious than the squalid and insanitary dwellings described at length in the *Sanitary Report* and elsewhere from which their patients were being temporarily removed; and it is hard to believe that decent bedding, relatively fresh air, regular food, sympathetic nursing, and even the ministrations of the relatively ignorant doctors of the period, would not go some way towards assisting recovery. 'The condition of the working class', wrote Kay in 1834, 'has been much ameliorated by the promptitude with which medical assistance has been afforded to them. The mortality of large towns has diminished, and considerable subtractions have been thus made from the great sum of misery which is the inheritance of man.'² These simple applications of charity and the minimum desiderata of decent human existence not normally achieved by the lower range of urban dwellers can only have done good. Applied to infants—the age-group subject at this period to the highest mortality rates—in Foundling Hospitals as well as in fever and general hospitals, they may well have exercised a

1. T. McKeown & R. G. Brown, 'Medical evidence related to English population changes in the eighteenth century', *Population Studies*, IX (1955) 119-41.

2. J. P. Kay, *Defects in the Constitution of Dispensaries* (Manchester 1834) p. 5.

major effect on death rates. More important, there were active doctors like John Haygarth of Chester who were advocating and practising, at the turn of the century, such elementary principles of hospital hygiene as the opening of sickroom windows and doors, the removal and washing of dirty and infected clothing, and, most significantly, the isolation of fever patients.¹ The separation of fever patients into fever wards of general hospitals was begun about this time, as was the establishment of separate fever hospitals in the big towns, and the disinfection of the houses from which fever patients had been removed. It is hard to accept, furthermore, that the establishment of dispensaries was a retrograde step. These were widely set up from the last few years of the eighteenth century, and by offering, generally free of charge, a combination of the services performed in the twentieth century by the general practitioner's surgery, the out-patients' clinic of a hospital, and the dispensing chemist, they must have helped materially the cause of preventive as well as of curative medicine. The doctors of this period may have had little new to offer their patients; but not everything they offered was useless, and many more patients were being brought into contact with medical services of one kind or another. Some of the medical provisions of this period may have been harmful, but it is hard not to believe that much of it was beneficial. If it is conceded that the doctors did more good than harm, the really significant feature of the medical history of the late eighteenth and early nineteenth centuries is that a much wider section of the population was securing access to their services. It may be argued that it was only the urban population to which this applied: the urban population, however, was already sufficiently great for this to affect the national death rate significantly. Moreover, the urban classes newly receiving these benefits were just those suffering from high mortality rates most susceptible to reduction.

The same period—the last few years of the eighteenth century, and the early nineteenth century—also saw some remarkable advances in naval and military medicine which had important repercussions in the civil field. Whereas, according to one statement, in 1782 one man in 3.3 of the total strength of the Navy was sent to hospital during the year, in 1829 it was only one man in 8.9.² The conquest of scurvy and the reduction of the incidence and fatality of infectious fevers was the result of the work of military doctors like Pringle and Lind. It owed little to specific advances in medical knowledge, but much of the extension of discipline into the field of personal hygiene, diet, and the use of soap on board ship and in camp. As early as 1781, Sir Gilbert Blane made a series of recommendations to the Board of Admiralty which, he claimed, were the means of bringing about 'a total change in the state of the health of the Fleet'. He attributed the appallingly high sickness rate to:

1. John Haygarth, *A Letter to Dr Percival on the Prevention of Infectious Fever* (1801) p. 73 ff.

2. Sir Gilbert Blane, *A Brief Statement of the Progressive Improvement of the Health of the Royal Navy at the End of the Eighteenth and Beginning of the Nineteenth Century* (1830) p. 11; and see his *Observations on the Diseases of Seamen* (1785).

1st. The neglect of cleanliness, ventilation, and dryness in the interior economy of ships.

2ndly. The want of the supply of an article which it had been found, by the most unequivocal experience to be infallible in preventing and curing scurvy, one of the most destructive scourges, and the most peculiar to the sea service, of any class of disease. The remedy alluded to is the juice of lemons or lime.

3rdly. The abuse of spirituous liquors, not merely as the most common means of intemperance, but as the habitual beverage of seamen, even when diluted. . . .

4thly. The want of adequate nourishment and comfort for the use of the sick and convalescent on board of their own ships.

5thly. The want of proper bedding and of soap. . . .

6thly. The want of a gratuitous supply of medicines, as well as necessaries to the surgeon, in order to enable them to cure as many as possible without sending them to hospitals.

7thly. As hospitals are, to a certain degree, indispensable at the principal stations, especially for the relief of ships in which contagious diseases prevail, new regulations of them in point of space, separation, ventilation, and cleanliness, were also recommended.¹

This kind of common sense paid royal dividends. More important, as the news of its success began to filter through to civil practice during the early decades of the nineteenth century, its precepts became gradually the stock-in-trade of more and more civil practitioners. The contrast between the sort of hygiene which was reducing the lethal nature of service in the armed forces and that prevailing increasingly in the towns persuaded growing numbers of the medical profession to join in the chorus of protest of which the *Sanitary Report* was merely one expression.

That a growing proportion of the population was benefiting from the increasingly effective care of the medical profession in the early nineteenth century is thus reasonably certain. But in spite of this beneficial trend, it is equally certain that disease was winning the race. The doctors were fighting a losing battle against rising ill-health. They remained far too few in number, and were far too ill-equipped technically to do more than touch the fringes of the problem. The real relevance of the medical developments of this period for the early history of public health was less their immediate impact on death rates than their contribution to a growing awareness of the correlation between dirt and disease. And this very awareness itself fathered another tendency of the utmost importance. This was a steadily increasing involvement of members of the medical profession in social questions, and hence in the hurly-burly of the struggle over social policy. The *Sanitary Report* itself owes its origin proximately to the social work of the famous trio of doctors—Arnott, Kay, and Southwood Smith; while William Farr, whose contribution to the movement is discussed below, was attracted to his chosen field through his medical training. More than any other social group, the doctors of the nineteenth century were responsible for stirring the social conscience. So great, in the aggregate, was the share of the medical profession in the campaign for public health reform, that it is tempting

1. Blane, *op. cit.* pp. 21-2.

to look rather more closely at the springs of their passionate advocacy of a cleaner and healthier Britain. For it is certain that there was more to it than merely the ardent insistence of medical purists for cleanliness and sanitation for its own sake. It was largely because such medical aims were inspired by more deeply held social convictions that the doctors generated spontaneously a public health movement, and were able to feed it with an inexhaustible supply of persuasive statistical and descriptive material.

Since many of the practising doctors of this period, and, in particular, a high proportion of those active in the early public health movement, were graduates of Edinburgh University, it is possible that one clue may be found there. Three broad classes of social reformers appear to have emerged from Edinburgh University in the first half of the century: first, a group of aristocratic, mainly Whig, politicians, which includes Lords Lansdowne, Russell, Brougham, and Palmerston; second, a group of civil servants, who, as factory, health, and educational inspectors, played major roles in the extension of public work in their respective spheres: they included Leonard Horner and James Stuart, factory inspectors; Gavin Milroy, Hector Gavin, and James Smith, health inspectors; and Peter Reid and J. D. Morell, education inspectors; and third, a group of pre-eminent socio-medical reformers, including James Phillips Kay, Peter Gaskell, and Doctors Percival and Ferriar.¹ Of the first group, one at least—Lord Palmerston—went to Edinburgh specifically to sit at the feet of the then professor of moral philosophy, Dugald Stewart. During his year in Edinburgh, Palmerston lodged with Stewart, and kept very full notes of his lectures on Political Economy.² Stewart's claim to distinction lies primarily in his extraordinary success as a lecturer, and in his personal influence on others. He delivered the University course of lectures in Political Economy between 1800 and 1810. While he was particularly anxious to avoid the stigma of radicalism, he does not appear to have been wholly successful in doing so,³ and, whether he would have liked it or not, his analysis of the social and economic system of the day was the starting-point of many a reformer's career.⁴ Sir Samuel Romilly, the great law reformer, referred to 'my old and excellent friend, Dugald Stewart',⁵ while Lord John Russell's admiration prompted him to sing his praises in inferior verse.⁶ Lord Jeffrey, later of the *Edinburgh Review*, attended the lectures on Political Economy in 1802. Small wonder that Sir James Mackintosh wrote of Stewart that 'his disciples were among his best works'.⁷

1. See David Roberts, *Victorian Origins of the British Welfare State* (Yale University Press, New Haven 1960).

2. H. C. F. Bell, *Lord Palmerston* (1936) I, pp. 6-10. Lord Palmerston's notes on Dugald Stewart's Lectures in Political Economy, London Museum MS. 28; Edinburgh University Microfilm, M. 136.

3. See his letter to Lord Craig, 20 February 1794, Edinburgh University MS. DC.6.11, fols. 113-15.

4. The lectures are published in Vol. VIII of the *Works* of Dugald Stewart (1854-60).

5. Edinburgh University MS. DC.6.11., f.16.

6. *Ibid.*, f.11.

7. Stewart, *Works*, VIII, p. ix.

One disciple, pre-eminently, nurtured the seeds of social reflection which Stewart sowed in such fruitful soil in the first decade of the century. This was William Pulteney Alison (1790-1859), whom Stewart hoped would succeed him in the Chair of Moral Philosophy. Alison, however, chose a more practical career. Entering Edinburgh University in 1803, he first studied for an arts degree, before turning to medicine. He was an enthusiastic admirer of Stewart, and his earliest published writing was an article defending Stewart's philosophy.¹ Alison carried his interest in social questions with him into the medical school, where as Professor of Medicine from 1820 to 1856² he passed on to several generations of students some of the lessons he had learnt as Physician to the New Town Dispensary. The fruits of twenty-five years' social work in some of the worst social conditions of Britain were embodied in his classic document on the relief of poverty, which was the major influence behind the reform of the Scottish poor law in 1845.³ Alison was one of Chadwick's major sources for Scottish material for the *Sanitary Report*, and he may be considered to occupy a similar position in Scotland in relation to poor law and public health reform to that held by Chadwick in England.

Between them, Stewart and Alison spanned over seventy years of the life of Edinburgh University, leaving their mark on the minds of many of the major social and medical reformers of the late eighteenth and early nineteenth centuries. One characteristic which distinguishes the medical writers of the early nineteenth century from those of the eighteenth century is their greater willingness to set medical problems in a wider social context, and there are good grounds for believing that the teaching at Edinburgh was at least one of the factors in this widening of the medical horizon.⁴

Whatever the source of the intensely human concern of a growing circle within the medical profession for social welfare, its role in laying the foundations of subsequent social policy is unmistakable. It was the doctors who were the first to see that sheer poverty was the underlying cause of squalor and ill-health. Richard Howard, with years of experience in the Manchester slums behind him, observed that 'in persons labouring under an impaired state of health from deficiency of food, there is a remarkable susceptibility to the effects of contagion. . . . The destitute are [fever's] most frequent victims'⁵; while Richard Millar, with a like background in Glasgow, wrote: 'Typhus so generally makes its first appearance, as well as rages with its highest intensity, in the narrow, airless, and crowded lanes, and alleys of our great cities, the well known

1. *Blackwood's Edinburgh Magazine*, II (1817-18) 57-65, 159-65.

2. He held the Chair of Forensic Medicine from 1820 to 1821, that of the Institutes of Medicine from 1821 to 1842, and that of the Practice of Medicine from 1842 to 1856.

3. W. P. Alison, *Observations on the Management of the Poor in Scotland and its Effect on the Health of Great Towns* (Edinburgh 1840).

4. D. Guthrie, *Scottish Influence on the Evolution of British Medicine* (1960).

5. Richard B. Howard, *An Inquiry into the Morbid Effects of Deficiency of Food* (1839) p. 38.

habitations and resort of mendicity and indigence.¹ As far back as the 1770s, Lettsom had hinted at a link between poverty, urban squalor, and disease. 'Great cities', he wrote, 'are like painted sepulchres; their public avenues, and stately edifices seem to preclude the very possibility of distress and poverty; but if we pass beyond this superficial veil, the scene will be reversed.'²

This extension of the medical horizon opened up new possibilities in the study of diseases and epidemiology. Doctors began to probe into the social origins of disease with a new insight. In Dublin, a group of doctors anticipated, as early as 1806, many of the conclusions of the *Sanitary Report*. After investigating conditions in Plunket Street, Dublin, whose thirty-two houses contained 917 inhabitants, they reported that 'a great proportion of the lower classes live in lanes and back yards. The houses through the Liberty in general are unprovided with privies, or the privies are choked up. The lane, therefore, is frequently the deposit of all the filth of the adjacent buildings. If the attention of the scavengers is seldom directed to the streets of the Liberty, still more neglected are those recesses, which in fact, are hardly ever cleansed; the constant respiration of air thus tainted, must gradually weaken the powers of life; and if diseases be not the immediate consequence, the system is at least fitted for the reception of contagion whenever it presents itself.'³ Other doctors stressed particular black-spots. Ferriar, who observed that 'the mean lodging-houses . . . are the principal nurseries of febrile contagion', anticipated one of Chadwick's points of attack,⁴ as did Walker, who may be credited with initiating the movement for the reform of the metropolitan burial grounds.⁵ In a long and comprehensive study, which anticipated something of Booth's work later in the nineteenth century, Thackrah studied the occupational incidence of ill-health,⁶ while in 1801 Willan, and in 1819 Bateman, made special studies of London's diseases.⁷

Vague generalities, however eloquently expressed, tended to cut very little ice in the early nineteenth century. Realising that the first need was for more precise information on the subject, a number of the most active medical reformers turned their attention to detailed local surveys. This was an immensely important approach, since until the late 1830s, when the Registrar-General first started publishing annual reports, there was a complete absence of the statistical basis for satisfactory investigation on

1. Richard Millar, *Clinical Lectures on the Contagious Typhus* (Glasgow 1833) p. 10.
2. J. C. Lettsom, *Medical Memoirs of the General Dispensary in London* (1774) p. x.
3. *First Report on the Object and Effects of the House of Recovery in Cork Street, Dublin by the Physicians of that Institution* (Dublin 1806) p. 25.
4. John Ferriar, *Medical Histories and Reflections* (2nd edition 1810) I, 172.
5. G. A. Walker, *Gatherings from Grave Yards* (1839).
6. C. T. Thackrah, *The effects of the Principal Arts, Trades and Professions . . . on Health and Longevity* (1831).
7. Robert Willan, *Reports on the Diseases of London, particularly during the Years 1796, 97, 98, 99 and 1800* (1801); Thomas Bateman, *Reports on the Diseases of London* (1819).

a national scale. Moreover, it was as a consequence of careful, detailed and revealing local reports that the *Sanitary Report* itself was ultimately commissioned in the late 1830s.

The pioneer of local epidemiological studies was John Haygarth of Chester (1740-1827). In 1774 he carried out a census of Chester's population, to which he added a survey of the incidence of disease over the previous ten years. It is of some interest that the average annual mortality of 25 per thousand which he estimated for the period 1765-73 (one appreciably higher than the national average for the early nineteenth century), proved, as he said, 'Chester to be healthy in such an uncommon degree as will astonish those who are best acquainted with the general state of mortality in large towns'.¹ Haygarth was amongst the first to recognise the importance of isolating fever patients in hospitals, a principle which he advocated in print together with other sensible doctrines concerning fresh air and cleanliness.² His pioneer efforts were followed in the next decade by those of John Heysham, an Edinburgh graduate, at Carlisle. Heysham is best known for his 'Carlisle life table', which was widely used by Friendly Societies and actuaries for the following forty years. His actuarial work, however, was only a by-product of his study of disease in Carlisle. His conclusions, inevitably, were those of the *Sanitary Report* of sixty years later. Disease, he said, 'is the offspring of filth, nastiness and confined air, in rooms crowded with many inhabitants. . . I think we may without much hesitation pronounce that the occasional cause of it is *human effluvia*, which has been generated in some little dirty confined place, of which there are great numbers in Carlisle and every other large manufacturing town.'³

There were medical writers like John Robertson, who commented at some length on the defective sanitation of particular towns,⁴ and others, who, after making some attempt to assess the problem quantitatively, were able to pin down the cause of disease more accurately to particular housing conditions and localities under particularly unfavourable economic circumstances.⁵ The best-known product of this school, which provided perhaps the most fruitful quarry for social reformers in the

1. John Haygarth, 'Observations on the population and diseases of Chester in the year 1774', *Philosophical Transactions*, LXVIII, Pt. I (1778) 131-54.
2. John Haygarth, *A Letter to Dr. Percival on the Prevention of Infectious Fevers* (1801).
3. John Heysham, *An Account of the Jail Fever or Typhus Carcerum as it appeared at Carlisle in the year 1781* (1782) pp. 24, 31. And see Henry Lonsdale, *The Life of John Heysham, M.D.* (1870).
4. John Robertson, *A Treatise on Medical Police* (Edinburgh, 2 vols. 1809). He examined causes of diseases in Edinburgh in Vol. II, 223-93, and in London in Vol. II, 295-347.
5. E.g. William Moss, *Medical Survey of Liverpool* (1784); James Currie, *Medical Reports* (Liverpool 1797); John Clark, *A Collection of Papers intended to promote an Institution for the Cure and Prevention of Infectious Diseases in Newcastle and other populous Towns* (Newcastle 1802); Robert Cowan, *Statistics of Fever and Smallpox in Glasgow* (Glasgow 1837), and 'Vital statistics of Glasgow, illustrating the sanatory condition of the population', *J.R.S.S.*, III (1840) 257-92.

1830s and 1840s, was James Kay's classic study of the Manchester slums of 1832.¹ By the time of the first cholera epidemic in 1831-32, sufficient was known generally about the interconnection of disease with housing conditions to produce immediately an immense outpouring of literature drawing attention, place by place, and street by street—at times, house by house²—to the origin and diffusion of the epidemic by insanitation and poverty.³

Statistical studies

The proliferation of local studies bore fruit not merely through the sheer weight of evidence in influential but uninformed quarters, but also through the diffusion of the right blend of science and humanitarianism in all professional arenas, administrative and legal, as well as medical and political. But all these studies suffered from one fundamental weakness: their appeal was emotional rather than intellectual; they lacked the broad statistical basis, without which they could so easily be dismissed as exaggerated, untypical, or unimportant. The need for such quantification had been felt and expressed since the late eighteenth century: Bentham had been outspoken on the need for a far greater range of official statistics than were available to his generation.⁴ Malthus's acute observations on the relationship between population and resources played an important part in the decision to take the first census of population in 1801. For whatever reason, this enthusiasm for quantification was intensified in the 1830s, a decade which witnessed the rapid and widespread growth of a serious interest in statistical studies.

It is never easy to explain the sudden emergence of a new intellectual movement, but it is possible that the urge for statistical enquiry which flared up in the 1830s stemmed from the actuarial work sponsored by friendly societies, life assurance societies, and the National Debt Office of the government. Until the 1820s these bodies relied, to their detriment, on the antiquated Carlisle and Northampton tables. The parliamentary enquiries of the 1820s (to which reference has already been made) led, mainly through the work of Finlaison, to a complete revision of the actuarial basis of all forms of life assurance. In the process, for the first time, accurate information concerning the duration of human life was made available. The reality was sufficiently disturbing to stimulate the quest for more information and for the social facts underlying the bare figures. Not all of those who felt the need for an extension of statistical studies, however, shared the desire that these studies should take a sociological direction. Whewell, the Master of Trinity, who was President of the British Association in its early years, deprecated the

1. James P. Kay, *The Moral and Physical Condition of the Working Classes* (1832).
2. For example by Henry Gaultier, *The Origin and Progress of the Malignant Cholera in Manchester* (1833) pp. 7-8.
3. Some of it is reviewed by Asa Briggs in 'Cholera and society in the nineteenth century', *Past and Present*, No. 19 (1961) 76-96.
4. Mary P. Mack, *Jeremy Bentham: an Odyssey of Ideas, 1748-1792* (1962) pp. 235-40.

extension of statistical enquiries 'into regions where they would touch on the mainsprings of feeling and passion'. This attempt to suppress the statistical study of social problems led to the breaking-away from the British Association of those interested in this aspect of statistical enquiry, and to the creation, in 1834, of the Statistical Society of London.¹ The new body very quickly got down with the utmost vigour to the prosecution of enquiries, both local and national, into aspects of public health, population, incomes, employment, housing, education, and religion. The London society was neither the first nor the last of its kind.²

An important branch of these new statistical studies—'vital statistics'—was created and dominated for several decades by William Farr. Born in Shropshire in 1807, Farr trained as a doctor in Paris and London, and went into practice in London in 1833. He very early showed an interest in public health matters,³ but his real interest lay in the field of population statistics. An authoritative article on 'Vital Statistics' in McCulloch's *Account of the British Empire* in 1837⁴ laid the foundations not only of a new science, but also of Farr's own reputation, and in the following year, through the influence of Sir James Clarke, he secured the appointment as Compiler of Abstracts to the newly-established office of the Registrar-General, at a salary of £350 per annum. Thomas Lister, the first Registrar-General, was a brother-in-law of the Home Secretary, Lord John Russell, and, from the start, Farr was the effective head of the new small department. Though Farr's remuneration was substantially increased as time went on, it is to the discredit of Victorian governments that he was never appointed to the nominal headship of the department that owed everything to his genius, though the post became vacant more than once during his long career there.

The establishment of the office of Registrar-General in 1837 marks a major turning-point in the history of public health, as well as of demography in Britain.⁵ For the first time, the accurate measurement of birth

1. B. K. Gray, *Philanthropy and the State* (1908), Appendix to chap. II, 'The origin of the Royal Statistical Society'. This attitude did not apparently subsist for long in the British Association, for in 1840 the Statistical Section made a grant of £100 to a powerful committee, which included Robert Cowan, W. P. Alison, and Edwin Chadwick, for an enquiry into vital statistics (*J.R.S.S.*, III (1840) 211).
2. See T. S. Ashton, *Economic and Social Investigations in Manchester 1833-1933* (1934).
3. William Farr, 'Lecture on hygiene or the preservation of the public health', *The Lancet*, I (1835-6) 240-5.
4. William Farr, 'Vital Statistics', in J. R. McCulloch, *A Statistical Account of the British Empire* (1837) II, 567-601.
5. There has never been a satisfactory account of the origin of civil registration in this country. It tends to be commonly assumed that the Act of 1836 was the product of Chadwick's interest in public health questions, or, alternatively, that it was a necessary supplement to the Factory Act of 1833 to authenticate the ages of factory children. Yet the question had been opened at least as early as 1833, and it seems much more likely that the *Report of the Select Committee on Parochial Registration* (P.P. 1833, XIV), to which,

and death rates became possible. When the Registration Act was under discussion in 1836, Chadwick had succeeded in securing the insertion of a clause requiring registration of the cause of death, as well as the mere fact of death. One of Farr's first steps after his appointment was to draw up a classified list of causes of death—what he called a 'statistical nosology'—as a guide to the medical profession when registering deaths.¹ For the first time the public health movement was to be armed with trustworthy information concerning the relative importance of different types of diseases causing death. And this could now be set beside the splendid statistical background provided by the Registrar-General's basic returns—the age distribution at death, local variations in the incidence of disease, local variations in mortality rates, and, as time went on, trends in these important indices. This kind of detailed statistical information was to become the starting-point of the invaluable work of the local Medical Officers of Health in the second half of the nineteenth century. Its principles and concepts were the basis of a series of detailed local studies by the early Medical Officers, of which Henry Littlejohn's famous and revealing study of Edinburgh in 1865 is a classic example.²

One of the first uses Farr made of his new statistical information was to set a norm of mortality for the period, which he drew from an average of the mortality rates in 'healthy' areas of the country. Setting this beside the less healthy districts, he was able to show, in a particularly vivid way, the actual cost in terms of lives, of defective public health arrangements. Of Manchester in 1846, for example, he wrote: 'How pitiful is the condition of many thousands of children born in this world! Here, in the most advanced nation of Europe—in one of the largest towns of England—in the midst of a population unmatched for its energy, industry, manufacturing skill—in Manchester, the centre of a victorious agitation for commercial freedom— aspiring to literary culture—where Percival wrote and Dalton lived—13,362 children perished in seven years over and above the mortality natural to mankind.'³ Of the City of London, he stated that 'the plain truth is, that one day with another, 134 persons die daily in London: that the great majority are untimely deaths—children, fathers, mothers, in the prime of life; and that at least 38 die

inter alia, Finlaison gave evidence, and which recommended unequivocally 'that a new national system of Registration should be attempted', was a major step towards civil registration. A desire by non-conformists to establish some form of legally-valid registration of births, deaths, and marriages independent of the Church of England seems to have been the principal motive behind the appointment of this Select Committee. Its report, like Finlaison's calculations, appears to have been largely ignored by historians of British population in the eighteenth and early nineteenth centuries. Further investigation into the origin of this Select Committee might throw some light on the inauguration of civil registration in 1837.

1. *First Annual Report of the Registrar-General* (1839) pp. 92-100.

2. H. D. Littlejohn, *Report on the Sanitary Condition of the City of Edinburgh* (Edinburgh 1865).

3. *Ninth Annual Report of the Registrar-General* (1846) p. 29.

daily in excess of the rate of mortality which actually prevails in the immediate neighbourhood. 38 persons are destroyed every day in London by local causes.'¹

But more important even than the mere provision of the essential statistical basis for public health reform, and more remarkable because of his position as a civil servant, Farr both digested and propagated the lessons of his statistics. Perhaps this was because his own route to vital statistics had been via the medical profession; more likely it was because he was fired by an intense spark of humanity absent from so many of the class who were his immediate superiors. But whatever the cause, the *Annual Reports* of the Registrar-General became the vehicle for the expression of passionately-held personal views, for propaganda directed against the opponents of public health reform, and for agitation for state intervention in a new field, to a degree that would send cold shivers down the spine of a modern civil servant. A single example must suffice to illustrate the tone of his contribution—in a place at once unusual and effectual—to the campaign for legislation: 'This disease-mist, arising from the breath of two millions of people, from open sewers and cess-pools, graves and slaughter-houses, is continually kept up and undergoing changes; in one season it is pervaded by cholera, in another by influenza; at one time it bears smallpox, measles, scarlatina, and whooping-cough among your children; at another it carries fever on its wings. Like an angel of death, it has hovered for centuries over London. But it may be driven away by legislation. If this generation has not the power to call the Dead up from their graves, it can close thousands of graves now opening. The poisonous vapour may yet clear away from London—and from all the other towns of the kingdom:—some of the sunshine, pure water, fresh air, and health of the country, may be given to the grateful inhabitants of towns by the parting voice of the Legislature.'²

Reformers and administrators

It would be pleasant to be able to include among those forces which contributed to the movement for public health reform in its early years the work of the humanitarians and philanthropists. There is, however, little evidence that the great men of this group, who contributed so nobly to the abolition of slavery, to the reform of the factories, and to many other fields of social work in the nineteenth century, showed any serious interest in the public health question. The reasons for this are obscure. Perhaps it was that so few of them were brought into direct contact with the evils that resulted from neglect of central and local government in this field. Perhaps, according to a recently expressed view, the social reforms taken up by the evangelical philanthropists were subsidiary to their main purpose of propagating the evangelical way of life. In this view, social reforms were selected partly for their appeal to the humanitarian instinct, partly for their innocuousness to the existing social structure of the country, but above all with the purpose of attracting into the evangelical fold those whose conservatism had so far kept them

1. *Tenth Annual Report of the Registrar-General* (1847) p. xv. 2. *Ibid.*, p. xvii.

away from the paths of 'true religion'.¹ While the abolition of the slave trade and of slavery within the British Empire fitted these requirements exactly, the cause of public health did not. To the ladies of polite society there was nothing appealing about sewers and privies.

If there was little inspiration from a source so traditionally linked with the progress of social reform in the nineteenth century, a major obstacle to advance on the public health front was removed in 1830 by the appearance of a government not as innately hostile to administrative reform as its predecessors. Major measures in the realm of local government and parliamentary reform, factories and the poor law indicate that the Whig administration of 1830-41 at least did not start from the attitude that nothing could reasonably be done about anything. Moreover, there were in the ranks of the Whig ministry some men whose attitude towards public health reform might be even more positive than this. Lord John Russell, Lord Lansdowne, Lord Brougham, and Lord Palmerston each, at some phase of his career, displayed, to greater or lesser degree, an enthusiasm for social reform. Yet the image inspired by the phrase 'Whig reformers' should not be accepted too uncritically. The ministry was Whiggish before it was reforming, and in spite of their group of major reforms, the Whigs were far from possessing an overweening ambition to set the social and economic troubles of the country to rights. For the Whigs, above all, were landowners, and believed that the duties of government began with the safeguarding of the rights of property and in minimising government expenditure; they were, in any case, far too closely concerned with the twin problems of balancing the budget and the preservation of law and order, to have much thought, energy or time to spare for less pressing social problems of a long-term nature like public health. There was, in short, no correlation one way or the other between Whiggism and an interest in public health reform, and if, in the event, it fell to the lot of Whig governments to initiate Chadwick's enquiry and to pass the first Public Health Act in 1848, these are coincidences which require explanation in other terms.

The Whig ministry of 1830-41 was not the first government to be pushed into a programme of reforms from behind, but it was perhaps among the earliest administrations in which a programme of reform was initiated more by its own professional administrators than by 'public opinion' or even a rudimentary party machine. Recent studies have brilliantly illustrated how, for example, a persistent and quite unprincipled group of free traders in the ranks of the senior staff at the Board of Trade made use of official positions to engage extensively in propaganda and other forms of political pressure for Free Trade;² and how, on a more philanthropic plane, a small group of underpaid emigration officers in the Colonial Office laboured untiringly, and ultimately successfully, for effective amendment to the regulations governing emigrant shipping.³ The highly unorthodox, if praiseworthy, use of the

1. Ford K. Brown, *Fathers of the Victorians* (Cambridge 1961) pp. 106-15.
2. Lucy Brown, *The Board of Trade and the Free-Trade Movement, 1830-42* (Oxford 1958).
3. O. MacDonagh, *A Pattern of Government Growth, 1800-60* (1961).

Annual Reports of the Registrar-General by William Farr as vehicles of public health propaganda has already been mentioned, while the part played by the factory inspectors appointed under the 1833 Act in subsequent factory legislation is now well authenticated.¹ Much the same situation prevailed in the spheres of prison and educational reform.

Though such an outcome was clearly no part of the original intention of those responsible for the initial reforms, it is now quite clear that the Emigration Acts of 1828 and 1835, the Factory Act of 1833, the education grant of that year, and, most of all, the Poor Law Amendment Act of 1834, all brought into being a small group of professional administrators whose access for the first time to the real facts illuminating the nature of the problems with which they were grappling fired them with an earnest determination to improve and extend the regulations which were their principal weapons in the fight against social evils. Each of these civil servants in his turn discovered that the problem was far more acute and widespread than the original legislators had envisaged, and that the existing powers were utterly inadequate to enable them to handle their work effectively. They immediately became the leading voices in the campaign for more effective state intervention firstly in their own fields, and later, as the ramifications of social evil yielded to their persistent prodding, in other, related fields. The foundations of effective government action in the basic social and economic spheres were laid by such civil servants as Leonard Horner and Thomas Howell in the factories; James Kay-Shuttleworth and Joseph Morell in the schools; Frederick Hill in the prisons; Seymour Tremenheere in the mines; Lieutenant Low and T. F. Elliot in emigrant shipping; and, above all, by Edwin Chadwick in the Poor Law Commission. The beneficent influence of some of these early civil servants—inspectors, secretaries, and assistant commissioners—pervaded more than their own specialised sectors. Tremenheere, commissioner of mines from 1843 to 1854, served on endless commissions, wrote some major reports, and roamed freely over the whole range of social administration. Edwin Chadwick, nominally Secretary to the Poor Law Commission from 1834 to 1847, and Public Health Commissioner from 1848 to 1854, also played a major part in the reform of factories, the police, and labour in early railway construction, as well as in public health, water supply, burial grounds, and the relief of poverty.²

The connection between poverty and disease being so pronounced in the 1830s, it was inevitable that, of all the departmental breeding-

1. M. W. Thomas, *The Early Factory Legislation* (Leigh-on-Sea 1948).
2. David Roberts, *Victorian Origins of the British Welfare State* (Yale University Press, New Haven 1960), offers the first systematic enquiry into the background and achievements of this group of civil servants. And see R. K. Webb, 'A Whig Inspector', *Journal of Modern History*, XXVII (1955) 352-64. For a hypothetical systematisation of their work in the process of social reform, see Oliver MacDonagh, 'The nineteenth-century revolution in government: a re-appraisal', *Historical Journal*, I (1958) 52-67; and a criticism of this article by H. Parris, 'The nineteenth-century revolution in government: a reappraisal reappraised', *Historical Journal*, III (1960) 17-37.

grounds of social reform, the Poor Law Commission should yield the richest harvest. The clamour against the principles according to which the New Poor Law was administered has tended to obscure much of what was valuable in the post-1834 administration. Not the least of these virtues was the heightened role in the new administration of the medical profession. In the latter days of the Old Poor Law, it was becoming increasingly common for parishes to make contracts with surgeons and apothecaries, while the Poor Law Amendment Act of 1834 specifically authorised Justices of the Peace to order 'outdoor' medical relief.¹ The consequence of these developments was the appointment of salaried medical officers to virtually every one of the new Poor Law Unions. The medical officers were not, at first, it is true, regarded as part of the main framework of poor law administration, but their functions were quickly integrated, and by 1847 it was possible for the Board to formulate an administrative code of regulations governing the work of union medical officers.² It is hardly possible to over-estimate the value of the work done by the medical officers in the service of the poor law in the 1830s. Almost every page of the *Sanitary Report* bears ample testimony to their hard work, conscientiousness, experience, medical commonsense, and compassion. Their knowledge and experience of the factors affecting the lives, work, and health of the working class provided an inexhaustible mine from which the fires of agitation and propaganda might be stoked.³ They included in their number some of the most distinguished authorities on urban disease of the period—Richard Baron Howard of Manchester, William Duncan of Liverpool, and Charles Barham of Truro. Of more immediate relevance to the production of the *Sanitary Report*, the Poor Law authorities secured the services in the 1830s of the great trio of reforming doctors—James Kay, Neil Arnott, and Southwood Smith. It was the reports of these three doctors on conditions affecting public health in certain districts of London in 1838, which initiated the wider enquiry described in the *Sanitary Report*. But they had all three already been active in this field for some years. Their established reputations led to their being invited to make the surveys reported on in 1838. In the late 1830s they were the natural leaders of the movement for public health reform.

Like so many of the other leading figures in the movement for sanitary reform, James Phillips Kay (1804-77) studied medicine at Edinburgh. He first practised in Manchester, where he was physician to the Ardwick and Ancoats Dispensary in the 1820s. The experience gained while working among the Manchester poor equipped him with a thorough knowledge of the realities of disease and poverty, and imbued him with a

1. 4 & 5 William IV, c. 76, sec. 54.

2. M. Greenwood (the elder), *The Law relating to the Poor Law Medical Service and Vaccination* (1901) pp. 11-12.

3. For a survey of the work of the Poor Law medical officers, see Ruth G. Hodgkinson, 'Poor law medical officers of England, 1843-1871', *Journal of the History of Medicine and Allied Sciences*, XI (1956) 299-338; and *First, Second and Third Reports of the Select Committee on Poor Law Medical Relief*, P.P. 1844, IX.

quiet determination to do all in his power to help in the process of improvement. The rest of his life was devoted to the twin causes of the health and education of the labouring poor. His strong convictions concerning the interaction of poverty and bad housing first drove him into print in an obscure medical journal in 1830,¹ and it was only two years later that he produced his terrible indictment of the manufacturing society of his day.² As a founder member of the Manchester Statistical Society, he contributed further to the phase of detailed enquiry which must precede reform.³ His work and influence in Manchester were, however, cut short when, in 1834, he accepted an invitation to become one of the new Assistant Poor Law Commissioners. Here he operated in a very different environment, for the area to which he was allocated was rural East Anglia. In view of his previous castigation of the conditions under which the manufacturing classes of the North of England lived, it is odd that one of his first actions in Norfolk was to organise the mass-migration of many thousands of the Norfolk poor—the unwanted residue of rural over-population—to find employment in the manufacturing districts of the North. It was in Norfolk, too, that he first turned his attention to the education of the poor. He had always believed that the absence of an adequate education was at the root of most of the sufferings of the poor. 'Some prejudiced men,' he wrote in 1832, 'accustomed to examine only one side of the shield, are hence eager to attribute all the evils suffered by the poor, solely to their ignorance or moral deviations. On the contrary, not only do they suffer under the pressure of extraneous grievances, but even those which immediately flow from their own habits, may often be traced to the primary influence of the imperfect institutions of society on their character—to the combined effects of an untutored ignorance, bad example, uncountered by a system of moral instruction—and the desperate straits of a perverted spirit battling with hunger and toil.'⁴ But his efforts to promote the education of the pauper child in Norfolk were hampered by being forced to operate within the limits of poor law finance, and Kay was soon attracted to London, to assist the Central Commission with enquiries into the nature and problems of poverty in the Metropolis. His first enquiry was into the growing poverty of the Spitalfields weavers in 1837,⁵ and in the following year, in collaboration with Neil Arnott, he produced the seminal report on the causes of fever in London.⁶ By now, however, his heart lay in education rather than public health, and, on his appointment to the Secretaryship of the Privy Council's Committee on Education in 1839,

1. J. P. Kay, 'Physical condition of the poor', *The North of England Medical and Surgical Journal*, I (1830-31) 220-30.

2. J. P. Kay, *The Moral and Physical Condition of the Working Classes* (1832).

3. J. P. Kay, 'Defects in the constitution of dispensaries', *The Manchester Statistical Society*, 1834.

4. *The Moral and Physical Condition of the Working Classes*, p. 6.

5. 'Distress among Spitalfields weavers', *Third Report of the Poor Law Commission* (1837) pp. 142-9.

6. 'Prevalence of certain physical causes of fever in the Metropolis', *Fourth Report of the Poor Law Commission* (1838) pp. 103-29.

he turned his back on fifteen invaluable years in the service of public health reform.¹

Of his collaborator in the report on the health of London, Neil Arnott (1788-1874), less is known. Alone of the three poor law doctors, he has not yet attracted a biographer. Arnott was a friend of both Bentham and John Stuart Mill, and it was in their company that he first made the acquaintance of Chadwick and Southwood Smith. He became Chadwick's family physician.² The foundation of his ideas on sanitary hygiene was undoubtedly laid during his four years' service as a ship's surgeon with the East India Company. In civil practice he acquired a reputation as an authority on the heating and ventilation of houses. After his initial work for the Poor Law Commission in London in 1838, he turned his attention to his native Scotland, and contributed two papers to the volume of Scottish reports which supplemented the main *Sanitary Report*.³ He was a member of the Health of Towns Commission of 1843.

Of the three, it was probably Southwood Smith (1788-1861) whose medical experience carried the greatest authority, and who, in the long run, contributed most to the cause of sanitary reform. Born in Somerset in 1788, he studied medicine at Edinburgh. After a few years in general practice in Yeovil, he came to London in 1820.⁴ There he quickly found a niche in Bentham's circle, and it was he who delivered the famous lecture over Bentham's body before it was handed over, as Bentham had wished, to the anatomists.⁵ As physician to the London Fever Hospital he was familiar with disease and its urban background. He had started writing about public health matters as early as 1825, and was a well-established authority in this field by the time that the Poor Law Commission took up the question in 1838.⁶ It was as an authority on disease, and as a friend of Chadwick's from the days when Bentham was alive that Southwood Smith was invited to contribute to the Poor Law Commission's preliminary enquiries in 1838. His three papers of 1838 and 1839 presented a vivid and horrifying proof of the interconnection of insanitation and disease in London's East End.⁷ Southwood Smith colla-

1. Frank Smith, *Life of James Kay-Shuttleworth* (1923).

2. Rachel Chadwick to Charles Babbage, n.d., B.M.Add.MSS. 37,200, f. 82.

3. 'Report on the fevers which have prevailed in Edinburgh and Glasgow', *Local Reps. Scot.*, pp. 1-13; and 'Remarks on Dr W. P. Alison's "Observations on the generation of fever"', *ibid.*, pp. 34-40.

4. C. L. Lewes, *Dr Southwood Smith: a Retrospect* (Edinburgh 1898).

5. Southwood Smith, *A Lecture delivered over the Remains of Jeremy Bentham* (1832).

6. His early writings on public health include 'Contagion and Sanitary Laws', *Westminster Review*, III (1825) 134-67; *A Treatise on Fever* (1830); and *The Philosophy of Health* (2 vols., 1835-7).

7. 'Report on some of the physical causes of sickness and mortality . . . exemplified in the present condition of Bethnal Green and Whitechapel districts', *Fourth Report of the Poor Law Commission* (1838) pp. 129-39; 'Account of a personal inspection of Bethnal Green and Whitechapel', *ibid.*, pp. 139-53; and 'Report on the prevalence of fever in twenty metropolitan unions or parishes during the year ended the 20th March 1838', *Fifth Report of the Poor Law Commission* (1839) pp. 160-71.

borated with Chadwick in the 1838 reports, and, though the relationship never appears to have been easy,¹ and on one occasion came near to breaking-point, he nevertheless collaborated with Chadwick again for six years on the Central Board of Health of 1848-54.

In the short run, however, the crucial contribution was Edwin Chadwick's. There is little evidence that his interest in public health questions was anything other than minimal before 1838. It might not be fanciful to suggest that even in 1838 his enthusiasm took that direction at least partly because his inability to work with his three commissioners, and they with him, prevented him from filling his time in a normal manner with the routine work of the Poor Law Commission, leaving him to assuage his restlessness by probing matters marginal to the duties he was officially employed to perform. It might be thought that the opportunity of reviewing the reports on Friendly Societies in the 1820s to which Finlaison had made such notable contributions would have set up some train of reflection on factors affecting trends in mortality rates; but his early *Westminster Review* article on this theme offers no serious indication of the absorption that was later to make and break his public career.² On the other hand, the brief spell of acting as amanuensis to Jeremy Bentham produced the interesting proposals for a Health Ministry charged with 'the preservation of the national health'.³

Between the death of Bentham in 1832, and 1838, Chadwick's life was so completely filled with factory and poor law reform as to leave little time for investigations, or even reflections, in other fields. Yet, just as these were years when medical and statistical opinion was moving most swiftly towards state action, so they were the years when experience in other legislative fields was repeatedly bringing Chadwick face-to-face with the basic facts of poverty and disease in Britain. During the mid-thirties he took virtually no account of what was being done elsewhere in the sphere of public health, nor did the toilers in that field raise their heads for a moment to glance at the figure on the horizon. In 1838, however, the various separate strands that had hitherto constituted the public health movement converged—not so much converged, perhaps, as were drawn together by Chadwick; for Chadwick was a born leader who rose swiftly and inevitably to the forefront of every movement he embraced.

The year 1838, then, was an important turning-point in the history of the public health movement. Although its roots stretch back fifty years, the movement was, before 1838, unorganised, leaderless, and, in a legislative sense—the only sense that mattered in the long run—aimless. Essential foundations had been laid, pre-conditions established, but, important as these were, effective action was missing. This was what Chadwick supplied.

That Chadwick was the ultimate instrument of success was due in a large measure to his rugged determination, to his humanitarianism, and

1. The half-dozen draft letters to Southwood Smith in the Chadwick Collection at University College, London, are all in a formal tone, and begin 'Dear Sir'.

2. 'Life Assurances', *Westminster Review*, IX (1827-28) 384-421.

3. Jeremy Bentham, *Constitutional Code*, in *The Works of Jeremy Bentham*, ed. John Bowring (Edinburgh 1843), IX, 443-5.

to his skill as a sociologist. Chadwick has not hitherto ranked very high in the annals of sociology: he was less interested in academic enquiry for its own sake than in social revelation as a means to a legislative end. In the face of the charge that he predetermined conclusions, and selected only confirmatory evidence, Chadwick's claims to the parenthood of modern sociological investigation have been brushed aside in favour of his successor, Charles Booth,¹ a view which owes something to the partiality of some of the earlier investigations in which Chadwick played a leading part: the Factory Commission of 1833, and the Poor Law Commission of 1834. These enquiries, the legislation based on them, and the determination with which their basic principles were ruthlessly pursued to their logical conclusions by Chadwick himself, laid the foundations of much of his subsequent unpopularity. The Factory Commission was consciously established as a corrective to Ashley's Committee of 1832-3: in parading a great deal of medical evidence attesting the innocuousness of factory labour to the health of young children, the 1833 Commission was doing neither better nor worse than Ashley's Committee, but it was certainly not offering a model of impartial empiricism. Nor can the Poor Law Commission of enquiry be more easily excused by circumstances. It was obsessed by a single aspect of what was, in reality, an exceedingly complex social problem. To have tackled successfully the problem of poverty and its relief was probably far beyond the wit and resources of the early nineteenth century: for possibly fifty years before the Commission began its investigations the pressure of a surplus rural population prevented wages from rising to levels which even local Overseers thought adequate.² Nevertheless, few commissions of enquiry, before or since, have so determinedly closed their eyes to most of the facts. The Commission as a whole, and Chadwick in particular, was only interested in the supposed ill effects of the allowance, or 'Speenhamland' system. These aspects of the Old Poor Law were pursued with characteristically Chadwickian thoroughness, and the ensuing legislation designed above all to suppress this single perversion.

In extenuation of this undeniable partiality, however, it ought to be observed that the Factory Commission Report of 1833, for all its bias, presented a remarkably balanced conclusion—'calm and dispassionate in tone', as one historian of factory reform has written, 'and revealing clearly the logical and scientific attitude with which its authors had approached their task'.³ Even more important, the resulting Factory Act of 1833, though falling short of the demands of the Ten-hours Movement, took the crucial step of appointing the inspectors, the real authors of most subsequent legislative extension in this field. And to consider the Poor Law Report or the Act of 1834 in isolation is to do a serious injustice to Chadwick. As one of his biographers has recently shown, the deterrent embodied in the 1834 act was only a part of a much wider scheme by Chadwick for the treatment of poverty. Consideration of the

1. T. S. Simey, *Charles Booth* (1960) p. 242.

2. See Mark Blaug, 'The myth of the Old Poor Law and the making of the New', *Journal of Economic History*, XXIII (1963) 151-84.

3. M. W. Thomas, *The Early Factory Legislation* (Leigh-on-Sea 1948) p. 51.

preventive measures he would have liked to supplement the purely repressive ones was swept aside by Lord Melbourne in his haste to get reform of the poor law into the statute book.¹ Nevertheless, even making all possible allowances, both of Chadwick's early ventures into the field of social enquiry offer fairly extreme examples of partiality and predetermination. Chadwick was still raw, inexperienced, and obsessed, like most other social, political, and economic theorists of his day, with the belief that all problems were amenable to determinable laws or principles. However, he was young enough yet to learn, and the sanitary enquiry was to be one of his most effective teachers.

It is quite probable that when Chadwick started work on the sanitary enquiry in 1839, his approach was little different from the earlier enquiries in 1832-4. The problem in 1839 was excessive expenditure on poor relief; its solution he saw quite simply as the authorizing of expenditure for the removal of 'nuisances', supplemented by some quite conventional legislation in the shape of a Building Act.² His circular letter to the Assistant Commissioners at the start of the enquiry made it clear that, apart from some possible side effects—the publication of successful examples [of cottage design] may be useful in stimulating to the voluntary adoption of them—the only legislative measure he contemplated was a general Building Act.³ With this only very mildly doctrinaire background, Chadwick set to work for the next three years. The results of his own investigations and those of his hundreds of helpers came as a profound revelation to him—and, no doubt, to many others. As he read, investigated, discussed, and corresponded more widely during the years of enquiry, new questions, new angles, and new horizons opened to him. He followed up each of these with single-minded ardour, and in the process, modern sociology was born. If, at the start of the enquiry, Chadwick had little more in mind than a repetition of the established routine of illustrating yet another 'precognised' principle by the assiduous selection of evidence, before long the evidence being brought to light by the sanitary enquiry was sweeping him along with it to new frontiers of enquiry. 'I may observe', wrote Chadwick later in life, overlooking his earlier aberrations on the Factories and Poor Law Commissions, 'that in my service I have never followed any one, not even Bentham, but have deduced my conclusions not even from Bentham's, but solely from close and important collections of evidence.'⁴ The results of nearly three years' work, when considered, tabulated, and arranged, went far beyond the original conception. Chadwick had gained a new measure of sympathy with, and a far greater insight into the nature of social problems. However, while it is easy for the historian to discern how different was the Chadwick of 1842 from the Chadwick of 1834, contemporaries may be excused for assuming that they were still dealing with the same man.

1. Lewis, pp. 18-19.

2. For building acts, see *supra*, p. 16.

3. *San. Rep.* p. xiii. This view is confirmed by Chadwick's letter to Lord John Russell of 21 June 1838 quoted below, p. 45.

4. Edwin Chadwick, *On the Evils of Disunity in Central and Local Administration* (1885) p. 2.

Laissez-faire or state intervention

Chadwick's approach to sanitary reform involved a very substantial extension of the powers of both local and central government. Few subjects so easily sparked off the flames of controversy in the nineteenth century as the question of the role of the state in economic and social development. This was a major issue of immediate relevance to the kind of solution to the public health problem to which the *Sanitary Report* pointed. It requires careful consideration.

From the historical point of view, two issues are involved: first, the question of whether there was any unanimity of authoritative opinion regarding the appropriateness of state intervention in social and economic affairs; and, second, whether such opinion actually influenced parliament's decision to act or not to act in specific matters. Both these issues have suffered in the past from woeful over-simplification, and it has only recently become clearer that neither can be dismissed in simple, straightforward generalisations.

The over-simplification that a *laissez-faire* philosophy inhibited state intervention was first made in the middle decades of the nineteenth century by bitter opponents of *laissez-faire* like Carlyle, Dickens, and Kingsley. Literary licence may excuse their over-simplification to some extent. On the other hand, Dicey, who dressed this generalisation up in academic garb early in the new century, dignifying it with a lawyer's authority, had less excuse. *Law and Public Opinion in England during the Nineteenth Century* was a political pamphlet which has unfortunately been mistaken for good history for half a century. Dicey's work has undoubtedly been a major influence on the historical interpretation of the social and economic policy of the nineteenth century, but it is distorted by two basic misconceptions: his equation of Benthamism with individualism, and his insistence that the period between 1825 and 1900 could be neatly divided, at about 1865-70, into a period of individualism, and one of collectivism. His purpose in imposing this pattern on the nineteenth century was to prepare the ground for an attack on collectivism, which he saw as an ugly growth of his own lifetime; but in allowing his political enthusiasm to get the better of his historical judgment, he laid a trail which has misled historians for almost half a century.

The assumption that Benthamism, one of the most powerful influences on nineteenth-century thought, and certainly the mainspring of Chadwick's energy, could be identified with individualism, or *laissez-faire*, rested on a simple reversal of the facts; and, as soon as historians ceased to be mesmerised by the audacity of this switch and turned to read Bentham for themselves instead of accepting Dicey's version of Bentham, the record was straightened.¹ 'Bentham's principles', writes

1. J. B. Brebner, 'Laissez-faire and state intervention in nineteenth-century Britain', *Journal of Economic History*, VIII (1948) Supplement, 59-73; Henry Parris, 'The nineteenth-century revolution in government: a reappraisal reappraised', *Historical Journal*, III (1960) 17-37; L. Robbins, *The Theory of Economic Policy* (1952).

his most recent biographer, 'contrast vividly with the doctrines of laissez-faire.'¹ The cabinet he proposed in the *Constitutional Code*, for example, equates remarkably closely with that of the era of vigorous state intervention of the mid-twentieth century. Of immediate relevance to the movement for public health reform was the proposal for a Health Minister to be charged with 'the preservation of the national health'.²

Nor were the other classical economists, the founders of the 'dismal science' of political economy attacked by Carlyle and Dickens, as rigorously anti-interventionist as is frequently supposed. There were, in truth, few advocates of the unmitigated free-for-all which Dickens and Carlyle supposed was primarily responsible for the social evils they so fiercely reprobated. The father of the classical economists, Adam Smith, had specifically advocated the provision by the government of 'certain public works and certain public institutions, which it can never be for the interest of any individual, or small number of individuals to erect and maintain',³ and his successors encouraged to a greater or lesser extent the intervention of the state in matters relating to factory conditions, the relief of poverty, trade unions, education, and health.⁴ In a famous passage of a report often cited as the canonic embodiment of the principle of *laissez-faire*, the arch-priest of non-intervention, Nassau Senior, examined living conditions in the great towns. Accepting the horrifying descriptions of the three doctors in their reports of 1838 as essentially accurate, Senior asked 'What other result can be expected, when any man who can purchase or hire a plot of ground is allowed to cover it with such buildings as he may think fit, where there is no power to enforce drainage or sewerage, or to regulate the width of streets, or to prevent houses from being packed back to back, and separated in front by mere alleys and courts, or their being filled with as many inmates as their walls can contain, or the accumulation within and without, of all the impurities which arise in a crowded population?' He concluded that 'with all our reverence for the principle of non-interference, we cannot doubt that in this matter it has been pushed too far. We believe that both ground landlord and the speculating builder ought to be compelled by law, though it should cost them a percentage of their rent and profit, to take measures which shall prevent the towns which they create from being the centres of disease'.⁵ Senior, of course, was also the co-author with Chadwick of the New Poor Law which instituted a powerful central government department that was the model for many subsequent vehicles of state intervention.

The political economists of the first half of the nineteenth century were, in short, too intelligent and too well informed to advocate out-and-out *laissez-faire*. They were constantly being brought up short by

1. Mary P. Mack, *Jeremy Bentham: an Odyssey of Ideas, 1748-1792* (1962) p. 297.
 2. *The Works of Jeremy Bentham* (ed. J. Bowring, Edinburgh 1843) IX, 443-5.
 3. Adam Smith, *Wealth of Nations* (ed. E. Cannan, 1904) II, 184-5.
 4. See Robbins, *op. cit.*, Lecture III, *passim*.
 5. *Report of the Commissioners on the Condition of the Hand-loom Weavers*, P.P. 1841, X, p. 73.

the realities of the economic system in which they worked and thought, and were only too conscious of the clash between the logic of pure theory and the demands of social morality. They did not invariably, as is so often asserted, insist on the priority of the former claim. Genuflections in the direction of theoretical principles were more frequently the signal for acceptance of the need for state intervention in some particular quarter. John Stuart Mill's famous chapter on 'the grounds and limits of the *laissez-faire* and non-interference principle' in his *Principles of Political Economy* of 1848 was perhaps the most explicit recognition of this dichotomy. Most of this chapter is devoted to the delineation of wide fields in which he recognised that departures from the basic principle of non-interference must be sanctioned.

Another common error, however, has been the assumption that the classical economists were the only effective influence on social and economic policy in the early and mid-nineteenth century. This is a curiously perverse view, since it ignores powerful voices like those of Bentham, Chadwick, the social novelists, many by no means inarticulate members of the medical profession, the humanitarians, the Christian Socialists, and most sections of the many working-class movements. There was, in short, nothing approaching a consensus of opinion concerning *laissez-faire* and state intervention, even in the very narrow social sector represented by governments, parliament, and the press. In practice, the ears of ministers were assailed by a confused babel of voices rather than bewitched by the soft whisper of a single plea for inaction.

Bombarded by this battery of conflicting advice, how did nineteenth-century governments react? How right was Dicey in distinguishing so sharply between periods of individualism and collectivism? The questions are better answered if a distinction is made which Dicey did not attempt—between economic and social policy. In the economic sphere, some case can be made out by reference particularly to the free trade movement that a policy of economic freedom was consciously pursued. Outside the field of commerce, the case is less clear-cut. There never had been, in any case, any real tradition of the regulation of manufacture and labour. The tinkering of pre-nineteenth century governments in these sectors had only touched the fringes of industrial development. Many major industries were almost wholly unaffected by 'mercantilist' regulations, so that the absence of intervention in these spheres in the nineteenth century carries no implication of a conscious policy of abstention from economic regulation. Agriculture was affected in the early nineteenth century as in the two preceding centuries by a very positive measure of state regulation, the corn laws. And again it would be an over-simplification to ascribe the repeal of the corn laws in 1846 to a simple victory of *laissez-faire* policy. It was the triumph of the interests of one group over those of another; and who can doubt that, if a duty on corn had suited the interests of the manufacturers, they would have fought as tenaciously as did the landed interest for the retention of the corn laws? The banking system and the note issue were subjected in 1844 to the fairly rigorous measure of control of the Bank Charter Act, while the same year witnessed the second attempt by the legislature to assert some control over the growing railway system, an act which went so far

as to provide for the ultimate nationalisation of all railways subsequently authorised. An Act of 1817 authorised substantial government loans for public works, the express intention of which was to raise the level of employment,¹ while the Poor Law Amendment Act of 1834 authorised Boards of Guardians to promote large-scale migration of labour.² The catalogue of interventionist measures of the period of so-called *laissez-faire* could be extended much further. What is important is that when economists or statesmen of this period spoke about non-intervention in the economic sphere, they were really concerned with commercial institutions. They believed unquestioningly in the self-regulatory mechanisms of the price system and the gold standard. They were prepared to fight to the last ditch to preserve the commercial and banking sectors against government interference, but, if pushed, were not really unwilling to let the state into other sectors.

In the social sphere, on the other hand, it is scarcely possible to accept the existence of a systematic *laissez-faire* policy at all. The factory and passenger Acts, and the Poor Law Amendment Act which reinforced the Settlement Laws and aimed to facilitate emigration as well as internal migration, were only the beginnings of a crescendo of state regulation of social problems. And by authorising local government authorities—at first through the establishment of improvement commissions, and later through the Municipal Corporations Act of 1835 and subsequent local private acts—to perform a wide range of local services, governments implicitly accepted the principle of local government intervention under the authority of the central government. The long series of private enclosure, turnpike, canal, and railway acts implies the acceptance by parliament, through the exercise of its powers of granting or withholding such statutory authority, of responsibility for social and economic development. That this responsibility was often exercised laxly is beside the point. The overwhelming proportion of the vast mass of early and mid-nineteenth-century legislation was concerned with social and economic affairs.

Nevertheless, John Stuart Mill's view that 'the only purpose for which power can be rightfully exercised over any member of a civilized community, against his will, is to prevent harm to others'³ received wide general acceptance amongst the politically important classes. But Mill himself had been obliged to admit many exceptions to a *general* theory of *laissez-faire*,⁴ so that, in practice, the real issue in the nineteenth century was not simply whether or not governments should intervene in social and economic affairs, but how much, in which directions, and through which channels. The question of the extent of state intervention depended largely on the willingness of the economically wealthy and powerful groups to tax themselves, to reduce their incomes by restrictive legis-

1. M. W. Flinn, 'The Poor Employment Act, 1817', *Econ. H. R.* 2nd ser. XIV (1961) 82-92.

2. A. Redford, *Labour Migration in England, 1800-1850* (Manchester, 1926) pp. 84-101.

3. J. S. Mill, *On Liberty* (1859) p. 15.

4. J. S. Mill, *Principles of Political Economy* (1848) Book V, chap. IX.

lation or to restrict their freedom of social, economic, or political action.

The problem of the media of government regulation raised the issue of central versus local control. Contemplating the woeful and wilful failure of local government in the public health field, Chadwick insisted that only the concentration of effective power in the hands of the central government would achieve the desired social ends. Though he elevated this axiom to the level of a principle, it was only because he saw no hope in the existing Commissioners of Sewers, vestries and closed corporations, or even in the new municipal corporations after 1835. There was some justification for this viewpoint: these old local government bodies were corrupt and hopelessly inefficient; but had he been able to see what the new corporations, which evolved after the Act of 1835, were able to achieve in the late nineteenth and twentieth centuries, even he might well have changed his attitude. From his point of view, it was a tragedy that the first experiment in centralisation had been the New Poor Law: the environment of a happier medium than the New Poor Law might well have softened rather than fortified the entrenched hostility to effective central control.

It no longer seems possible to acknowledge *laissez-faire* as the sole or even the first principle of social and economic policy in the early nineteenth century. A very wide range of social and economic issues were raised, debated, and made the subject of legislation by the parliaments of this period. Those whose interests were likely to be protected by these measures gave enthusiastic support: those whose interests were threatened, opposed them, and if, in doing so, they invoked the 'principle' of *laissez-faire*, they were only grasping at a perfectly legitimate straw in the circumstances. Thus the campaign for sanitary reform was not opposed by an immutable and unchallengeable principle; it was faced instead with a powerful opposition whose economic and political interests might be threatened by measures likely to reduce some incomes or diminish local autonomy. Chadwick and his supporters had to arm themselves, therefore, against the spurious use of economic and political theory which was merely the first line of defence of a group of opponents very well aware of the real nature of the threat.

One of the difficulties involved in a precise chronology of the history of political ideas of the kind presented by Dicey, is that it seldom accommodates all the facts. Dicey's turning-point from *laissez-faire* to state intervention came in the late 1860s; Chadwick's public health campaign and the resulting legislation took place in the 1840s. The timing of the sanitary enquiry was, of course, governed far less by any shift of public opinion of the kind that Dicey had in mind, than by the convergence of the several economic and intellectual trends discussed above. In particular, short-run economic fluctuations were of great relevance. It was more than a coincidence that the years 1838-42, when the *Sanitary Report* was being conceived and prepared, were perhaps the most seriously depressed years of any in the nineteenth century. The suffering and deprivation commonly associated with 'the Hungry Forties' might with much greater accuracy be ascribed to the period 1838-42 than to the whole decade of the forties. In spite of the determined stringency of the Poor Law Commissioners, there was a rise in the expenditure on

poor relief in 1838 as unemployment mounted, accompanied by the inevitable increase in fever cases. If the documentary evidence be taken at its face value, it was Chadwick's concern for economy in the face of a rising demand for poor relief expenditure which persuaded him in the first place to publicise some facts about the economic consequences of neglect of elementary public health precautions.

II

THE SANITARY REPORT

The making of the Report

The immediate starting-point of Chadwick's sanitary enquiry was the expenditure in 1838 of public money by some poor law unions on the removal of 'nuisances', which may be taken to mean accumulations of human and other refuse believed to be the direct cause of disease. This disease, in its turn, was the cause of increased expenditure on poor relief. The unions in question had acted on the principle that the expenditure of £1 on elementary public health precautions could be made to save a probable subsequent expenditure of £10 in poor relief. But government auditors work according to the letter rather than the spirit of the law, and these items of expenditure by Boards of Guardians, on matters—public health—statutorily *ultra vires*, were disallowed. Had any record survived of which Boards of Guardians were concerned it might have been possible to test the interesting hypothesis that the Guardians concerned were acting on Chadwick's official or unofficial instructions—that the affair, in short, was deliberately contrived in order to justify the employment of medical experts on an enquiry to be made under the auspices of the Poor Law Commission. For it is reasonably certain that Chadwick by now wished to assume the leadership of the public health movement; and, since he was dependent upon the Poor Law Commission for his livelihood, and since, unlike any other branch of local or central government, the Poor Law Commission operated a unique, nation-wide network of social and medical intelligence, it was desirable for the public health movement to be directed and controlled from Somerset House. Already, in 1837, Chadwick had written to Farr to air a proposal for a Registry of Epidemics to work under the Poor Law Commissioners. Farr thought little of it, believing that anything of value in this branch of national statistics could be handled adequately by the Registrar-General's office; but, he added, with a thrust that could hardly have been wasted on Chadwick, 'It is quite natural in them [the Poor Law Commissioners] to desire the addition to their patronage and power.'¹

Whether the affray with the auditors was accidental or contrived, on 18 April 1838 the Home Secretary, Lord John Russell, taking the disallowed expenditure into account, appears to have gone so far as to have considered the introduction of a Bill to permit such expenditure to be defrayed from the rates. Before doing so, however, he asked for an opinion on the matter from the Poor Law Commissioners. The Com-

1. William Farr to Chadwick, 13 February 1837.

missioners immediately ordered small-scale enquiries in London into the relationship between urban conditions and disease. The results of these enquiries, together with a report from the Commissioners, was presented to the Home Secretary on 14 May 1838. This report was published as an appendix to the *Fourth Annual Report of the Poor Law Commissioners*, and, although signed by the three Commissioners, bears all the signs of having been written by Chadwick. Indeed, apart from Chadwick, there were few administrators of that time capable of assembling and presenting the material in so short a time. The Report itself was very brief—a mere ten pages—but it made its principal point effectively enough in drawing attention to the need to 'avert the charges on the poor-rates which are caused by nuisances by which contagion is generated and persons reduced to destitution'. To illustrate the prevalence of these 'nuisances', the Commissioners reported that they had 'directed local examinations to be made . . . by Dr Arnott, by Dr Southwood Smith, and by Dr Kay'. Three reports by the three doctors were published as Supplements to the Report.¹ These three surveys were supplemented in the following year by an additional report on the health of London by Southwood Smith.²

There was very little in any of these surveys that had not been fairly common currency amongst some sections of the medical profession for the previous fifty years. The details of open sewers, stagnant pools of liquid refuse, insanitary privies, and the stench of under-ventilated, overcrowded tenements were vivid. Though similar descriptions might be found in the writings of any one of a score or more of doctors of this period, this was one of the earliest occasions when such unimpeachable evidence was publicised officially. More important, these surveys were the first occasion on which the government had formally employed fully-qualified medical men to gather factual information as a prelude to possible parliamentary action. The Reports of the Poor Law Commission were widely circulated and far more generally read than the reports of some of the earlier commissions whose enquiries had skirted the fringe of this subject.³ Southwood Smith's later report in the Fifth

1. Supplement No. 1, 'Report on the prevalence of certain physical causes of fever in the Metropolis, which might be removed by proper sanitary measures', by Neil Arnott and James Phillips Kay (pp. 103-29); Supplement No. 2, 'Report on some of the physical causes of sickness and mortality to which the poor are particularly exposed, and which are capable of removal by sanitary regulations; exemplified in the present condition of the Bethnal Green and Whitechapel districts, as ascertained on a personal inspection by Southwood Smith, Physician to the London Fever Hospital' (pp. 129-39); Supplement No. 3, 'Account of a personal inspection of Bethnal Green and Whitechapel, in May, 1838, with a supplement', by Southwood Smith (pp. 139-53).
2. 'Report on the prevalence of fever in twenty Metropolitan Unions or parishes during the year ended the 20th March, 1838, by Southwood Smith'. Appendix C, No. 2, to *Fifth Annual Report of the Poor Law Commissioners* (1839) pp. 160-71.
3. E.g. the *Factories Inquiries Commission*, 1833; and the *Poor Inquiry (Ireland) Commission*, 1836.

Poor Law Report, following Farr's example at the Registrar-General's office, made generous and effective use of statistical material.

The Commissioners' letter which enclosed the first batch of sanitary surveys was debated in the House of Lords in May 1838. No action ensued, however, and in June Chadwick sought to keep the fires smouldering by writing to the Home Secretary, Lord John Russell, recommending that 'it would be worthy of your Lordship to bring in a Bill for an Act of the nature of the Building Act to regulate the future dwellings of the labouring classes, providing that none should be built without provision being made for proper drainage, and the width of streets . . .'.¹ The Home Secretary was not, apparently, stirred to action, and in the following year, after the original attack in the Fourth Report had been reinforced by Southwood Smith's article in the Fifth Report, Blomfield, the Bishop of London, moved in the House of Lords that an enquiry be made into the sanitary condition of the labouring class.² The Poor Law Commissioners were ordered to undertake such an enquiry.³

At this time—the early autumn of 1839—Chadwick was still nominally Secretary to the Poor Law Commission. Since the inauguration of the Poor Law Commission in 1834 there had been serious friction between the three central Commissioners and their secretary: the new Poor Law was administered in its early years against a background of undeclared internal warfare. But the sanitary enquiry in 1839 offered the possibility of at least a temporary solution: Chadwick was tacitly released from his duties as Secretary to the Commission, and left free to devote his whole energies to the enquiry. The Secretary's duties were taken over by the Assistant Secretary, George Coode.

Chadwick had been at work for about six months, when a member of the House of Commons, Robert Aglionby Slaney, secured the appointment of a Select Committee to investigate the health of towns. Slaney was an enthusiast for public health reform, and was impatient of the slow grinding of Chadwick's extra-parliamentary mills. His committee reported later in 1840.⁴ During the London enquiries of 1838, one of Chadwick's mild converts to the sanitary cause had been Lord Normanby. In September 1839, Normanby succeeded Lord John Russell at the Home Office. This was a bad moment for anybody to take over the Home Office, and for twenty-one months Normanby attempted to grapple simultaneously with Chartism and with the storm of protest which was meeting the Poor Law Commission's attempts to enforce the New Poor Law in the North of England. Normanby, for all his predisposition in favour of Chadwick, was brought face to face with the

1. Chadwick to Lord John Russell, 21 June 1838.
2. Blomfield had, of course, been a colleague of Chadwick's on the Poor Law Commission of 1833-4, and, according to Sir John Simon (probably well acquainted with both), Blomfield's action was undertaken at Chadwick's suggestion. (Sir John Simon, *English Sanitary Institutions* (1890) p. 187n.)
3. Because the enquiry was initiated in the House of Lords, the *Sanitary Report* was ultimately published as a House of Lords paper. This is a contributory factor in the relative rarity of copies of the 1842 Report.
4. *Report of the Select Committee on the Health of Towns*, P.P. 1840, XI.

staggering unpopularity of the New Poor Law. In the battle that was fought out, during his tenure of the Home Office, between the advocates of some relaxation of the rigidity of the New Poor Law and Chadwick, Normanby was little more than a spectator; but, as hostility to the New Poor Law contributed to the downfall of the Whig government in the summer of 1841, he could hardly be expected to have retained his enthusiasm for Chadwick and his ideas.

In spite of the change in his personal attitude to Chadwick, Normanby had not lost his interest in sanitary reform. He accepted eagerly the recommendations of Slaney's committee and, early in the session of 1841, introduced a Building Bill based on these recommendations. Chadwick, already at loggerheads with Normanby over the interpretation of the Poor Law Act of 1834, was understandably annoyed at being brushed aside in this manner over the public health question. He believed, rightly, that Slaney's investigations were superficial, and that the proposed Bill was inadequate and ill-considered. Not being a man to conceal strong feelings, in February 1841 he endeavoured to persuade Normanby to drop his Bill to clear the way for measures which would follow the publication of the *Sanitary Report*. This was the last straw for Normanby: he refused to give up his Bill, and ordered Chadwick to abandon his work on the *Sanitary Report*.

There the matter would presumably have rested had Normanby continued in office, but the Whig ministry had already outlived its useful life, and Normanby's Bill died with Melbourne's government in June. The new Home Secretary in Peel's government which took office in June 1841 was Sir John Graham. One of Graham's first actions was to show his hostility to Chadwick by passing him over in filling a vacant Commissionership at Somerset House, nominating instead Sir Edmund Head, a former Assistant Commissioner and himself a contributor to the *Sanitary Report*. To keep Chadwick quiet, however, in November 1841 Graham ordered him to resume work on his *Sanitary Report* and to have it ready for presentation when Parliament met in February 1842. Amazingly, Chadwick achieved this, only to have Lewis, one of the three Commissioners (for the *Report* was officially the work of the Commission), refuse to publish it. After much discussion, in the course of which Chadwick refused to modify the *Report*, a compromise solution was reached. The *Report* would be presented under Chadwick's own name, and not over the signatures of the Commissioners. By dissociating themselves from one of the most incisive and influential documents of the nineteenth century, the three Commissioners stepped out of the pages of history and left Chadwick to receive the plaudits alone. The *Report* was published by the Poor Law Commissioners as Chadwick's work on 9 July 1842.

The *Report* relied for its effect on the principle of selecting certain clear lines of attack, and supporting each thrust with a mass of vivid and unimpeachable evidence. Thus, from the outset, Chadwick's first task was the assembly of material. No source was to be left unexplored, and the coverage was to be as extensive as the means permitted. Although the debate on sanitary conditions had hitherto been conducted principally in the context of the larger industrial towns, Chadwick extended

his survey to towns of all types and sizes, to rural villages, both agricultural and industrial, as well as to rural labourers' cottages and remote miners' lodging-houses. At first the aim of the enquiry was simply to extend the original metropolitan surveys of 1838 to the wider context of England and Wales, but Chadwick very soon set in motion its extension to Scotland. He visited Edinburgh, where he had several friends, about Christmas-time 1839, soon after starting work on the *Report*. Doubtless as the outcome of his visit, one of these friends was able to inform him in January 1840 that a petition had been sent from the City of Edinburgh praying that 'the enquiry instituted by the Poor Law Commissioners into the causes of disease in the large towns of England and Wales may be extended to Scotland'.¹ The petition was successful. This was a valuable gain, since there was an active body of enthusiastic supporters at work in Edinburgh and Glasgow, and some of the most telling evidence in the final *Report* related to Scottish conditions. When some of the local reports on which the principal *Report* was based were published separately later in 1842, it was possible to devote a whole volume to Scottish reports.²

In the first instance, the machinery of the Poor Law was utilised. A circular letter from the Poor Law Commission was addressed to all Assistant Commissioners setting out in some detail the nature of the information Chadwick wanted from them.³ Most of the Assistant Commissioners contributed individual reports which were published in full, separately, in the volume of local reports for England and Wales.⁴ For much of their information the Assistant Commissioners made use of the Poor Law medical officers. There were probably well over one thousand of these at the time of the enquiry, and they, too, were circularised at the outset, asking them to pass on to the Commissioners 'any information which you may have gained in the course of your medical experience, as to the conditions of the inmates of tenements in which diseases have occurred'.⁵ W. J. Gilbert, for example, the Assistant Commissioner who reported 'On the sanitary state of the counties of Devon and Cornwall', quoted from the written testimonies of twenty-one district medical officers. Alfred Power, dealing with the central and northern parts of Lancashire, employed information from thirty-seven local medical officers. The Assistant Commissioners also, in their turn, circularised local relieving officers, clerks to Boards of Guardians, and many Guardians themselves. The correspondence with the Board of one Assistant Commissioner, for example—William Day, Assistant Commissioner for North Wales and Shropshire—enclosed completed questionnaires from relieving officers of the unions of his area.⁶ Boards of Guardians were asked to submit reports on the sanitary condition of the labouring population of their districts. As some passages in the *Report* show,⁷ any points in these reports which appeared to Chadwick to have particular significance were taken up by him, and further details sought by letter.

1. Sir William Drysdale to Chadwick, 6 and 13 January 1840.

2. *Local Reps. Scot.*

4. *Local Reps. E. & W.*

6. P.R.O., M.H.32/12, 15 January 1840.

3. Prefix to *San. Rep.* pp. xi-xiii.

5. Prefix to *San. Rep.* p. xiv.

7. *San. Rep.* pp. 323-5.

The questionnaires Chadwick issued to these Poor Law officers left nothing to chance. There is, amongst the Chadwick Papers, a 'Memorandum as to the enquiries on the Sanitary Condition of a Town Population'. It is undated, and although it appears to have been written at some time after the publication of the *Sanitary Report*, it offers an instructive illustration of his systematic approach to the compilation of a local survey. The key is to be found in the opening sentence: 'The most compendious mode of coming at the worst conditioned districts of a town will be. . . .' The investigator is recommended to seek out the schools where the sickly or stunted children could be picked out and asked where they live. He should then visit their homes, 'putting the questions in the form annexed'. Poor Law medical officers should be questioned, and information sought from physicians of fever hospitals, the officers of dispensaries and medical charities, friendly societies, sick clubs, and the local Registrars. When the investigator has found out in this way precisely 'where deaths occur from fever and where the population young as well as old are in the lowest sanitary condition', he should make descriptions of the neighbourhood of the houses (inside and outside), paying particular attention to drainage, sewers, and street cleansing. There was a detailed questionnaire to be used to elicit statistical information from friendly societies.

The material from Poor Law sources provided a solid foundation for the *Report*, but it was only a beginning. Chadwick's circle of personal acquaintances was already extensive, and there were many whose expert knowledge and experience could be tapped profitably. The Poor Law administrative network did not extend to Scotland, and full reliance had to be placed on unofficial sources there. To make matters worse, civil registration, which since 1837 had provided so valuable a statistical basis for the reform movement in England, also did not extend to Scotland.¹ But there were compensations. The Edinburgh University medical school had long been a centre which had radiated enthusiasm for public health reform. Its principal figure, William Alison, launched in 1840 one of the most effective attacks on poverty and urban squalor in his *Observations on the Poor Law in Scotland*. The medical school at Glasgow, led by the professor of forensic medicine, Robert Cowan, was a powerful ally. J. H. Burton, an Edinburgh lawyer, journalist, and historian, was a close friend of Chadwick, and brought to the aid of the movement his valuable knowledge of the Scots administrative background. The Provosts of all Scottish burghs were circularised for information concerning the health of their citizens, and the state of the streets, sewers, and working-class housing.² Similarly, all 'Dispensary Surgeons and Medical Practitioners' in Scotland were approached with a substantial questionnaire.³ Distinguished citizens like William Chambers offered the services of their pens,⁴ while ministers of the Kirk, who were

1. Civil registration of births, marriages, and deaths began in Scotland only in 1855.

2. Appendix to prefix of *San. Rep.* pp. xvi-xvii.

3. *Ibid.* pp. xvii-xx.

4. 'Report on the sanitary state of the residences of the poorer classes in the Old Town of Edinburgh', by William Chambers, *Local Repts. Scot.* pp. 155-8.

at this moment busy on the sociological surveys of their parishes for the *New Statistical Account of Scotland*, were sometimes well informed. There is a splendid contribution to the *Report*, for example, from the Rev. G. Lewis of St David's, Dundee.¹ In the main, however, the Scottish survey was compiled from the reports of doctors. One of these, by Dr Scott Alison, on the small East Lothian mining town of Tranent, was a notable piece of sociological research,² and was drawn upon liberally by Chadwick in the compilation of the final *Report*.

The practice of approaching knowledgeable individuals, which was the only means of collecting material in Scotland, proved to be a valuable supplement to the use of official sources in England. A good example of fruitful co-operation of this kind was the contribution of the Cornish doctor, Charles Foster Barham. Barham not only submitted a careful report on conditions in the town of Truro,³ he also made a valuable study of the working conditions in the Cornish copper-mines, drawing particular attention to the beneficial effects on miners' health of elementary welfare provisions by their employers.⁴

Several prison superintendents were approached with a view to making a comparison between the health of prisoners and that of the working class under normal conditions. The sort of information Chadwick sought from this quarter is illustrated by a letter to Thomas Burgess, the Superintendent of a prison in Birmingham. 'Do you think', he wrote, 'you could get from any data of sick clubs or benefit societies in your neighbourhood composed of adults, or by the aid of your medical officers, or from any other source of information of a comparison of the average health of the prisoners, with the average health as shown by the average sickness and mortality of the labouring classes living in the vicinity? The object of the information is to ascertain as closely as may be done what are the effects of regularity of diet, cleanliness and ventilation upon the prisoners in the gaol: and this information is sought to determine to what extent the health of the labouring classes might be increased if their habitations were made as cleanly and dry, and they were as well ventilated and warm as the prison cells: if their diet were as regular and their persons as cleanly.'⁵ In the event, Burgess was apparently not very helpful, for the final *Report* included no material relating to Birmingham prisons. But with characteristic thoroughness, Chadwick also approached other prison officers in Scotland and Salford, and their information enabled him to make the desired

1. *San. Rep.* pp. 272-6.

2. 'Report on the sanitary condition and general economy of the labouring population in the town of Tranent and neighbouring district, in Haddingtonshire', by Dr S. Scott Alison, *Local Repts. Scot.* pp. 78-130.

3. 'Report on the sanitary state of the labouring classes in the town of Truro', in *Local Repts., E. & W.* pp. 16-36.

4. *San. Rep.* pp. 262-3, quoting from 'Report by Charles Barham on the employment of children and young persons in the mines of Cornwall and Devonshire', *Report of the Children's Employment Commission, Part I, P.P.* 1842, XVI, App. E.

5. Chadwick to Thomas Burgess, 29 October 1841.

comparisons in the *Report*.¹ James Smith of Deanston in Stirlingshire, the celebrated authority on land drainage, was approached, as were several other model employers. Chadwick secured from him drawings and plans of labourers' cottages, and asked that he 'might perhaps delegate to your medical man the business of furnishing an account . . . of the sanatory condition of the population as compared with the condition of the population residing in dwellings of the common order'.²

In another instance, a private individual was consulted to verify and confirm the details of a report drawn up by one of the Assistant Commissioners. William Langton of Manchester was sent a report by Charles Mott for his comments. Langton was, on the whole, very critical—'a strange, incoherent collection of matter, some good, no doubt, but a great deal of it is very wide of the mark and little to the purpose—altogether ill-digested and certainly not well reasoned'. He disagreed with Mott's assertion that 'moral degradation' was the principal characteristic of the labouring classes, but concluded that 'progress has certainly been made since 1832 when Kay wrote, but we are still deplorably defective in respect of the condition of streets and drainage in the poorer parts of the town, and Mr Mott has not badly described them in his 3rd page'.³ It seems that Chadwick heeded these warnings, and, in the event, Mott's published report⁴ included no material relating to Manchester, which was covered by a separate report from the distinguished doctor and public health worker, Richard Baron Howard.⁵ Nevertheless, some of Mott's remarks on Manchester housing, for all Langton's objections, found their way into the *Sanitary Report*.⁶

For a report on the state of Leeds, Chadwick originally approached a leading doctor in the city, Dr Williamson. But before Williamson had produced anything, Robert Baker, a doctor and sub-inspector of factories in Leeds, had come forward with a 'Sanatory Map of Leeds'.⁷ Chadwick was fascinated by the possibility of illustrating with the aid of a map the correlation between disease and the poorest class of housing, and accepted this contribution. There were few people so well-informed as Baker on the subject of working-class housing in Leeds, for he had been commissioned by a Statistical Committee of Leeds Corporation in 1838 to undertake a house-to-house survey of the town.⁸ On hearing of this competition, Williamson 'resigned his task . . . on the ground that [Baker] applied to make the report, and that [Baker's offer] had been

1. *San. Rep.* pp. 279-80.

2. Chadwick to James Smith, 17 November 1841.

3. William Langton to Chadwick, 17 March 1841.

4. 'Report on the state of the residences of the labouring classes in the manufacturing districts of Lancashire, Cheshire, Derbyshire and Staffordshire', *Local Reps. E. & W.* pp. 232-56.

5. 'Report on the prevalence of diseases arising from contagion and certain other physical causes amongst the labouring classes in Manchester', *Local Reps. E. & W.* pp. 294-336.

6. *San. Rep.* p. 336.

7. Robert Baker to Chadwick, 28 December 1840.

8. W. G. Rimmer, 'Working men's cottages in Leeds, 1770-1840', *Publications of the Thoresby Society*, XLVI, Part 2 (1961) 197.

accepted without mentioning it to him, which he thinks an act of discourtesy'.¹ Baker was thereafter given the task of compiling the report on Leeds. He accepted reluctantly, saying that he had 'given up all idea of such a thing', that he was 'somewhat unprepared', and that he had 'no leisure but in the night'.² When, in November 1841, after Graham had ordered Chadwick to present the report by February, and Baker had still not submitted his report, Chadwick chivvied him in fairly sharp terms: 'In respect of Leeds we shall be in an awkward position unless you complete your report in time. It is known that you have undertaken it; it will be unavoidably known that you have failed to accomplish what has long since been accomplished by medical men of other towns . . . Liverpool, Manchester and Birmingham, and fault will also be found with us for having so managed as to dispense with the services of Dr Williamson'.³ Baker completed his report: amply supplemented by statistical material from the Registrar-General's office, it was printed in full in the volume of *Local Reports*,⁴ and was drawn on liberally by Chadwick in the final *Sanitary Report*.

In the single instance of Birmingham, rather than delegate the task of compiling a report to an individual doctor, a Committee of Physicians and Surgeons was set up. Their report, too, was printed in full in the volume of *Local Reports*, and contributed substantially to the *Sanitary Report*.⁵

In these ways, a very considerable labour force of reporters was mobilised. Including Poor Law Assistant Commissioners, medical officers, clerks, receiving officers, guardians, individual doctors, factory inspectors and other miscellaneous experts, and the provosts of all the Scottish burghs, probably upwards of two thousand individuals were approached for information. Many of these, of course, ignored the appeal, but the majority submitted something. There were endless statistical tables, drawings and plans of labourers' cottages, sanitary maps of towns, and a large number of written reports ranging from a few lines to fifty or sixty printed pages. To stiffen the written reports, Chadwick had full access to, and made good use of, statistical material from the Poor Law Commission's and the Registrar-General's offices.

Not content with this flood of written evidence, Chadwick went out into the country to study conditions at first hand. 'I have myself examined the condition of the most important localities on which the report is made,' he wrote to the Earl of Spencer.⁶ He was in Edinburgh very shortly after starting work on the *Report* in December 1839, and returned to Scotland later to undertake an extensive tour which included a close inspection of the Edinburgh Old Town wynds in the company of

1. Chadwick to Robert Baker, 19 January 1841.

2. Robert Baker to Chadwick, 7 February 1841.

3. Chadwick to Robert Baker, 6 November 1841.

4. 'Report on the condition of the residences of the labouring classes in the town of Leeds in the West Riding of York', *Local Reps. E. & W.* pp. 348-409.

5. 'Report on the sanitary state of the labouring classes in the borough of Birmingham', *ibid.*, pp. 192-218.

6. Chadwick to the Earl of Spencer, 2 February 1842.

Dr Arnott, a tour of Glasgow's working-class housing districts, and a visit to the model factory housing scheme of James Smith at Deanston in Stirlingshire. There is also evidence of visits to Manchester,¹ Dumfries, Leeds,² Macclesfield,³ and Leicester.⁴ On occasion, when Chadwick toured personally in quest of information, he took and recorded evidence in question-and-answer form in the manner of commissioners of enquiry. Instances of this procedure may be found in the *Report* on pages 167-71, 192-3, 213-14, 343.

When not travelling, writing letters, or drafting the *Report*, Chadwick was reading widely. It is clear from the *Report* that he was familiar not only with the standard works of his field going back as far as Pringle, Lind, and Mead, but that he missed little in the way of obscure local studies. In a similar way, he was able to draw extensively on his very ample knowledge of the blue books of the 1820s and 1830s. Equally important, his command of the relevant British material was reinforced by an extensive acquaintance with comparable European work. The *Sanitary Report* bears ample testimony to a very considerable familiarity with the whole field of European thought and work in this field, but it is to French developments that Chadwick paid particular attention. It was asserted about this time—though it may be disputed—that French practice was in advance of British in the sphere of public health.⁵ More important in the present context, however, is the fact that the twenty years before the publication of the *Sanitary Report* witnessed a great outpouring in France of literature on sanitary questions which acted as a major influence on Chadwick's thinking.

The French lead in this field has been attributed to the advanced nature of French social theory in general in the first half of the nineteenth century, and to the experience and international contacts acquired by French physicians during the Napoleonic Wars. Whatever the cause, there was a body of systematic research and writing in the field of public health already in existence before Chadwick set to work. The two principal authorities were A. J. P. Parent-Duchâtelet (1790-1836), an authority on sewerage and industrial hygiene, and Louis René Villermé (1782-1863), with a long list of publications dealing with prison reform, medical statistics, industrial health, and epidemiology. Both were editors of what must have been the first journal in the field of public health—the *Annales d'Hygiène*, started in 1829—and both influenced and inspired Chadwick to imitate their achievements in England. As a result of the study of continental and American sources, the *Report* is liberally sprinkled with evidence from many parts of the world, as well as with illustrations of the efficacy of particular measures of sanitary improve-

1. *San. Rep.* p. 304; Chadwick to James Smith, 17 November 1841.

2. *San. Rep.* p. 75.

3. *San. Rep.* pp. 75, 343.

4. *Leicester Chronicle*, 19 August 1843, quoted by A. Temple Patterson, *Radical Leicester* (Leicester 1954) pp. 336-7.

5. In 1829, one David Johnston of Edinburgh described French public health regulations as superior to those of Great Britain. See E. H. Ackerknecht, 'Hygiene in France, 1815-48', *Bulletin of the History of Medicine*, XXII (1948) 130.

ment which had at some time been put into practice in one country or another.

There is ample evidence in his correspondence that, when finally ordered in November 1841 to present his *Report* in the following February, Chadwick intensified his efforts, bombarding innumerable correspondents with urgent requests to submit material promised earlier. And the refusal of the Commissioners to publish the *Report* as it stood in February 1842, which delayed eventual publication until July, gave Chadwick a further respite which he put to considerable use.

The collection of material was taken up with renewed vigour. On the one hand, dated material in the *Sanitary Report* indicates its insertion at this late hour,¹ while, on the other hand, fresh queries were sent out to contributors, seeking further information on points of importance. To Charles Barham, the Cornish doctor who had already supplied valuable material relating to the Cornish miners, Chadwick wrote: 'I am informed that in some public document you have noticed the habit of workmen in the mines using the warm water from the engines as a bath. The subject is mentioned in the draught of a sanatory report before the Commissioners but not so fully as might be. It is only mentioned as a suggestion. Can you oblige me by informing me . . .', and there followed a string of questions on the practice.² There were now available proof copies of the *Report*, which facilitated the work of amendment and improvement. Copies were sent to some of the principal contributors. Dr James Mitchell, for example, who had submitted a report on the conditions in the Pennine miners' lodging-houses, writing to thank Chadwick for a proof copy, commented: 'Intellectual intercourse with you has been the chief source of my happiness for the last eighteen years. . . .³ I have been much edified with what little I have been able to read of the Sanitary Report, and tomorrow I hope to get through it. I have not observed yet Sunderland, the worst town in England which I have seen yet. . . . If you want a description of the town it is worth taking pains to get it.'⁴ Dr Barham in Camborne was sent proofs of a portion of the *Report*, with the request, '. . . If there are any other points that occur to you as desirable from your local knowledge in reference to the portions respecting places of work or labourers' residences or any other point that may occur to you on reading over from p. 73, we should be obliged to you for it.'⁵ Experts in particular aspects of the *Report's* subject-matter were invited to comment on what had been written. Griffith Davies, for

1. E.g. *San. Rep.* p. 213.

2. Chadwick to Charles Barham, 3 March 1842. The description on p. 318 of the *San. Rep.* was presumably Dr Barham's answer to this request.

3. C.f. the traditional view of Chadwick's 'contempt for the medical profession'.

4. James Mitchell to Chadwick, 12 March 1842. The suggestion does not appear to have been taken up by Chadwick, for Sunderland is one of the few larger towns in the country not mentioned in the *Report*. This is an odd exclusion, in view of the fact that it was in Sunderland that cholera first broke out in this country in 1831.

5. Chadwick to Charles Barham, 18 March 1842.

example, an Actuary to the Guardian Assurance Office, on being sent proofs, offered some detailed comments on comparative life tables,¹ while Anthony Strutt, of the well-known Derby family of benevolent industrialists, was asked to comment on a passage dealing with 'the circumstances arising from the union of the condition of landlord and tenant, and of employer and labourer in the same pair of persons'.² Charles Babbage, the economist and statistician, was asked at a very late hour to comment on the section dealing with comparative expectations of life.³

Finally, proof copies were sent to distinguished men of letters. Carlyle agreed to 'annotate' a copy, but had not received it by the end of March, and doubted whether his suggestions could be made in time.⁴ Surviving correspondence with John Stuart Mill indicates that he played a not insignificant part in the final re-drafting. In April, Mill commented acidly to Chadwick: 'I have read through your report slowly and carefully. I do not find a single erroneous or questionable position in it, while there is the strength and largeness of practical views which are characteristic of all you do. In its present unrevised⁵ state it is, as you are probably aware, utterly ineffective from the want of unity and of an apparent thread running through it and holding it together. I wish you would learn some of the forms of scientific exposition of which my friend Comte makes such superfluous use, and to use without abusing which is one of the principal lessons which practice and reflexion have to teach to people like you and me who have to make new trains of thought intelligible.'⁶ Chadwick evidently took this sermon to heart, for two months later Mill wrote again in rather less critical, though hardly less patronising, vein: 'I have read the whole report carefully through again. The defects of arrangement are now corrected and I have nothing to suggest except that it be carefully revised by yourself or some other person to correct the numerous typographical errors and occasional ungrammatical sentences. I think it all excellent and shall be glad to write about it for any newspaper as you suggest.'⁷

When, after almost three years of intensive labour, the *Report* was finally published in July 1842, Chadwick was well aware that this was not the end of his labours, but only the beginning. He had never made the mistake of assuming that the *Report* was an end in itself. The end, to which it was a principal, but certainly not the only means, was a substantial measure of public health legislation along lines suggested in the *Report's* conclusions. In July 1842, Chadwick set himself systematically and vigorously to the task of laying the foundations of legislation.

1. Griffith Davies to Chadwick, 11 January 1842.
2. Chadwick to Anthony Strutt, 15 February 1842.
3. Chadwick to Charles Babbage, 3 June 1842, B. M. Add. MSS. 37, 192.
4. Thomas Carlyle to Chadwick, 23 March 1842.
5. After two and a half years' work on the *Report*, and within three months of its publication, this remark, coming from someone of Mill's stature, must have been a bitter pill for Chadwick to swallow.
6. John Stuart Mill to Chadwick, (?) April 1842.
7. John Stuart Mill to Chadwick, Thursday, 8 (June?) 1842.

The purpose of the *Report*, of course, was to influence opinion, and Chadwick's task therefore, in the first place, was to ensure that as wide a range of opinion as possible was influenced by the *Report*. Since the original motion by Bishop Blomfield which had initiated the enquiry in 1839 had been introduced in the House of Lords, the *Report* was a House of Lords paper. Thus, in its official form, the *Report* became at birth a scarce document. Aware of this limitation, Chadwick, however, took a step for which he himself had created a precedent with the Poor Law Report of 1834: he arranged for the separate publication of the *Report* in quarto form, far less bulky and unmanageable than the folio of official parliamentary papers. A very large edition of the quarto *Report* was ordered, though how large it is now impossible to say. An unconfirmed tradition puts it at as many as 100,000, but the only firm information on the subject suggests an appreciably lower figure. Writing from a much closer acquaintance with the age, Sir John Simon reported that 10,000 copies were sold or given away.¹ In a letter to Lord Brougham written little more than a fortnight after the actual publication of the *Report*, Chadwick claimed that 'upwards of 20,000 copies of the Report have been sold'.² To this should be added the copies distributed free by the Commission—in the first two months 'more than 3,000 copies' were despatched by the Poor Law Commission clerks.³ All that can be said with any certainty is, in Chadwick's words, that its sale was 'much higher than anything [at the King's Printers] that has yet been sold'.⁴ In September, Chadwick had enquiries made with a view to advertising the *Report* in *The Times* and *The Morning Chronicle*.

Copies were automatically sent to every Board of Guardians. In addition, almost every person who could conceivably be interested in furthering the cause of public health received one. Six copies were sent, for example, to the College of Engineers at Putney, for the use of students.⁵ J. H. Burton, the Edinburgh journalist who acted very much as Chadwick's agent for Scotland, wrote in September saying, 'If it were not asking too much, I think I might give away to advantage one or two more copies of your report. I remarked to you that its good effect would be (as much almost as by legislation) created by its private influence. . . .'⁶ Harriet Martineau wrote to acknowledge that 'it is owing to the fascination of your Report that my acknowledgment is not under my own hand. It arrived safe yesterday evening and kept me up far too late to my detriment today, which I tell you merely as the strongest proof of your having sent me a very acceptable present.'⁷ A copy was sent to the Archbishop of Dublin, together with a note from Chadwick explaining that 'my main reason for sending you the Report was that I believe that the physical evils therein described as existing in the English towns and

1. Sir John Simon, *English Sanitary Institutions*, p. 196.
2. Chadwick to Lord Brougham, 24 July 1842.
3. Frederick Purdy to Chadwick, 13 September 1842.
4. Chadwick to Macvey Napier, 11 October 1842, B. M. Add. MSS. 34, 623, fol. 175.
5. Butler Williams to Chadwick, 22 November 1842.
6. J. H. Burton to Chadwick, 29 September 1842.
7. Harriet Martineau to Chadwick, n.d.

depressing the moral condition of the inhabitants, exist to a greater extent and as I conceive are likely to have a still more depressing effect on the condition of the town population of Ireland'.¹ Joseph Paxton, the future architect of the Crystal Palace, but at this time occupying the humbler position of landscape gardener to the Duke of Devonshire, wrote to thank Chadwick for his copy, saying that he found it contained 'many subjects (most ably treated) in which I take a very great interest, especially those of cottage gardening, cottage economy, and dwellings for the labouring poor. We have created a number of cottages in this place for the peasantry; but being in the vicinity of a Ducal palace they are not only comfortable, but highly ornamental—and not suitable for general purposes.'² An effort was made to interest Charles Dickens in the *Report*. The approach was made through Dickens's brother-in-law, Henry Austin. Austin (1812-61) was himself an important figure in the early public health movement. While employed by Robert Stephenson on the Blackwall Railway he had been 'deeply impressed with the miserable conditions of the dwellings of the working class in the suburbs through which the railway was carried, and with the belief that many of the evils he saw could be remedied by sanitary knowledge and legislation based upon it'. Austin, who contributed propaganda for the public health movement at this time,³ was active in the establishment of the Health of Towns Association in 1844,⁴ and became its first Honorary Secretary.⁵ In September 1842, Chadwick wrote to Austin: 'I think Mr Hickson mentioned to me that Mr Dickens is your brother-in-law. I perceive it announced in the newspapers that he has in preparation notes of his tour in North America. . . . I have directed a copy of the report to be sent to you and I should be obliged to you if you would present it to him as a mark of my respect. . . . Yet I hope he had opportunities of visiting the residencies of the working classes; and observing as in the case of the Irish the effects of habits which seem independent of political motivations, for I am informed they carry with them their wretched and filthy hovels and their pig styes with them into whatever part they settle. . . . I hope he who has so well exposed parochial administration⁶ will do something better than that inaccurate observer and rash generaliser de Tocqueville, and not countenance the mischievous falsehood of mob flatterers that special qualification for administration is unnecessary or that the capacity for it is intuitive. . . . Mr Dickens will have possession of the ear not only of America but of Europe, and whatever he may say on the importance of a better and scientific attention to the structural arrangements for promoting the health and pleasure and moral improve-

1. Chadwick to Joseph Peacocke, Archbishop of Dublin, n.d.
2. Joseph Paxton to Chadwick, 30 September 1842.
3. Henry Austin, 'Metropolitan improvements', *Westminster Review*, XXXVI (1841) 404-35.
4. See below, pp. 68-9.
5. I am indebted to Mr Philip Collins for these notes on Austin. The quotation above is taken from a Memorial to Lord Palmerston, 1862, signed, *inter alia*, by Dickens, Shaftesbury, and Chadwick, in P.R.O. T.1/6486 B.
6. In *Oliver Twist* (1837-8).

ment of the population cannot fail to produce extensively beneficial results.'¹ Dickens's response must have disappointed Chadwick: his treatment of the sanitary question in *American Notes* was cursory in the extreme, and bore the impression of a trivial afterthought. 'Much of the disease which does prevail', wrote Dickens unenthusiastically, 'might be avoided if a few common precautions were observed.' But, he added, 'there is no local legislature in America which may not study Mr Chadwick's excellent Report on the Sanitary Condition of our Labouring Classes with immense advantage'.²

The customary vehicle for propaganda in this period was the quarterly review. Newspapers, though prepared to notice the publication of important documents like the *Sanitary Report*, indulged normally in less discursive comment than their counterparts might today. Nevertheless, Chadwick sent a copy to the editor of *The Times*, and both this paper and *The Morning Chronicle* carried leading articles on the subject.³ Even before the *Report* appeared, Sir Archibald Alison, brother of William Pulteney Alison, had published an article on the 'Social and moral condition of the manufacturing classes in Scotland' in *Blackwood's*.⁴ Chadwick set great store on getting an article in a Tory journal like the *Quarterly* on the grounds that if he published an article in 'the Westminster or any leading Radical publication that it may not tend by instinctive aversion to compel the Quarterly into any opposite course'.⁵ He succeeded handsomely in this endeavour, and the *Quarterly* carried a long and extremely sympathetic review of the Report by R. Head in the spring of 1843.⁶ Another article was placed in the less important *Tait's*.⁷ Sending a copy of the *Report* to Macvey Napier, editor of the *Edinburgh* and Professor of Conveyancing in the University of Edinburgh, Chadwick enquired 'whether it would not be desirable to have an early article upon the subject. . . . If you should be of opinion that an article on this subject is desirable, I could write you one, if no one else could be got, less upon the report than upon the subject.'⁸ But being extremely busy at that time, Chadwick suggested that the Rev. Elwell, of Bath, be approached to write the article. Elwell, who had contributed some valuable notes on the sanitary condition of working-class housing in

1. Chadwick to Henry Austin, 7 September 1842.
2. Charles Dickens, *American Notes* (1842) I, 304-5.
3. John Wilson to Chadwick, 31 August 1842; *The Times*, 29 August 1842; *The Morning Chronicle*, 30 August 1842.
4. *Blackwood's Edinburgh Magazine*, L (1841) 659-73. For the attribution of the authorship of this article, see F. W. Fetter, 'The economic articles in 'Blackwood's Edinburgh Magazine', and their authors, 1817-1853; Part II', *Scottish Journal of Political Economy*, VII (1960) 225.
5. Chadwick to J. H. Burton, 12 February 1841.
6. *Quarterly Review*, LXXI (March 1843) 417-53. For the attribution of the authorship of this article, see F. W. Fetter, 'The economic articles in the *Quarterly Review* and their authors, 1809-1852', *Journal of Political Economy*, LXVI (1958) 167.
7. A substantial review of the *Sanitary Report* in *Tait's Edinburgh Magazine*, IX (1842) 649-60.
8. Chadwick to Macvey Napier, 28 July 1842. B.M. Add. MSS. 34, 623, fol. 44.

Bath,¹ was, however, ill, and Chadwick wrote again to Napier, concluding that 'unless I hear from you in the course of a week . . . I must submit an article to you.'² But either Chadwick remained too busy, or Napier was uninterested, for no article appeared in the *Edinburgh* on the subject of the *Sanitary Report*.

The issues of the Report

The *Sanitary Report* devoted the greater part of its space to establishing four major axioms. These were built up with an immense wealth of detail, and, although it was no part of Chadwick's intention to delineate with any precision a future course of legislative action, were intended to drive the reader on irresistibly to the desired legislative frame of mind. The four points may be summarised as follows. A lengthy first section (Chapters I-IV) aimed to establish the correlation between insanitation, defective drainage, inadequate water supply, and overcrowded housing, on the one hand, with disease, high mortality rates, and low expectation of life, on the other. This major section comprised half the *Report* and established inexorably the essential basis of fact. It is counter-balanced by a chapter (VI), to which Chadwick attached much importance and directed a great deal of patient research, devoted to the salutary results of the provision by employers and landlords of improved, sanitary dwellings for their employees and tenants. Chadwick was able to show how, by assuming the role of benevolent patriarchs, employers might favourably influence the morals as well as the health of their dependants.

A second axiom concerned the *economic* cost of ill-health. This was, of course, the starting-point of the enquiry. Undoubtedly it was intended at the outset that this should have been the mainstay of the *Report*. In the event, it became swamped by so many other basically humanitarian issues, that it was dismissed with a single chapter of barely twenty pages (Chapter V). The facts about the number of widows and orphans, and of the causes of widowhood and orphanage, were easily established, of course, but the relegation of this point to so insignificant a part of the *Report* is an interesting measure of the metamorphosis of Chadwick's own approach to the sanitary question over the four years between first raising the question and the submission of the *Report*.

The drift of his attitude may be gauged by the far greater importance he attached in the *Report* to his third axiom—the *social* cost of squalor and bad housing. No longer so seriously concerned with the £ s d of neglect, three years of enquiry had impressed on him the infinitely more serious damage inflicted by insanitation on morals and habits. In many ways, this section (the second half of Chapter III) constitutes one of the most valuable contributions of the *Report* to the advance of social policy. Although many medical writers had been making these points for long enough beforehand, Chadwick's unequivocal statement of the interaction of bad and inadequate housing with intemperance, immorality,

1. *San. Rep.* pp. 141-2, 146.

2. Chadwick to Macvey Napier, 11 October 1842. B.M. Add. MSS. 34, 623, fol. 175.

bad spending, as well as disease, represents a major breakthrough in social thinking. It was, indeed, no less than a complete reversal of the traditional middle-class attitude which ascribed the miserable circumstances of the poor to defects of character. It is, indeed, also a far cry from Chadwick's own assumption of eight years earlier in the Poor Law Report that poverty and the consequential resort to the parish were evidence of shortcomings of character which could only be cured by a deterrent poor law.

Chadwick's fourth point concerned administration. He devoted the whole of the long Chapter VII to demonstrating the inherent inefficiency of the existing legal and administrative machinery. This was an essential stage in his argument in view of his conviction that the only hope of sanitary improvement lay in radical administrative departures. For his aim was no less than the erection of an administrative framework to deal with public health matters on lines closely parallel to those which he himself had earlier designed, built and operated for the poor law. He was conscious that the wedge of centralisation, the thin end of which had been driven in in 1834, would be resisted with all the vigour and fanaticism which landowners, commissioners of sewers and police in several hundred boroughs, vestries, and privately-owned water companies, could muster. Though he could not expect to prevail overnight against emotion and self-interest, it was essential to make a start by the provision of a sound, factual foundation.

To this basic framework, Chadwick added some miscellaneous subsidiary points. The first section of Chapter III is a study of the role of ventilation in places of work, and almost certainly reflects the influence of Dr Arnott, whose special qualification to assist in the sanitary enquiry was an expertise in this particular field. Secondly, Chapter VIII investigates the condition of common lodging-houses. This was, of course, merely one aspect of the housing problem, and one of peripheral importance only; but the lodging-houses catered then for a proportionately far more numerous vagrant population than their equivalents do today, and they uniformly offered glaring examples of the extremes of squalor and insanitation. Thirdly, mention ought to be made of one of the more curious bees in Chadwick's bonnet: his enthusiasm for the use of untreated sewage as a field manure. The persistence with which he pursued this idea detracts in no small measure from the value of the *Report*, a persistence which is the harder to understand in view of the widespread condemnation of the practice by most of the competent medical authorities in Edinburgh, where its possibilities had most impressed Chadwick. No doubt it was the economics of this method of sewage disposal which so fired his imagination. He firmly believed that the sale of urban sewage to farmers in the neighbourhood of towns would wholly pay for the cost of sewerage, although it is only fair to add that Chadwick planned for the removal of sewage from the towns not in solid form, but by suspension in water (a method by which he assumed the noxious gases would not be allowed to escape), and for its distribution to agricultural land in liquid form. It must be remembered that at this time there were still no effective techniques for the scientific disposal of sewage. In Edinburgh, the low-lying Holyrood meadows were gravity-

fed with the sewage of the old town, and while the productivity and economic value of these few acres of pasture benefited appreciably, the dwellings in the vicinity, which included Holyrood Palace, the official residence of the monarch when in Scotland, suffered from the stench. This is said to be why Queen Victoria would not stay at Holyrood during her visit to Scotland in 1842 (the first royal visit to Scotland for twenty years), preferring to accept the hospitality of the Duke of Buccleuch at Dalkeith instead. Yet so strongly did Chadwick feel about this aspect of sewage disposal that he was prepared to assert that the principal benefit of the extension of the enquiry to Scotland¹ had been to permit him to make use of this invaluable experiment as an example.² Believing that he held here the clue to the solution of problem of urban sewerage, Chadwick pursued his enquiries for several years after the publication of the *Report*.³ His obstinacy on this point permitted him, of course, to evade one of the major problems raised by the sanitary enquiry—how to dispose of urban sewage. Until the invention of chemical and other methods of the treatment of sewage,⁴ the only known alternative was to pour it into rivers. It would have been an improvement to have advocated the siting of sewage outfalls at points below towns, rather than in or above them, but to Chadwick the emptying of sewers into rivers anywhere seemed like pouring away liquid gold.

Finally—a point which should be observed by all who criticise Chadwick for his supposed hostility to doctors and engineers—Chadwick insisted on the engagement of properly qualified, professional men in all public employment in the field of public health. That Chadwick's personal relationships appear to have been at their poorest with doctors, confirms a widely-accepted view of his contempt for that profession. This hostility to doctors has been seen as part of a wider distrust of all professionalism. 'The most important improvements in the arts and sciences', he wrote in 1828, 'have been made, not by the "regularly educated practical men", but by persons trained up to other pursuits.'⁵ Too much should not be read into this: he was himself a lawyer dabbling in almost every aspect of government except law, and in most professions in the early nineteenth century the gap between professional and amateur levels of competence was far narrower than it is in the twentieth century. This alleged hostility to the medical profession should first of all be seen against the background of the fact that a high proportion of all the people with whom Chadwick worked after 1838 were doctors. If he was going to have differences of opinion, there was a high mathematical probability that these would be with doctors.

Chadwick was not, in fact, hostile to doctors or engineers as such: he was sickened by the squandering of public money in purchasing the services of ill-qualified quacks. While the medical profession was not

1. See above, p. 47.

2. *San. Rep.* pp. 421-2.

3. E.g. correspondence with Sir William Fairbairn, 10 November 1842; and with the Earl of Spencer, 8 February 1843.

4. See A. Redford and I. S. Russell, *The History of Local Government in Manchester* (1940) II, 377-401.

5. Edwin Chadwick, 'Life assurances', *Westminster Review*, IX (1827-28) 392.

entirely blameless in this respect, the main weight of his criticism in this direction fell on the engineers. This period was, of course, the very infancy of the professional organisations within the field of engineering, and Chadwick's criticism was not without a great deal of justification. But it is important to notice that Chadwick's approach was wholly professional, in that he laid such great stress on proper and adequate qualifications for skilled men in public employment. Only the highest professional standards, he argued, were good enough for the service of the public. Many of his friends, and most of his collaborators, were doctors. The *Sanitary Report* itself is substantially derived from the reports of scores of medical men up and down the country: it is, in fact, a remarkable example of intensive collaboration and conformity of views between medical men and civil servants.

From the letter to Southwood Smith quoted at the beginning of this introduction it could be said that Chadwick seems to have been afraid of other people receiving the credit that he felt belonged to him. It was possibly this streak of vanity which gave the impression of contempt for professionals, especially doctors; he may have subconsciously felt that they would steal his thunder. He may also have recognised that all the doctors in the world could not have obtained the reforms which he as a civil servant was able to bring to fruition. Such a feeling—that they were puppets in his hands—may have given rise to his ambivalent attitude to doctors, and may explain, if not justify, the common assumption of his hostility to the profession.¹

On the whole, the *Report* consciously eschewed making explicit recommendations, preferring to leave the facts and conclusions, skilfully presented, to speak for themselves. The first conclusion-cum-recommendation was fundamental. It was so sensible that its subsequent universal adoption has obscured its radical nature at the time. Appreciating that the principal obstacle in the past to the removal of solid refuse and sewage from streets and privies had been the sheer expense of the hand labour involved, Chadwick recommended its removal by suspension in water, to be conveyed in glazed, circular-bored drains. Most of the sewers of the early nineteenth century were large, square, brick-built tunnels. Lacking an adequate flow of water, and containing too many angles and corners, they easily became blocked. They were efficient only in distributing sewage gases over wider areas, while it was not unknown for them to be used unofficially for human burials. It was the failure of all but a small minority of civil engineers to come round to Chadwick's views about sewerage which was a principal cause of his hostility to that profession, in this case with some justification.

The disposal of refuse and sewage by suspension in water, Chadwick believed, would reduce the cost of removal to one-twentieth or less of that of removal by hand labour. But it presupposed the existence of an adequate water supply. In most towns this was lacking, and Chadwick therefore gave urgent priority to the provision of an ample water supply.

For the rest, with one important exception, Chadwick left details of

1. I am indebted to Dr T. C. Smout for raising the point discussed in this paragraph.

necessary legislation purposely vague by the use of such phrases as 'by appropriate arrangements', and 'the attainment of these and the other collateral advantages . . . are within the power of the legislature'.¹ The exception concerned the appointment of district medical officers 'with the securities of special qualifications and responsibilities to initiate sanitary measures and reclaim the execution of the law'. So far as administration was concerned, Chadwick's recommendations were vague and imprecise. The construction and maintenance of the necessary sewers he thought should be entrusted to those already nominally performing this function. This was a strangely feeble recommendation, in view of the fierce criticism to which he had subjected, for example, the metropolitan commissions. His proviso that the new commissions should include in them 'the chief elected officers of municipalities, and other authorities now charged with the care of the streets and roads or connected with local public works', hardly met his own criticism of the existing commissions. He was insistent, however, that national uniformity was essential: all parts of the country should have the benefit of the improved public health arrangements. He attacked particularly the practice of exempting Scotland from reforming legislation, citing the exemption of Scotland from the recent measures relating to civil registration (1837) and vaccination (1840). He failed to understand the motives that underlay Scottish resistance to government from Whitehall, which were powerful enough to have Scotland excluded from the Public Health Act when it finally reached the statute book in 1848.

It was scarcely to be expected that in drafting so comprehensive a report, Chadwick would be able to avoid stumbling into considerable areas of controversy. Although there were many such unresolved conflicts of opinion, three major ones ought to be mentioned here. The first of these concerns the method of diffusion of disease. This was central to the whole theme of the *Report*. Chadwick, in common with many members of the medical profession of his day, accepted the miasmatic theory, according to which, to put it crudely, smells generated disease. Disease was widely believed to be generated in the miasma given off by decaying organic matter. 'I think it tolerably evident', wrote Ferriar, 'that the contagion may be propagated by an impression on the olfactory nerves.'² 'The immediate, or the exciting cause of fever', wrote Southwood Smith, 'is a poison formed by the corruption or the decomposition of organic matter. Vegetable and animal matter, during the process of putrefaction, give off a principle, or give origin to a new compound, which, when applied to the human body, produces the phenomena constituting fever.'³ Though few questioned this theory in the 1830s and '40s, the subsequent development of bacteriology has shown this explanation to be utterly misconceived. Although a 'germ' theory had been evolved as early as 1546 by the Veronese, Hieronymus Fracator, in his study *De Contagione*, his work was subsequently forgotten, and it was not until the 1870s and '80s that the bacilli of disease were isolated and

1. *San. Rep.* p. 424.

2. John Ferriar, *Medical Histories and Reflections* (1810 edition) I, 279.

3. Southwood Smith, *A Treatise on Fever* (1830) pp. 348-9.

identified, and the bacteriological causation of disease irrefutably established.¹ Nevertheless, even before Chadwick's day, the miasmatic theory was modified by some understanding of contagion. Although there might be some difference of opinion as to the *origin* of infection, common observation made it apparent that, given its existence, disease spread from person to person as a result of contact or contiguity. It was not until the second cholera epidemic of 1848 that John Snow's painstaking investigation demonstrated that disease could be transmitted by water.² Thus, Chadwick and his medical colleagues were working in utter darkness so far as the propagation of disease was concerned, and they are not to be blamed for basing their conclusions on an entirely erroneous theory. Yet their error was not fatal: miasma might not actually convey germs from a diseased to a healthy body; but in the absence of an exact and accurate knowledge of the means of infection, it was not a bad guide. The eradication of miasma—not entirely achieved even by the mid-twentieth century—was a sound instinct, and could do nothing but good.

While unable to refute the miasmatic theory with a more correct germ theory, Professor Alison in Edinburgh was at pains to point out the limiting implications for social policy of the former school of epidemiological thought. He quarrelled with the assumption that, 'by removing all such causes of vitiation of the atmosphere, contagious fever may be arrested at its source, and thus all the evils resulting from it be prevented'.³ While not actually opposing measures to remove the sources of miasma, which he described as 'putrescent animal and vegetable matters, and . . . excretions from the human body, accumulated and corrupting', he did not believe that these alone would go far to reduce disease. 'There is no reason whatever for believing that the contagious fever which has prevailed more or less extensively in Edinburgh for the last 25 years has any such origins, or can be suppressed by any such measures.'⁴ Alison was rather overstating his case here, but his case was a point of principle of some importance, and it raised the second controversy which ought to be reviewed here. In a strongly-worded article printed in the *Local Reports, Scotland*, referring to the 1838 and '39 reports by Arnott, Kay, and Southwood Smith on the East End of London, Alison expressed his surprise 'at finding that the old doctrine of fevers in this climate originating in the effluvia from putrescent animal substances, had been recommended on so respectable authority to the attention of the Poor Law Commissioners'.⁵ As Alison pointed out, it was perfectly possible to have smells which did not necessarily produce disease. There was more disease in winter, he said, when the smells were least. Since he was unable to offer any very precise or convincing explanation of the 'generation of fever', he had to content himself—as indeed also had the supporters of the miasmatic theory—with a consideration of pre-disposing factors alone. Among these, it was his view that poverty did most to

1. See R. Hare, *Pomp and Pestilence* (1954) pp. 125-8.

2. John Snow, *The Mode of Communication of Cholera* (1849).

3. W. P. Alison, 'Observations on the generation of fever', *Local Reps. Scot.* p. 13.

4. *Ibid.*, p. 13.

5. *Ibid.*, p. 21.

pre-dispose a person to fever. Poverty enfeebled the human frame 'by deficient nourishment, by insufficient protection against cold, by mental depression, by occasional intemperance, and by crowding in small ill-aired rooms'.¹ The experience of earlier epidemics in Ireland, and among Irish immigrants in England and Scotland confirmed this correlation. 'It is not asserted', he wrote elsewhere, 'that destitution is a cause adequate to the production of fever (although in some circumstances I believe it may be such); nor that it is the sole cause of its extension. What we are sure of is, that it is a cause of the *rapid diffusion* of contagious fever, and one of such peculiar power and efficacy, that its existence may always be presumed, when we see fever prevailing in a large community to an unusual extent.'² From this reasoning, it followed that Alison's proposals for the reduction of fever gave high priority to 'a more liberal and better-managed provision against the destitution of the unemployed, or partially or wholly disabled poor'.³ At this time, Alison was fighting on two fronts: the greater part of his energies was directed into the struggle for a reform of the Scottish poor law, and in this effort the correlation between disease and destitution was a valuable ally.

As one of the miasmatisms criticised by Alison, Arnott was given the task of replying. With a conscious superiority that ill became an expatriate Scot, he asked how it was that, if Alison's theory was correct, although as a result of the New Poor Law there was virtually no destitution in England, there was nevertheless still a great deal of fever in London.⁴ In equating the New Poor Law with the disappearance of destitution, Arnott was clearly deluding himself. But it was not difficult for him to re-establish the connection between dirt which gave off an 'effluvium', and disease; and he concluded, very sensibly, that 'the real difference between Dr Alison and the London reporters is small indeed'. While both parties to the dispute were wrong in failing to know about the habits of bacteria, they were right in drawing attention to certain pre-disposing factors. They quarrelled only because they did not understand the true causes of 'the generation of fever'. Nevertheless, Alison was too powerful a figure to be brushed aside; but his insistence that the answer to the public health problem lay with the improvement of the poor law could hardly be expected to cut much ice with Chadwick so soon after 1834, however apposite it might be for Scotland. Chadwick's method of handling the controversy—to publish Alison's paper together with Arnott's reply in the Scottish volume of *Local Reports*, and to ignore Alison's viewpoint altogether in the *Sanitary Report*—was probably well gauged.

The third controversial issue touched on in the *Sanitary Report* involved Chadwick not so much in taking sides in a debate in which there had been a clear-cut difference of opinion, as in adopting a positive

1. W. P. Alison, 'Observations on the generation of fever', *Local Repts. Scot.* p. 25.

2. W. P. Alison, *Observations on the Management of the Poor in Scotland* (Edinburgh 1840) p. 19.

3. *Local Repts. Scot.* p. 14.

4. Neil Arnott, 'Remarks on Dr W. P. Alison's "Observations on the generation of fever"', *Local Repts. Scot.* pp. 34-9.

stance in a field in which there had previously been a great deal of vague and confused thinking. This concerned the relationship between the birth rate and levels of income. Malthus, undoubtedly the principal figure in this field of study, had warned against the ultimate inevitability of the 'positive check' to population growth of famine and disease, and recommended as preferable the 'preventive check' of birth control by 'moral restraint', by which he meant avoidance of early marriage. In indicating that whereas nature tended to solve the population problem by regulating the death rate, man could solve it better by regulating the birth rate, Malthus focused attention on the determinants of the birth rate for the labouring classes. The two extreme positions in this discussion, which might be labelled 'optimistic' and 'pessimistic', were, on the one hand, that the rise of income, by stimulating people's acquisitive instincts, would lead to a desire to reduce the size of families; and, on the other hand, that greater wealth to the masses of the labouring population would simply be dissipated in larger families.

The 'optimistic' view was perhaps most clearly expressed by William Alison in his *Observations* of 1840, which, in spite of some points of disagreement, must have constituted one of the major influences on Chadwick's mind when compiling the *Sanitary Report*. 'I assert then, with confidence', wrote Alison, 'that all experience teaches, not only that unrelieved suffering is quite ineffectual to teach prudence or moral restraint to the poor, but that it has uniformly the very opposite effect; and, on the other hand, that the natural effect of well-timed and well-directed public charity is not only to relieve suffering, but to *prevent degradation*, and so to support and strengthen the only check on excessive population which either policy or humanity will allow us to contemplate. *It is not the fear of lowering, but the hope of maintaining or bettering their position, which really constitutes that preventive check, and that hope is continually maintained among the poor, by the certainty of assistance in distress, in circumstances where it would otherwise have been extinguished in despair.*'¹ This view has subsequently won fairly widespread acceptance, and, so far as British demographic history is concerned, has been invoked to explain the sharp fall in the birth rate in the late nineteenth century.²

In the *Sanitary Report*, Chadwick accepted Alison's views. Assuming a positive correlation between destitution and disease, he stressed that 'in the districts where the mortality is the greatest the births are not only sufficient to replace the numbers removed by death, but to add to the population', adding that 'the ravages of epidemics and other diseases do not diminish but tend to increase the pressure of population'.³ Farr, with

1. W. P. Alison, *op. cit.* p. 98.

2. *Report of the Royal Commission on Population* (1949) pp. 38-41.

3. *San. Rep.* pp. 369-70. For a discussion of Chadwick's position, and of some of the foreign influences on him, see D. E. C. Eversley, *Social Theories of Fertility and the Malthusian Debate* (Oxford 1959), pp. 200-2. It is only fair to add that the views of Chadwick, Alison and Farr in this question have a respectable ancestry in Britain as well as abroad, not least in the study by Alison's brother, Sir Archibald Alison, *The Principles of Population and their Connection with Human Happiness* (Edinburgh 1840, 2 vols.).

a wider statistical experience, stated even more explicitly: 'Experience has proved that the births almost invariably increase when the mortality increases; and it will be seen that where the mortality is greatest, the births are most numerous, and the population is increasing most rapidly.'¹

The relevance of this argument was clear enough. Every means of raising the standard of living of the poor would contribute to reducing the birth rate and to diminishing the rate of growth of population. Such a reduction, by allowing the increase of food supplies to overtake that of population, would further raise the standard of living, and so on. It was a powerful argument in support of sanitary reform. Insanitation could be shown to breed disease; disease, in its turn, was the prime source of poverty; and poverty encouraged high birth rates. Defective public health, in short, deprived society of the 'preventive check', and invoked the operation of the 'positive check'.

The Report and sanitary reform

The marked absence of specific recommendations for legislation in the *Sanitary Report* goes some way towards explaining the long delay in securing parliamentary action. As a result of the difficulties with Lord Normanby in 1841, the completion of the *Report* had been delayed, and its publication in mid-July was not well timed. Parliament was rapidly thinning out as the session drew to its conclusion, and Chadwick could scarcely expect the *Report* to have much impact on Members primarily interested in getting out of London for the summer. The *Report*, in any case, had been commissioned by the House of Lords, and was of no immediate concern to the Commons. Thus, although it was politely noticed and complimented by the principal dailies, and was reviewed at some length, as has been shown above, by selected quarterlies, its immediate impact on Parliament and the Press was negligible.

This apparent failure had no doubt been anticipated by Chadwick. Well-timed publication combined with artful publicity might perhaps have produced results, but the enthusiasm stirred by such a nine-days' wonder evaporates as quickly as it is generated and might well have been fatal to the cause. The widespread distribution of copies coupled with assiduous propaganda work laid much firmer foundations. The price of ultimate success was patience and—after three long years of unremitting toil—more hard work.

Thus, apart from inspiring some local authorities immediately to initiate their own sanitary reforms,² the publication of the *Report* led to

1. *Fourth Annual Report of the Registrar-General (1840-41)* p. 143.

2. For example, Leicester (see A. Temple Patterson, *Radical Leicester* (Leicester 1954) pp. 336-40), and St Helens (T. C. Barker & J. R. Harris, *A Merseyside Town in the Industrial Revolution: St. Helens, 1750-1900* (Liverpool 1954) pp. 336-40). Glasgow appointed an Inspector of Cleansing with wide powers early in 1843 (J. B. Russell, *Public Health Administration in Glasgow* (ed. A. K. Chalmers, Glasgow 1905) p. 15). The *Report* was even held to have inspired action in Hamburg, while copies were demanded also in Bremen and Berlin (William Lindley, Hamburg, to Chadwick, 25 October 1842).

no action in 1842. In the following year, Peel's government appointed a royal commission to investigate the Health of Towns under the chairmanship of the Duke of Buccleuch. At first sight, this looks like delaying tactics, but to interpret the Buccleuch Commission in this light is to misunderstand the nature and purpose of the *Sanitary Report* which was primarily to make a case for reform. Though the broad directions of that reform were suggested in the *Report*, the full details were not, and Chadwick no doubt hoped, possibly expected, that, as had occurred with the Poor Law reform of 1834, he would be entrusted with the drafting of the legislative details which would follow naturally and inevitably from the publication of the *Report*. Moreover, although the *Sanitary Report* had made an unequivocal case for reform, it also served as a warning to many potential opponents whose principles or interests were threatened by the kind of action proposed by Chadwick. This opposition would expect to be given a hearing before action was taken. Finally, the *Sanitary Report* had touched on some major points of controversy. Chadwick had not hesitated to take sides in these controversies, and whether he was ultimately shown to have been right or not, Parliament in the 1840s might be excused for its reluctance to accept a single opinion, no matter how well informed, and for preferring to subject his *obiter dicta* to wider scrutiny. The role of the Health of Towns Commission was thus to substantiate by more systematic and widespread survey the accuracy of Chadwick's axioms, and to point more precisely to the details of any necessary legislation. In this way, the 1843 Commission was a logical and reasonable extension of Chadwick's work.

Under all these circumstances, Chadwick himself could clearly not expect to be a member of the new commission. Nevertheless, he had every reason to be pleased that its members were to include Arnott, Southwood Smith, Smith of Deanston, Lyon Playfair (the Scottish chemist), two engineers suggested by himself (Captain Denison and Robert Stephenson), and R. A. Slaney of the 1840 Committee. As one of Chadwick's biographers has observed, 'the sanitary cause was safe with these men'.¹ But although Chadwick was not a member of the commission, it was important to him that the Commission's conclusions should support and amplify those of his *Sanitary Report*. And since, unlike the Sanitary enquiry, the Health of Towns Commission would be accessible to opponents of sanitary reform, great effort would be necessary to ensure that the 'right' views triumphed in the Commission's deliberations. In practical terms this meant ensuring an ample flow of suitably-prepared witnesses, influencing the Commissioners themselves with all kinds of propaganda, and offering assistance in the compilation of the reports. The Commissioners published two reports. The first, issued in 1844,² was largely the work of Chadwick. Sending a copy to the editor of the *Edinburgh Review*, Chadwick observed that, 'though not named in the Commission, the Commissioners having their own occupations to pursue, it was found that the subject could not be mastered, as an incident to others, and I was compelled to attend to it, write their

1. Lewis, p. 85.

2. *First Report of the Health of Towns Commission, P.P. 1844, XVII.*

questions, take the examinations, and prepare their report, so that nearly two-thirds of these volumes are in my hand writing, for which I am to get only posthumous credit, if at all.¹ Following the publication of the first report, and in time to influence the recommendations of the Commission in its second and final report,² Chadwick submitted personally to the Duke of Buccleuch the complete draft of a parliamentary public health Bill, together with a lengthy explanatory memorandum. But the Commissioners contrived to preserve a degree of independence, and their final recommendations did not slavishly reproduce Chadwick's scheme.³

For the three years between 1842 and 1845, the main focus of the movement for sanitary reform was inevitably the Health of Towns Commission; but it was by no means the only line of attack. While waiting for the Commission to open its enquiries in 1843, Chadwick had got to work on the subject of urban burials, an aspect of public health which should have been included in the *Sanitary Report*, but which Chadwick omitted in deference to W. A. Mackinnon's committee mentioned below. The danger arising to public health from burial grounds in close proximity to urban dwellings was first exposed by G. A. Walker in 1839.⁴ The attack was taken up in the Commons by W. A. Mackinnon who in 1842, quite independently of Chadwick, secured the appointment of a Select Committee to investigate this problem. Unwilling to take action on the recommendations of this committee,⁵ Graham, Peel's Home Secretary, delayed action by asking for a fuller report from Chadwick. Chadwick's report of 1843, published as a supplement to the *Sanitary Report*,⁶ was possibly his finest piece of work. It ranged more widely and probed more deeply than any of the previous investigations of this subject. It ruthlessly exposed the evils resulting from the exploitation of pride and sorrow by undertakers, as well as the fearful consequences to health of the mismanagement and overloading of urban burial-grounds. Though it led to a series of acts quite distinct from the main body of public health legislation, the report proved a valuable and timely ally in the main campaign for sanitary reform.

In addition to these official activities, Chadwick played an active part in the public campaign. After 1844, agitation was mainly carried on through the medium of the Health of Towns Association. This Association, in which leading parts were played by Lord Ashley, Dr Southwood Smith, and Lord Normanby, conducted propaganda for sanitary reform

1. Chadwick to Macvey Napier, 12 October 1844, B.M. Add. MSS. 34, 624, fol. 629. Chadwick's contribution to the work of the Commission is fully described in Lewis, pp. 86-105.
2. *Second Report of Health of Towns Commission*, P.P. 1845, XVIII.
3. For details of the Commission's recommendations and points of difference from Chadwick's views, see Lewis, pp. 103-5.
4. G. A. Walker, *Gatherings from Grave Yards* (1839).
5. *Report of the Select Committee on Improvement of the Health of Towns on the Effect of Interment in Towns*, P.P. 1842, X.
6. *Supplementary Report on the result of a special inquiry into the practice of interment in towns*, P.P. 1843, XII. A quarto edition in the same format as the *San. Rep.* was also published.

through two principal channels: the public meeting, and the publication of books and pamphlets. Branches were formed in London and the principal towns of the provinces, and great public meetings were tirelessly addressed by the Association's leaders, amongst whom members of the medical profession were prominent.¹ Between the founding of the Association in 1844 and the successful culmination of its campaign with the passing of the Public Health Act in 1848, there was a great outpouring of literature by members which helped to keep the fires of agitation burning brightly.² Although he was active behind the scenes in planning and advising the Association, Chadwick deemed it advisable, perhaps having regard to his official position (he was still nominally Secretary to the Poor Law Commission), as well as to the unpopularity which his association with the New Poor Law had brought him, not to take a public part in the Association's activities. In any case, he was a very poor public speaker.

But for all this frenzy of activities, the movement for sanitary reform, even at its height in the mid-1840s, operated within very narrow limits. The Health of Towns Association, for example, was a feeble instrument beside the Anti-Corn Law League, while the readership of blue books, however bountifully distributed, was never extensive. It remained possible for wide sections of the middle class, the only class outside the aristocracy that mattered politically, to be completely unaware that an agitation to improve public health had indeed been set on foot. Access to this wider public was sought belatedly and rather half-heartedly by one or two novelists. Although social novels take a prominent place in the history of mid-nineteenth-century literature,³ there were probably few of the many fields of social reform they tackled in which they can be said to have initiated a desire for reform.⁴ In the great majority of instances, the reforming movements will be found to have more definitely 'professional' roots. The sanitary movement of the 1840s was no exception. There are few, if any, indications in literature before the 1840s that the shortness and brutishness of much of human life owed anything to a lack of sanitation. The subject makes its entry into the pages of novels only after 1842, and then seldom with the depth of feeling which characterised the wholehearted sympathy of some novelists with, say, factory, prison, or educational reform. However, when John Barton (*Mrs Gaskell*, *Mary*

1. For an account of the Health of Towns Association, see Lewis, pp. 111-23.
2. For example, R. D. Grainger, *Unhealthiness of Towns: its Causes and Remedies* (1845); J. H. Curtis, *Advice on the Care of Health . . . and the necessity for the Adoption of Public Sanatory Measures* (1845); Hector Gavin, *Sanitary Ramblings* (1846); W. A. Guy, *On the Health of Towns* (1846); G. F. Ellerman, *Sanitary Reform and Agricultural Improvement* (1846); G. G. Bird, *Observations on Civic Malaria and the Health of Towns* (1848).
3. See Kathleen Tillotson, *Novels of the Eighteen-Forties* (1954) pp. 73-91; and Louis Cazamian, *Le Roman Social en Angleterre, 1830-1850* (Paris 1904).
4. An interesting study of the relation of the work of one social novelist to a particular reform movement has been made recently by Philip Collins in his *Dickens and Crime* (1961).

Barton, 1848) visited the Davenport, he threaded his way down Berry Street, a street which might have been taken straight from the pages of the *Sanitary Report*.¹ Carlyle was less concerned with sanitation than he was with the iniquities of factory employment and *laissez-faire*, and although Chadwick endeavoured to interest him in the subject,² his powerful influence was scarcely inclined in this direction. Not surprisingly, Chadwick set greatest store by Dickens; but although Dickens devoted some time and energy to public health propaganda later, in the 1850s and '60s,³ the sanitary idea failed to fire his imagination in the vital years of the 1840s. The public health movement received some help from the world of literature, but it was never extensive, and came too late to be effective in the early years of the campaign.

After the presentation of the Second Report of the Health of Towns Commission in 1845, events conspired to delay the enactment of a measure based on its recommendations for a further three years. Neither Peel's government, which was in office when the Commission reported, nor Russell's which succeeded it in 1846, showed marked enthusiasm for any kind of a public health measure, let alone anything as vigorous as that contemplated by Chadwick; and both, to Chadwick's disgust, dabbled with minor bills which, if passed, would certainly have stood in the way of effective legislation for many more years. As a writer in the *Westminster* about this time observed, 'If the Reform Bill epoch has been justly called one of action without reflection, the times on which we have now entered are certainly quite as remarkable for inquiry without results.'⁴ The Irish famine and the question of the corn laws took overwhelming precedence during 1845 and 1846. At last, in 1847, Lord Morpeth introduced a Public Health Bill, only to have it thrown out by the Commons. For a third time, enquiries into sanitary conditions—back in London this time—were set on foot by a government apprehensive of the eastwards march of a new cholera epidemic across Asia and Europe, anxious at last to destroy the old metropolitan commissions of sewers, but still hesitant to introduce a measure drastic enough to be effective. Chadwick and Southwood Smith, as Commissioners, both joined in this seemingly unnecessary re-writing of what had now long been known of the shortcomings of metropolitan sewerage.⁵ This enquiry bore immediate fruit in the creation in 1847 of the Metropolitan

1. 1901 edition, p. 46.

2. See above, p. 54.

3. Apart from the well-known preface to the 1858 edition of *Oliver Twist*, most of Dickens's writing on public health matters is to be found in his periodicals, particularly *All the Year Round*, IV (1860) 29-31; V (1861) 390-4, 423-7, 453-6, 470-3, 486-9; VI (1861-2) 137-40, 150-3; XIV (1865) 372-6. (I am indebted to Mr Phillip Collins for these and other references.) Dickens also supported the public health movement in the 1850s by public speaking. (K. J. Fielding (ed.), *The Speeches of Charles Dickens* (Oxford 1960) pp. 127-32.)

4. 'The working classes of Sheffield', *Westminster Review*, XL (1843) 460.

5. *First, Second and Third Reports of Commissioners appointed to inquire whether any and what special means may be requisite for the improvement of the health of the metropolis*, P.P. 1847-8, XXXII.

Commission of Sewers,¹ the precursor of the Metropolitan Board of Works, and through that board, of the London County Council, which gave London, outside the City walls, for the first time an administrative body with powers to pursue a range of public services. Early in the following year Lord Morpeth introduced a revised Public Health Bill which, after a prolonged struggle, but powerfully aided by the approach of cholera, passed into law as the Public Health Act of 1848.

The 1848 Act was thus the culmination of a struggle which had been initiated ten years earlier by the publication of the brief reports by Southwood Smith, Arnott, and Kay in the fourth report of the Poor Law Commission, and in the course of which the publication of Chadwick's *Sanitary Report* in 1842 had been a major milestone. However, much water had flowed under the bridge between 1842 and 1848, and the complex and hotly-debated provisions of the Act were a far cry from the few tentative suggestions put forward by Chadwick in the closing pages of the *Sanitary Report*. Some of the *Sanitary Report's* main recommendations were absent from the Act. There was no comprehensive national system of 'sanitary', 'sewage', or public health commissions. In their place were local public health boards (which, in incorporated towns, were to be the town councils), which were only to be compulsory in places where the death rate exceeded the arbitrary figure of 23 per 1,000²; elsewhere, local boards could only be established upon petition from not less than one-tenth of the ratepayers. Thus, the system of local boards could never hope to be more than partial. Nor were the local boards to be *required* to appoint medical officers; they were merely *permitted* to do so if they wished. Again, the local boards were given powers to undertake any necessary cleansing, paving, sewerage, and water supply, but were not *required* to provide these services. However—an important gain—no new houses were to be built in an area within the jurisdiction of a local board without suitable provision for sewage disposal. Although the *Sanitary Report* had remained tactfully silent on the question of central supervision, Chadwick's faith in the efficiency of unaided local authorities was so slight that a central department with adequate supervisory powers, on the lines of the Poor Law Commission of 1834, had always been the central feature of his scheme. This the Act of 1848 created. But with the exception of those places having high death rates, the new central Board was not endowed with what Chadwick considered would be essential powers of initiating local action. In places already possessing a public health authority—one of the old type of 'improvement', 'police', or 'sewage' commissions (out of 471 towns with more than 5,000 inhabitants, only 175 possessed such statutory authorities)—the central board's powers were limited to approving or disapproving the appointment or dismissal of officials, though there was

1. The new Metropolitan Commission of Sewers of 1847 should not be confused with the seven metropolitan commissions of sewers which it replaced. See Lewis, pp. 156-7.

2. This figure, well above the national average for this time, is even more arbitrary than it appears at first sight, since it takes no account of the varying age-compositions of the populations of different places.

scope for voluntary co-operation between local and central authorities. Nevertheless, there was most scope for public health work in those places possessing neither municipal governments nor an existing sewage commission; and where, often as a consequence of this want, death rates exceeded the statutory 23 per 1,000, the central board was endowed with fairly extensive powers.

As has been shown above,¹ one of Chadwick's first actions after beginning work on the sanitary enquiry had been to secure power to extend his investigations to Scotland. The closing paragraph in the *Sanitary Report* was devoted to insisting on the inclusion of Scotland in the benefits of any forthcoming public health legislation. Yet, in the event, the provisions of the 1848 act were not extended to Scotland. Why? In the first place, since the act of 1837 had not extended the civil registration of births and deaths to Scotland, there was no means of ascertaining officially in which places the death rate exceeded 23 per 1,000, and which could, therefore, be required by the central board to set up a local board. Secondly, and more important, the medical profession in Edinburgh was sceptical of the advantages that might accrue from the activities of non-medical bureaucratic bodies. They shared a general Scottish reluctance to submit themselves voluntarily to additional supervision from London, suggesting that, instead of submitting any future Scottish local health authorities to the jurisdiction of the central (London) Health Board, the Poor Law Board of Supervision in Edinburgh (the Scottish equivalent of the London Poor Law Commission which had been created by the Scottish Poor Law Act of 1845) was the most suitable Scottish central authority for public health matters. Thirdly, however, the committee which spoke for the Scottish medical profession in this issue was under the chairmanship of Professor W. P. Alison, and he was not slow to point out that 'although they [the committee] have a high respect for the individual members of the General Board of Health in London, yet the confident expression of opinion which those gentlemen have officially made on several important questions touching the diffusion of epidemic diseases, which the committee regard as very difficult and doubtful—and on which they know that some of the most experienced practitioners in Scotland hold a very different opinion—have by no means tended to increase their expectation of the efficacy of measures, applicable to Scotland, for restraining the diffusion of epidemics, which may proceed from that source'. Thus, the debate on the spread of disease, which had been conducted decorously enough between Alison and Arnott in the pages of the *Local Reports, Scotland* of the *Sanitary Report*, became one of the means of delaying a public health act for Scotland.² A Public Health (Scotland) Bill was rejected in 1849, and it was not until 1867 that a Public Health (Scot-

1. p. 47.

2. *First and Second Reports by the Committee of the Royal College of Physicians appointed to consider any bills that may be brought into Parliament for the improvement of the Health of Towns and the applicability of such measures to Scotland* (Edinburgh 1849). The quotation is from p. 18 of the *Second Report*.

land) Act finally gave the Board of Supervision general supervisory powers in relation to public health in Scotland.¹

The new Central Board of Health set up by the 1848 Act was to have three members. Chadwick, Southwood Smith, and Lord Ashley were appointed. The story of the Board's activities and tribulations has been well told elsewhere and need not be repeated here. Its life was short: the Act had set an initial term of five years, and in 1854 the Board, for all practical purposes, ceased to exist. But if the demise of the Board terminated Chadwick's official career, it did not bring an end to either local activity in the public health field, or to central government control. Public health work was passed to a newly-created committee of the Privy Council, where, under John Simon as Medical Officer, the foundations of the modern public health service were patiently and carefully laid.

The Act of 1848 constituted a tentative and uncertain start to government action in a major field. The brevity of the life of the Board of Health bears witness to its ineffectiveness in the short run. Nevertheless, it had put a foot through a door which had hitherto defied all attempts at opening, and although the detailed administrative arrangements it laid down were scrapped within half a dozen years, its principle of state responsibility was not discarded. It was this principle which the *Sanitary Report* had sought to establish.

1. J. H. F. Brotherston, *Observations on the Early Public Health Movement in Scotland* (1952) pp. 93-6.