Air, the Environment and Public Health

Air, the Environment and Public Health traces the theme of air and health from ancient civilisations to the present day. The author explores the changing conceptions of air and health alongside historical developments in public health, and critically examines contemporary problems – conceptual, scientific, philosophical and ethical – in public health theory and practice.

Part I surveys air and health in early civilisations, as well as the nineteenth-century debates around miasma and evolution. Part II explores the history of smoke pollution and health. Part III examines philosophical issues around modern air pollution epidemiology, and Part IV looks at climate change and ethical frameworks in public health.

The book is a unique blend of public health science, history of medicine, ethics and philosophy. It will be of interest to those working in or studying public health, environmental health, medicine, history of medicine, environmental philosophy and medical ethics.

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To my wife ELIZABETH, for her love and ongoing support
and my children LEONE and ETHAN

Together they help it all make sense

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Foreword

The idea of the health of the public and how to protect and promote it has a long tradition, which in Western societies can be traced back to the Ancient Greeks. Throughout this time air has always been accorded an important role in the understanding of health, and changes in the conceptualisation of the relationship between air and health can be seen as a crucible for wider historical developments in public health. By taking a long historical view and an interdisciplinary approach, Anthony Kessel has been able to produce insights into both the details of practice in relation to air quality and the estimation of health risks, and the theoretical development of public health. His perspective also raises more general issues concerning the need for, and the nature of, interdisciplinary enquiry, and this combination of assets makes the book a ground-breaking contribution.

Over the last two centuries Britain has played a prominent role in the evolution of ideas about public health. Those ideas have undergone a series of transformations. The first half of the nineteenth century saw the birth of the modern public health movement in response to the squalid conditions which arose from the rapid and disorderly growth of industrial cities. This movement was inspired initially by social philosophers, sanitary engineers and statisticians, and, although supported by a handful of radical doctors, did not develop as part of mainstream medicine. However, in the second half of the century the doctors increasingly took control as the state extended its involvement. So, by the 1870s, public health had become somewhat medicalised and consolidated as a key element of local authority provision. This was reinforced by the rise of the germ theory in the 1880s, and by the growing recognition, especially in the occupational setting, of the specific toxicity of particular chemical and physical exposures. Public health was thereby emerging as the third arm of biomedicine, alongside hospital medicine and general practice, and organised under the aegis of the newly established Medical Officer of Health. Thus, for a hundred years, until the abolition of this position in 1974, public health gained recognition as an authentic branch of orthodox medicine, albeit of lower status than clinical practice.

The influence of public health was already in decline, though, after the introduction of the National Health Service (NHS) in 1948. This was partly because it was the period when Britain, like other developed countries, was going through the epidemiological transition which saw the burden of ill-health shift from communicable to non-communicable disease. This transition led to the view that public health surveillance would be of declining importance, as non-communicable disease was not seen as involving environmental issues. Also the Medical Officer of Health's management role was substantially reduced in 1948 because the NHS was organised nationally rather than at the level of the local authority, and the increasing professional autonomy of sanitary inspectors, and social workers in the post-war years finally led to the demise of the Medical Officer of Health in 1974.

The paradox has been that since this time there have been demands for a renaissance of public health, particularly under the banner of the 'new public health'. There is a variety of reasons why this arose in the closing years of the twentieth century, but two are of particular relevance to this book. The first of these is the renewed interest in the environment, and especially in air. Indeed, since the great smog episodes of the mid-twentieth-century, there has been an increasing awareness of the health risks from air pollution, and this, in turn, has underlain the development of clean air legislation and regulatory action. More recently there has been both a resurgence of communicable diseases, some of them airborne, on top of the rise of non-communicable diseases such as chronic respiratory disease and asthma, and new concerns with transport-related air pollution, acid rain and, now, changes in the global climate induced by greenhouse gas emissions.

The second reason is that the traditional biomedical model, with its reliance on scientific positivism and medical paternalism, has increasingly come under challenge. This has highlighted the latent tension between the two traditional public health roles, those of surveillance and protection of the population's health, and the management of the medical care system. When it was assumed that the public's, the state's and medicine's conceptions of health could be objectively defined and so were logically coincident, combining these two roles was rarely seen as problematic. But since the 1960s these constituencies have been seen as having potentially competing interests, reflecting their different perspectives on health; this plurality of vision now presents an ongoing and fundamental challenge to the single lens of biomedicine. Thus public health is open to a range of new interpretations, particularly concerning whether it should be under the control of organised medicine, and so is revisiting some of the debates and political struggles of the nineteenth century.

This book is set within this new era of controversy, and has both arisen from it and constitutes a critical reflection on it. In order to accomplish this, though, the book not only engages with contemporary concerns of relevance to public health but also breaks with the traditional academic mould, and so engages with issues of wider interest.

History and philosophy of science is now a well-established discipline but is relatively under-developed in relation to medicine and public health. The reasons for this are twofold. First, the science of medicine and public health is seen as applied, as practical, and so is often considered as less suitable, as well as less important, as a subject for analysis than the 'pure' sciences. Second, there has been a strong tendency for all academic disciplines to become more and more specialised and reductionist. So, although there has been an increase in the range of subjects seen as relevant to medicine, this has mainly resulted in a proliferation of subdisciplines, e.g. social history of medicine, medical ethics and medical sociology, and these have tended to be informed by the methods of the parent disciplines from which they derived.

Breaking out of this mould to develop interdisciplinary perspectives is difficult but essential if the new public health is to flourish, and Anthony Kessel has responded to the challenge. He has been able to do this because he brings to the task an unusual combination of qualifications, in medicine, public health, history and philosophy of science, and ethics. It has allowed him to interweave and combine a concern with the practical aspects of air and health, with theoretical issues, and, in doing so, to demonstrate the more general potential of this type of methodology. This breadth of vision has then enabled the exploration of a wide range of issues, including the changing relationship between humans and the natural environment (extending now to the unprecedented prospect of human-induced changes in global atmospheric composition and, thus, in world climatic–environmental conditions), the relevance of the humanities to public health education, research and practice, and the connections between global health and political philosophy. Hence, this book will appeal not only to practitioners of public health but to all those who are concerned with the future health of the planet and the development of interdisciplinary studies.

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Abbreviations

AOSIS	Association of Small Island States
APHEA	Short-term effects of air pollution on health project
ASEAN	Association of South-East Asian Nations
BHHA	Barking and Havering Health Authority
BMJ	British Medical Journal
BS	Black smoke
CIAP	Committee for the Investigation of Atmospheric Pollution
COMEAP	Committee on the Medical Effects of Air Pollution
COP	Conference of the Parties
CSAS	Coal Smoke Abatement Society
DPH	Diploma in Public Health
DSIR	Department for Scientific and Industrial Research
EHO	Environmental Health Officer
EU	European Union
FCCC	Framework Convention on Climate Change
FCM	Faculty of Community Medicine (UK)
FPH	Faculty of Public Health (UK)
FPHM	Faculty of Public Health Medicine (UK)
GBH	General Board of Health
GCI	Global Commons Institute
GDP	Gross domestic product
GEC	Global environmental change
GIS	Geographical information system(s)
GP	General practitioner
Gt	Giga-tonne
HES	Hospital Episode Statistics
IPCC	Intergovernmental Panel on Climate Change
LAQM	Local Air Quality Management
LBBD	London Borough of Barking and Dagenham

LBH	London Borough of Havering
LGB	Local Government Board
MFPH	Membership of the Faculty of Public Health (UK)
MFPH Part 1	Membership of the Faculty of Public Health (UK) Part 1 examination
MFPH Part 2	Membership of the Faculty of Public Health (UK) Part 2 examination
MFPHM	Membership of the Faculty of Public Health Medicine (UK)
MFPHM Part 1	Membership of the Faculty of Public Health Medicine (UK) Part 1 examination
MFPHM Part 2	Membership of the Faculty of Public Health Medicine (UK) Part 2 examination
MOH	Medical Officer of Health
MP	Member of Parliament
NAQS	UK National Air Quality Strategy
NEHAP	United Kingdom National Environmental Health Action Plan
NHS	National Health Service
NO_2	Nitrogen dioxide
NO_x	Oxides of nitrogen
NIMBY	Not In My Back Yard
NSAC	National Smoke Abatement Committee
NSAS	National Smoke Abatement Society
OECD	Organisation of Economic Co-operation and Development
PCT	Primary Care Trust
$PM_{2.5}$	Particulate matter less than 2.5 micrometers (μm) in diameter
PM_{10}	Particulate matter less than 10 micrometers (μm) in diameter
QRA	Quantitative Risk Assessment
RCP	Royal College of Physicians (UK)
RCT	Randomised Clinical Trial
RMS	Royal Meteorological Society
RR	Relative Risk
SAC	Smoke Abatement Committee
SO_2	Sulphur dioxide
StHA	Strategic Health Authority
TB	Tuberculosis
TSP	Total Suspended Particulates
UK	United Kingdom
UN	United Nations
UNFCCC	United Nations Framework Convention on Climate Change
US	United States
USA	United States of America
WHO	World Health Organization