Deprivation and health

Chadwick Lecture 1996

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In *The Spectator* of Saturday, 1 September 1711, Joseph Addison illustrated the apparent randomness of mortality in an extended metaphor, the Vision of Mirzah, in which a host of people set out to cross a bridge which ends in a series of broken arches, and is also perforated by trapdoors through which people fall into the flood beneath. That, of course, is how the accedence of mortality looks at the medical coalface, whether that be in the surgery or in hospital. But when deaths are systematically recorded and analysed, as happened in this country in the middle of the last century, patterns emerge. One such pattern is the main theme of this lecture, which commemorates one of the earliest and greatest of the Victorian sanitarians who begat the collection and interpretation of health statistics.

Edwin Chadwick was born in Longsight in 1800, a date which simplifies the chronology of his many achievements. In belated recognition of these, he was knighted in 1889, and died the following year. In 1854, the year of his retirement from the Board of Health, there was a parliamentary debate on the Board, in the course of which Bishop Blomfield said, 'Mr Chadwick I have known for thirty years, and a more efficient, active, diligent, and honest servant of the public never existed'. Referring to the reforms of the Poor Laws, and of urban sanitation, the Earl of Carlisle said, 'The most efficient agent in originating and in producing those two great fundamental measures and in clearing away a host of obstacles was Mr Chadwick'. A master of the *fortiter in re,* Chadwick was impatient of the *suaviter in modo;* and Carlisle admitted that perhaps he had 'a certain portion of positiveness and precipitance more than was desirable'.

This is not the occasion to describe his important influence on the constabulary, on education, on local government, on entry to the civil service by competitive examination, and on the provision of cemeteries. His first great sphere of public activity lay in the reform of the Poor Laws, which accounted for a fifth of national expenditure: had responsibility for orphans, the aged and infirm, the unemployed, and the underpaid; and were administered, if that be the word, by 15,000 parish vestries. In S E Finer's trenchant summary, 'in 1832, this complex body of law and administration affected everybody, pleased few, and was understood by nobody' [1]. As a young man, Chadwick had been a close associate of Jeremy Bentham until his death in 1832, and was a life-long believer in utilitarian *laissez faire;* but not to the extent of tolerating muddle, nor of ignoring the plight of the poor which he had witnessed in East End slums. His Poor Law Report of 1834 was Benthamite in its removal of incentives to pauperism; but a monument of new model efficiency in its transfer of power from the many-headed vestry arrangement to a system of central supervision, inspection and audit, administered locally by a professional local government service responsible to local authorities—a system which was to serve the country well in a variety of contexts until it was broken up and undermined in the 1980s.

It was in the context of the 1836 Act for the Registration of Births, Marriages and Deaths that Chadwick made his earliest major contribution to what would become public health medicine. Lord John Russell accepted his suggestion that the causes of deaths should be recorded in addition to their mere numbers. He was also aware, in advance of his time, of the influence of occupation and living conditions on health; and saw the opportunity which the Act gave for 'the determination of comparative degrees of salubrity, as between occupation itself and occupation in places differently circumstanced'. Such knowledge could lead to action to increase the 'salubrity' of unhealthy occupations; for example, he had drafted the Bill which was, though much modified by the Whig government, to become the Factory Act of 1833 which limited the permitted hours of work by children.

His work with the Poor Laws, and his direct experience of conditions in the East End of London, put him in thrall to what he called 'the sanitary idea'. His 1842 Report on the Sanitary Condition of the Labouring Population had immense impact—'the people of England appeared for the first time to acquire a sense of sight and smell and realise they were living on a dung heap' [1]. As a result, effective methods of sewage disposal were to be provided in London and other large cities; but beyond this visible and concrete effect was the realisation that the health of the nation called for national supervision. A General Board of Health was first proposed by Chadwick in 1844; recommended in the following year by a Royal Commission; and established by the Public Health Act of 1848. The Board had only three members, Lord Morpeth (later

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Earl of Carlisle), Lord Ashley (later Earl of Shaftesbury) and Chadwick himself as the salaried Commissioner. It was, however, strained by the cholera epidemic of 1849, in which it failed to gain the cooperation of local bodies; and over the next few years there was a build-up of antagonism against Chadwick, whose quite exceptional ability and industry were outweighed by the force and range of his criticisms. (To give an example, he described a group of factory officials as 'ill appointed, undisciplined, ill paid, and practically irresponsible subordinates'.) The subjects of such observations would be embittered rather than mollified by Chadwick's habit of being both right and well aware of it. And he did not confine his truth-telling to subordinates. A hostile cabal effected the suppression of the Board in 1854; but its work had been done, as a model for future times.

Chadwick's aim, towards which he worked untiringly, was the health of the nation and the welfare of its poorer citizens. His great success was to convince politicians that they had a duty to support at any rate the first of these objectives. When it came to means, he believed in a professional civil service whose members had been chosen competitively; and in firm central control of the necessary mechanisms. Trust in the civil service, in the advice of experts, and in centralisation are not currently in high favour; but a passing fashion does not prove Chadwick wrong. He recognised, of course, the need for ultimate decision by elected representatives; but even he, no fugitive from conflict, might wish to see more cooperation and less confrontation in our present legislative assembly.

The socio-economic gradient in health

There is no novelty or originality in recognising the phenomenon which supplies the theme of this paper. In his Report on the Sanitary Condition of the Labouring Population, published in 1842, Chadwick observed that in Bethnal Green and Shoreditch the average life in 'the labouring population' was 'no longer than sixteen years'; about one-third of the life expectancy of 'gentlemen and professional people and their families'. And a hundred years later, J. N. Morris and Richard Titmuss [2] were examining the effect of social conditions on the incidence of specific disorders such as rheumatic heart disease and peptic ulcer. The coming of the national health service (NHS) made doctors and others more aware of the ill-health associated with poverty; much illness, previously borne in secret, came into the open once medical help had been made freely available to those neither affluent nor covered by health insurance (and at that time cover was limited to the worker, and did not extend to his wife and children). As the thirtieth anniversary of the NHS drew near, David Ennals (Secretary of State for Social Security in the Callaghan administration) instigated a review of 'information about differences in health status between the social classes'. The Working Group was also asked to 'consider possible causes and the implications for policy; and to suggest further research'.

The Working Group, which I chaired, had only three other members, but we were supported by a secretariat and research assistant. My colleagues were Dr C S Smith, the Secretary of the Social Science Research Council; Professor J N Morris, Director of the MRC Social Medicine Unit, and Professor Peter Townsend, then in the Chair of Sociology in Essex University. Morris and Townsend were former colleagues of Richard Titmuss, and they kept alive his knowledge, wisdom and dedication. We were established in April 1977, and our Report was issued in August 1980. We made this assignment our main preoccupation; held many meetings both as a group and in consultation with others; and with the valued and indeed essential help of the Office of Population Censuses and Surveys (OPCS) were able to assemble statistics on social (more accurately occupational) class, mortality and morbidity, whose analysis in our view placed beyond any reasonable doubt that there was a close association between 'class' and health status.

This is not the place in which to recapitulate or even summarise that mass of information, especially now that it has been greatly added to, and in particular our cross-sectional analysis has been critically supplemented by longitudinal studies [3]. But before leaving the Report itself, let me indulge in the selfish exercise of assessing to what extent we achieved what we were asked to do. The heads of our task were to assemble information, to consider explanations, to assess implications for policy, and to suggest further research. We can, I think, be reasonably content about the first and fourth of these. The amount and quality of statistics can be seen from the Report, or more conveniently from the abridgement by Townsend and Davidson; and the amount of research which has been stimulated, in part at least, by the Report, can be gauged from Margaret Whitehead's *The health divide*. These two works are now available in one volume, first published in 1988, and revised and updated in 1992 [4]. Regarding 'explanations', we considered artefacts of statistics; social selection; cultural and behavioural factors, or 'life-style'; and a predominantly 'structuralist' explanation, placing material deprivation as a major, but not the sole, determinant of ill-health. I believe that the categories of explanation which we chose remain valid, and have been extensively used in later work; but other factors have come to light, such as those operating early in life [5]. I shall attempt a reassessment of our views on 'explanations', taking account of later work.

Our structuralist emphasis has proved controversial, but only mildly so in comparison with our suggested implications for policy. We made 37 specific recommendations of detail, many of which would not have involved additional expense; and our stated objectives

in the health care field of giving 'children a better start in life', and of encouraging good health by preventative and educational action were broadly acceptable. The section of our Report which really stirred the political waters was what we called 'The wider strategy'. We took the view that if, as we believed, ill-health was the consequence rather than the cause of poverty, then that was an evil—one of Beveridge's giants [6]—to be tackled head-on by abolishing or at least diminishing poverty, and not merely palliating the consequent ill-health. When we began our work, in 1977, there was a broad political consensus that the welfare state was a 'good thing', even if worryingly expensive; when we finished it, in 1980, things had changed. Self-assured monetarism was in control, and any social provision which would increase public expenditure was unacceptable. The Report was issued in the form of 260 duplicated copies of the typescript, with a politely dismissive Foreword by the new Secretary of State. There was no press launch from the Department; but even in August, an informal press conference arranged by ourselves was well attended, and what might have been a small note on page four became a banner headline on the front page.

So much for the Report itself, whose major consequence, apart from the initial reawakening of interest in the relation between socio-economic status and health, has been the stimulus to what is now over fifteen years of research and study. The work up to 1992 is comprehensively reviewed in *The health divide* [4]. Last year (1995) was something of an *annus mirabilis*, during which continuing interest in this problem was manifested in a monograph on *Tackling inequalities in health* published by the King's Fund [7]; in a *Report on variations in health* from the Chief Medical Officer's Health of the Nation Working Group of the Department of Health [8]; and in an expert discussion of possible explanations [9].

Towards explanations

I do not now have the time, the expertise, or indeed the stomach to create a compendium of compendia. Instead, I shall draw attention to some characteristics of the relationship between socio-economic status and health, which may be relevant to understanding it; for ease and brevity of referral, let us call it 'the association'. First of all, it is not trivial; in men, women and children the standardised mortality rate (SMR) is more than twice as high in social class V as in social class I; and in the important period around birth the differential is even greater. Second, it is universal, in the sense that wherever there is social disparity, there is also disparity in health—this applies both within countries, and between countries. Then, the association is complex in a number of ways, as would indeed be expected, given the complexity of the things which are being compared. Any comparison between nations, or even between classes within a nation, is potentially confounded by differences in life-style, diet, housing, facilities for culture and recreation, not all of which are economically determined. Yet within the complexities there are still notable consistencies; for example, when the analysis is carried down to specific determinants and types of ill-health, the association persists for categories as varied as stroke and coronary heart disease; respiratory disorders, including lung cancer; musculoskeletal problems; accident rates; and obesity.

There are a number of ways of looking at the association. Unlikely though its universality may make this, it could be looked on as a chance finding, calling for no particular attention, still less any action. Secondly, health status could be looked on as the independent or determining variable, with poor physical or mental health dictating descent in the social scale. Thirdly, and conversely to the second proposal, socio-economic circumstance can be regarded as the determining variable, the occasion of ill-health. A further variant has been proposed, which sees 'failure to cope' as a personal characteristic which determines both low social status and poor health [10].

I do not propose to lavish time on the first and the fourth of these possibilities, that the association is a matter of chance, or that poor health and low social position have a common ground in 'failure to cope'. Chance may be a fine thing, but it seems to have an aversion to replicating itself on as many occasions and in as many places as the association has been demonstrated. My criticism of the 'coping' theory stems from my inability to conceptualise 'failure to cope' as a real entity at the group level. I can, of course, see that it may have meaning at the level of the individual; and in many respects I can discover it by introspection. But I cannot generalise it as an intrinsic property of a defined population; though perhaps it may be something which is imposed on them by circumstance, in which case we are really dealing with a variant of the view that social circumstances are a determining variable—a view I happen largely to share, and certainly in preference to one which is at risk of 'blaming the victim'. More important to the pragmatist, I am unaware of rigorous ways to define, detect or cure 'failure to cope'.

The remaining possibilities are that failing health leads to decline in the social scale; and that socio-economic status is a determinant of health. Each of these propositions clearly holds true in particular situations. Illness both lowers the capacity to earn, or even to be employed at all; and it brings additional expense, even when there is an adequate system of health care. Conversely, poverty entails a constellation of disadvantages relevant to health—insufficient or faulty nutrition; crowded housing; lack of safe facilities for play and exercise; limited educational and cultural opportunity, and so on. The question then, is not which of these mechanisms is operative—they both are; but which of them is predominant. On the face of it, that

may seem a matter of theoretical speculation; but I hope to show that there are some pointers which favour one solution, and that that opinion is far from 'inconsequential' in the literal sense of that abused word.

The determinants of health from conception to death are many and various; and there are differences between those which predominantly affect the individual, notably genetic make-up; and those which affect whole populations, notably factors in the environment, physical or cultural. Socio-economic status is similarly multifaceted, making a 'unifying explanation for social inequalities in health' [9] doubly difficult. When categorical knowledge fails, we have to fall back on some sort of 'belief', not in the sense of a credo, but as a testable hypothesis. It is my own belief, in that sense, that when allowance has been made for social decline attributable to lowered health, for various forms of natural selection, for differential access to medical care, and so on—after all that there remains a strength of association which demands a base in the socio-economic structure of a society.

While such an association is most graphic at the extremes of society, it is important to note that it is demonstrable within what, compared with the entire spectrum, is a narrow socio-economic range. Our civil service displays neither the conspicuous affluence of privatised utilities nor the rags of the pauper, but Marmot and his colleagues [11] showed in the Whitehall study a step-wise increase in 'all-cause mortality' with descent from the administrative grade to clerical and other grades. It seems to me distinctly more likely that status on entry affects future health prospects, than that health on entry determines status in the service.

One test of an hypothesis is to examine its predictive value, ie what proportion of the variance in health can be attributed to some index of socio-economic status. For such a study, good measures of both socio-economic and health status must be applied over a period of time to a reliable defined population; these criteria seem to have been met in a study from the Manitoba Centre of Health Policy and Evaluation. Mustard and Frohlich [12] used a socio-economic risk index (SRI) based on 'percent of labor force unemployed' at ages 15 to 24, and at 45 to 54, together with 'percent of single-person female households' (positive risk factors); and percentage of 25–34 year olds 'graduated from high school', percentage of 'female labor force participation', and value of owner-occupied dwellings (negative risk factors). Each of these factors was weighted on the basis of regression coefficients. As measures of health status, they used a morbidity index based on rates of hospital admission for defined groups; and as a mortality index 'the SMR for persons 0 to 64 years of age'. The SRI and the indicators of 'health' were calculated for the administratively defined health regions of Manitoba, between which there are wide variations in socio-economic status. It was found that no less than 91% of the variance in SMR and 87% of the variance in 'morbidity' could be accounted for by the SRI. (I am very conscious that my summary of this important paper, necessarily brief, is consequently inadequate; and would urge access to the original paper, especially for detail of the derivation of the various indices.)

It is interesting that an index of such predictive power should include levels of employment, of educational achievement, and of housing quality and marital isolation; but not any direct measures of life-style factors, such as smoking. That does not detract from the relevance of such factors, but it must surely tell against the view that poorer health in the 'lower classes' is simply a matter of unhealthy habits. More direct evidence of this comes from the Whitehall and Alameda County studies, which showed that while known risk factors had an effect, their exclusion from the analysis left the bulk of the socially related variance in health unexplained [4].

What can be done?

Lack of a unifying explanation suffices to discourage the search for a single simple remedy; but it does not remove the obligation to do what can be done, at least if it is accepted that socio-economic influences on health are both 'true' and 'important'. In our 1980 Report, we stressed, implicitly by the number and range of our proposals and explicitly by separating what could be done by health care from what demanded a wider social strategy, that the correction of inequity in health would require approaches both broad and detailed, some of which, though not all, would be costly. It has been cynically observed that there is no problem, however complex which, if studied with care and attention, cannot be made more complex still. Something of this kind may have happened since our Report came out; but any degree of satisfaction which we might have been tempted to feel because of increasing recognition that our intuition of complexity was sound, is totally overset by chagrin that over the past fifteen years little has been done to tackle the problems. There are now signs, which it would be distinctly unwise to term green shoots, that the importance of the problem is increasingly being recognised, both generally and even in government. The sterile political polarisation of the parliamentary debate on 6 December 1982 [13] was unhappy, but, happily, is remembered by few. Although the socio-economic effects on health are diluted by considering variations in health related to ethnicity, geographical location and even sex, a Working Group in the Department of Health has produced an excellent *Report on variations in health* [8], as part of the 'Health of the Nation' initiative. The subtitle of the Report is, 'What can the Department of Health and the NHS do?'; and within its limits the answer is excellently dealt with by a range of constructive

proposals for improving both services and access to them. The respective responsibilities of the health authorities and of the Department are clearly demarcated, though there could be practical difficulties in influencing that part of the purchasing web represented by family doctors. Nevertheless, the message has gone forth; and that has to be good.

It is both reasonable and inevitable that recommendations from a department of government should not include millstones for other departments: but the Report clearly recognises the need for the Department of Health 'to work actively in alliance with other government departments and other bodies to encourage social policies which promote health'. That clearly expressed recognition of need is most welcome; and in his foreword to the King's Fund Report [7] Sir Donald Acheson, from experience, is reassuring about the possibility of effective cooperation between departments—but with two important provisos which call for direct quotation, 'Provided there is a clear expression of political will from the top and a sense of urgency (and these provisos are crucial) policies on a topic which invoke even the whole spectrum of central government can emerge smoothly and quickly'. With a measure of optimism, I hope that at some future time these provisos may be met. What will then be required in the way of action?

Our 37 recommendations in the 1980 Report, while reflecting the complexity of the problem, may also have afforded a specious excuse for its continuing neglect throughout the eighties. Without any important omission, the King's Fund group [7] has usefully refined the task by grouping what has to be done under four main headings—the physical environment; social and economic factors; barriers to a healthy lifestyle; and access to health and social services. The *physical environment* includes housing, conditions for work and for play, and pollution of air, food and water. *Life-style factors* include over-, under-, and mal-nutrition, lack of exercise and abuse of addictive drugs, led by nicotine. There is, of course, a link between lifestyle and the social environment, with pressures of advertisement concentrated on the most vulnerable.

Something more must be said of *social and economic factors,* inescapably political though these must be, though not necessarily on strict party lines. Poorly paid occupations impinge adversely on health in many ways, such as poor diet, housing and social support, increased risk of unemployment; and a culture at best limited, at worst predisposing to abuse of alcohol and tobacco. Those who praise the present time point out that the numbers in social class V (unskilled manual) have notably declined. However, it is unlikely that misery for the individual is at all lessened through being shared with a smaller number of others; and we have seen that health disadvantage, so far from being limited to social class V, forms a gradient throughout the social spectrum. Any decline in the numbers of unskilled workers has been more than exceeded by increase in those in all classes who have lost employment.

The view that wealth gained by the stimulus of economic incentives, including reductions in taxation for those in upper echelons, would 'trickle down' to relieve want in all classes, is not borne out by the record. Between 1979 and 1990, income in the top quintile increased by 20%, while that in the bottom quintile decreased by 15%. Moreover, while low income may provide an unwelcome means of escape from direct taxation, there is no escape from value added tax (VAT); and the progressive shift from a relatively equitable tax on income to levels of indirect taxation which may be as high as 17.5% of spend has contributed to impoverishment.

I admit to the belief that measures to lessen once more the disparity in resources within society, which has so noticeably increased in the past fifteen years, would do more for the health of the poor, and indeed for the health of us all [14], than anything which can be done by the *health and personal social services.* But that is no reason for neglecting or demeaning what these services can do to palliate the burdens of poverty. Common sense might suggest that with advances in both preventative and curative medicine, there might be a differential improvement, even using that hardest of indicators, mortality, among those afflicted by those conditions 'amenable' to such measures, in comparison with medically 'non-amenable' conditions. This has indeed been shown in a number of countries [15, 16]. And there is good evidence that the easily demonstrable effects on mortality are matched by comparable effects on general morbidity and on specific diseases, even if these are less easy to demonstrate with hard figures.

Faced with a multiplicity of possible initiatives, we suggested a three-fold scheme of priorities:—

> 'Priority for children to have a better start in life.
>
> Priority for disabled people bearing the burden of cumulative ill-health and deprivation to improve their quality of life and reduce the need for institutional care.
>
> Priority for preventive and educational action to encourage good health.'

In my view, these remain good priorities; but I would now award primacy to the first of these, then the third, and thirdly the second. The emphasis on children combines compassion with pragmatism, for any benefit which can be achieved will be for years ahead, perhaps even for generations. Prevention and education for health are fine things, but limited by uptake and evidence-based efficacy. The lot of the disabled, while deserving of all sympathy, is again an individual matter, however vital it may be to that individual; comprehensive care must embrace the

problems of the carer, with both domestic aids and the provision of respite periods.

Let me conclude by making a point, and asking a question. An old epigram said that we lived on an island built of coal and surrounded by fish, yet we were short of both. To bring this up to date, we would have to say that we are neglecting the coal, and sharing the fish with a second Spanish Armada. Twenty years ago we had a balanced manufacturing industry; power derived from coal, and from nuclear plants whose risks, as operated in this country, were hugely exaggerated; and a welfare state of which the NHS was an important part. Now we have an industry disproportionately directed to producing armaments; power based on transient fossil fuels; and we are told that we cannot afford a welfare state.

The question I would ask is this—If we are seriously concerned with the Health of the Nation, can we afford *not* to have a welfare state?

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