Public Health 123 (2009) 587–591

Contents lists available at ScienceDirect

Public Health

journal homepage: www.elsevierhealth.com/journals/pubh

Minisymposium

Conventional and ecological public health

G. Rayner [a,b,*]

[a] Brunel University, London, UK
[b] City University, London, UK

ARTICLE INFO

Article history:
Received 7 May 2009
Accepted 24 June 2009
Available online 11 September 2009

Keywords:
Ecological public health
Environment
Biomedical model
Natural ecology
Social ecology
Social determinants of health

SUMMARY

This paper suggests that current models of public health are no longer sufficient as a means for understanding the health challenges of the anthropogenic age, and argues for an alternative based upon an ecological model. The roots of this perspective originated within the Victorian era, although it found only limited expression at that time. Ecological thinking in public health has only been revived relatively recently. Derived from an analysis of obesity, this paper proposes the development of an approach to ecological public health based on four dimensions of existence: the material, the physiological, the social and the cultural-cognitive. The implications for public policy are considered.

Orthodox perspectives in public health

Public health was born of crisis and yet crisis so often afflicts public health. In her well-received books and many newspaper articles, the Pulitzer-prize-winning American journalist Laurie Garrett has described how, and in what way, public health has entered a phase of global crisis.[1,2] With its institutions suffering low investment and loss of profile, her message has been that rich and poor nations alike risk an ever-increasing magnitude of disease threat. Not that Garrett presumes some prior public health golden age; even in her own country, she asserts, the public health system frequently disregarded questions of race, genetics, ethnicity and economic class, while major inequalities persist today. The refurbished public health approach she advocates blends various elements, ancient and modern, but it is unambiguously constructed around strong, state-supported biomedical foundations. In a speech calling for the 'rebuilding of trust'–a theme running through her work–she described the public health infrastructure as essentially:

> *"a practical system rooted in two fundamental scientific tenets: the germ theory of disease and the understanding that preventing disease in the weakest elements of society ensured protection for the strongest (and richest) in the larger community."*[3]

Five years later, on the opposite side of the Atlantic, another apparent public health outsider offered his own perspective on current challenges to the public health; the then-serving British Prime Minister, Tony Blair MP. In a speech entitled 'Healthy living', Blair recalled that while the Victorian originators of public health overcame challenges described by him as 'colossal', these were nevertheless 'easy to correct':

> *"The collective solutions were easy to identify–to improve slum dwellings; to construct a disposal system; to purify the water; to make the fruits of medical research available to the poor. Of course these were great accomplishments and a testament to the political will of many great reformers. But, once the will was gathered, the levers were there and they worked when they were pulled."*[4]

While it could be objected that solutions always appear obvious in hindsight, Blair's purpose in addressing the past was to dramatize the critical differences of today. He put this point succinctly and, for public health advocates, controversially:

> *"Our public health problems are not, strictly speaking, public health questions at all. They are questions of individual lifestyle–obesity, smoking, alcohol abuse, diabetes, sexually transmitted disease. These are not epidemics in the epidemiological sense. They are the result of millions of individual decisions, at millions of points in time."*

The implication was that the state-organized biomedical paradigm of public health had passed through a historical watershed. The new role of the state and of public health was to 'empower people to choose responsibly'.

These two outlined positions arguably encapsulate the two ruling orthodoxies of public health: the 'biomedical' model and, to employ a term used in British health policy documents, the 'healthy

* Address: GRAssociates Consultancy, 9 Dalebury Road, London SW17 7HQ, UK.
E-mail address: mail@rayner.uk.com

0033-3506/$ – see front matter © 2009 The Royal Society for Public Health. Published by Elsevier Ltd. All rights reserved.
doi:10.1016/j.puhe.2009.07.012

choices' model. One focuses on a range of causes, from genes to germs; the other focuses on the shift to market, consumerism and behavioural remedies like social marketing. Garrett's focus has largely been that of infectious diseases. Her view of chronic disease prevention was that the public health profession was mistakenly seeking an answer through exhortations around individual behaviour in a manner largely consistent with Blair's reasoning. In philosophical and policy terms therefore, these models are a mirror image. While Garrett has called for solid, apolitical and historic structures built on science and with attention to inequalities, for Blair, modern policy levers are to be found within complex and shifting relationships in society, a redefined state and a deeper focus on people's individual choices. As a report by Blair's Cabinet Office Strategy Unit put it:

> *"Behaviour change often–if not always–lies at the heart of complex policy issues."*[5]

This paper proposes that while the dominant narrative of public health paints a picture of public health as a tension between these two positions, there is another version of the past not found in either of these accounts and which offers a conceptual route through some of the challenges which currently blight both existing positions. This third model, like the others, has roots in the Victorian public health past.

It has long been suggested that the sanitary idea (alongside the 'statistical idea' and the 'educational idea') formed the basis not only for public health in the Victorian era but also for state modernization. However, the intellectual and practical currents within and around the public health movement were more diverse than are often supposed. The movement was certainly political, and needed to be so. Middle class advocacy for change was a critical force (as Friedrich Engels was to later remark:fear of contagion provided the incentive), and mingled motivations included the imposition of 'disciplinary individualism'[6] and the more emancipatory perspectives of progressive liberalism, hence alliances between state bureaucrats like Edwin Chadwick, formerly associated with the despised New Poor Law and the leading champion of sanitary reform, and progressives like Charles Dickens, whose novels expressed his personal dedication to the public health movement.

However, the success of Victorian public health was built on more than sanitary engineering, agitational literature or, somewhat later, germ theory. It entailed the restructuring of the state, the creation of new breeds of public functionaries, new means of public documentation and reporting, citizen activism, new habits of mind and everyday manners (from the proscription of spitting and sneezing to routines of domestic and commercial hygiene, etc.), the use of newly available hygiene products, employment, housing and product regulation, immunization and later child welfare. All of these factors and more occurred against a background of fluctuating economic trends and social development–better food, better housing, often matters contested by interests who thought they had something to lose.[7] There remains a longstanding debate, often focused around the work of Thomas McKeown, over which factors mattered most–changing circumstances or changing public health infrastructure.[8–14] While some points have been clarified, the larger scale questions are not likely to be resolved because–to draw upon notions of complexity derived from within ecological thought–multiple factors interact and it is often impossible to prise them apart.

The eventual hegemony of the biomedical model, taking over from the less disciplinary-focused environmental perspective, occurred towards the later part of the Nineteenth Century.[15] If Garrett places the biomedical model at the heart of things (Edwin Chadwick is erroneously referred to as 'Dr' Chadwick when he was a lawyer civil servant), like some commentators she is strongly critical of the manner of its application. For example, the result of Chadwick's reforms, according to Hamlin, was 'the greatest technical fix in history', which attended to the 'remedial conditions of the environment' but ignored 'the crumbling constitutions of poor persons'.[16] In focusing on the environment and poor people's place within it, the employing class seems to have got off lightly. In fact, Chadwick was appealing to this group for support but often quietly fuming at what he saw as their campaign of obstruction. However, it would be mistaken to think that Chadwick was focused solely on quick-fixes. Although lacking his own theory of nature (the more socially progressive utilitarian, J.S. Mill provided that[17]), his broader perspective included a practical form of biotic environmentalism, incorporating understandings drawn from economist Thomas Robert Malthus (although he was not, in other respects, a Malthusian) that the health of the city depended on the countryside.[18] According to Chadwick, country and town must be brought together. Agricultural lands suffered from improper drainage and poor soil, while urban areas lacked water and possessed a surfeit of human waste. Thus, Chadwick proposed to pipe rural water to the city and human waste to the countryside, to be used as manure. The critical point is not the practicality of the scheme but that it represents foundational thinking on sustainability; the core notion that the health of humans and environments are linked.

If some of the practical roots of today's ecological public health perspective can be found in such schemes, its intellectual roots lay outside the public health movement altogether, although, as will be suggested, Malthus provides a common heritage.

The meaning of ecology for public health

Ecology might seem a dubious term, stretching as it does from products on supermarket shelves to the work of field biologists and botanists. Its meaning has been debated for over a century, with the first major disputes appearing in the American journal *Science*. However, there is little mystery surrounding its origins. The term was coined in the mid-1860s by biologist Ernst Haeckel, principal among Charles Darwin's German followers. It derived from the Greek oîkos, 'house'; logia, 'study of'; linguistic roots it shares with 'economics' and for which it came to substitute. Haeckel was an exceptionally fertile thinker, trained in medicine by the eminent Rudolf Virchow, one of the prime movers of Germanic public health, but whose primary research interest was micro-scale sea creatures.[19] Haeckel thought–and most biologists since have agreed (although Virchow disagreed)–that Darwin's new perspective on biology provided something new, wholly different and fundamentally true. In wanting a term to describe this emerging form of study, one which transcended biology and botany, and indeed which could address the entire complexity of nature, Haeckel unequivocally located its meaning term within Darwinian thought and Darwin's principle of natural selection:

> *"By ecology we mean the body of knowledge concerning the economy of nature–the investigation of the total relations of the animal both to its inorganic and to its organic environment; including above all, its friendly and inimical relations with those animals and plants with which it comes directly or indirectly into contact–in a word ecology is the study of all those complex interrelations referred to by Darwin as the conditions of the struggle for existence."*[20]

Others have noted the limitless scope of this definition as it 'concerns the study of all forms of life over the expanse of time that life has existed on earth, and all the environmental relationships in which life is present'.[21] The philosopher G.H. Mead once suggested that Darwin's hypothesis was so effective outside the biological field because it was confined to it, which therefore limits the scope of