

cancer patients succumb to the disease. Public health efforts at reducing the smoking rate have been modestly successful in reducing lung cancer deaths in the United States, and the majority of cases now occur in previous or never-smokers. The IASLC [International Association for the Study of Lung Cancer] **Textbook of Prevention and Detection of Early Lung Cancer** addresses important and timely subjects concerning how soon, and by which methods, early interventions can be made in persons with or at risk for lung cancer, to catch the disease in an earlier, more curable stage. The book's editors are thought leaders in the lung cancer field and they selected contributors who are experts in their sub-fields. The book lives up to its designation as a "textbook" in that it is very thorough in its discussion and is well-referenced, with an average of a hundred references in each of its 20 chapters. As such, it makes a very useful reference, but most readers are unlikely to read it in its entirety. The book is intended for physicians and researchers interested in lung cancer, and it is written in a detailed and technical fashion. It may appeal to respiratory therapists with special interest in lung cancer, but the comprehensiveness that is its strength may deter the casual reader.

The book starts with an epidemiologic overview of lung cancer, discussing temporal and geographic trends and environmental risk factors. Subsequent chapters review lung cancer biology, genetic risk factors, and the strong epidemiologic and basic science evidence that links tobacco smoke to lung cancer. Tobacco control measures and clinical approaches to smoking cessation are reviewed. Some chapters discuss the pathology of lung neoplasia and pre-neoplasia. Early detection is a major focus of this text. A chapter on proteomic approaches to early detection reviews the methods of proteomic analyses in general and discusses the literature on detection of lung cancer in lung tissue, serum, plasma, pleural fluid, sputum, bronchoalveolar lavage fluid, and exhaled breath condensate, using proteomic profiling. Sputum cytology has for decades been proposed as a means of early detection. Also discussed are the data regarding conventional cytology and newer techniques, such as automated cytometry and specific molecular markers such as rat sarcoma (RAS) oncogene activation or abnormal methylation.

Novel bronchoscopic techniques, including autofluorescence bronchoscopy and en-

dobronchial ultrasound, are explained in detail, and data on their use in early cancer detection are presented. Techniques for dealing with the early lung cancer lesions (eg, photodynamic therapy, brachytherapy, and electrocautery) detected via the latter sensitive techniques are discussed, and the limited data on their effectiveness are presented.

Previous efforts at early detection of lung cancer with chest radiographs failed to demonstrate a survival benefit between screened and control groups in randomized clinical trials. Current efforts at early detection utilize spiral CT scanning to detect early lung cancer lesions. The text provides a useful summary of the expanding literature in CT-based lung cancer screening; the rationale for this method and data from prospective cohort series are reviewed, and the ability of the technique to identify early lesions is demonstrated. The ongoing randomized clinical trials that might establish CT-based screening for lung cancer are described, though results are not expected for many years.

Because CT can identify very small lesions, the high frequency of indeterminate pulmonary findings is the clear challenge in CT-based screening. One chapter covers how image processing and computer-aided diagnosis can enhance detection while minimizing false-positive results. Several chapters are devoted to how to work up these lesions, and how radiographic appearances correlate with pathologic findings. Many of the lesions detected are too small for needle biopsy, so many patients with screening-detected lesions will require surgery. Evidence from studies of non-screening-detected lung cancer established lobectomy as the operation of choice for patients with adequate pulmonary reserve. Screening-detected lung cancers are typically much smaller than incident lung cancers and may have a less aggressive biology, allowing for alternative, less-aggressive treatment approaches. Surgical techniques and issues surrounding sub-lobe resections are reviewed. Numerous nonsurgical treatments have emerged, including conventional and stereotactic radiation therapy, brachytherapy, and other local modalities. Explanations of these techniques and the limited data supporting their effectiveness are reviewed.

The technologies used for lung cancer screening and workup are expensive, and it is clear that at some point this will have to be addressed from a societal standpoint. A chapter is devoted to the economic evalua-

tion of lung cancer screening that, like many of the chapters in this text, builds basic concepts in the discipline, such as cost/benefit evaluation and criteria for evaluating the quality of economic evaluations, and then reviews the relevant data for lung cancer screening. A subsequent chapter discusses how to select the population to be screened to enrich for persons at high risk and thus improve the cost/benefit ratio. This same high-risk population can also be targeted for pharmacologic chemoprevention to reduce lung cancer risk. The rationale for this approach, including the concepts of multi-step carcinogenesis and field cancerization, is discussed. A historical overview of the field includes several large randomized clinical trials of promising agents such as beta-carotene, which proved to promote rather than prevent lung cancer.

Overall the coverage of topics is complete, and I did not identify any important topic that was omitted. The chapters are well written, and there are few typographical errors. The book has many useful illustrations and tables that enhance the text. The references are extensive, and the book has a reasonable index. One problem with having multiple contributing editors is that there is a certain degree of overlap between sections, especially in the chapters' introductory parts. The benefit of this approach is that the chapters can be read individually.

Given the slow progress in the treatment of advanced lung cancer, early detection and prevention appears to be the most important front in reducing mortality. This book synthesizes material from many different disciplines and provides a comprehensive overview of the emerging data in this field, which are poised to make an important impact on lung cancer deaths.

Keith Eaton MD PhD

Division of Medical Oncology
Department of Medicine
University of Washington
Seattle, Washington

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Air, the Environment, and Public Health.

Anthony S Kessel MBBS MPhil MSc. Cambridge, United Kingdom: Cambridge University Press. 2006. Hard cover, illustrated, 243 pages, \$90.

Readers of *RESPIRATORY CARE*, unless they have broad perspectives and interests,

may have difficulty digesting the information and arguments presented in **Air, the Environment, and Public Health**. Though many readers might be expected to have an interest in air pollution specifically, and in the environment more generally, this book largely makes use of these subjects ultimately for the purpose of promoting changes in the philosophy and teaching of public health—topics likely to be of less interest to this audience. I am a pulmonary physician and an air pollution epidemiologist in a school of public health, so I might be expected to be in a good position to appreciate the themes developed in the book. My heretofore mostly irrelevant undergraduate degree in philosophy should also have put me in a better position than most to deal with this book's heavy doses of philosophy (including the philosophy of science, ethics, philosophy of knowledge, and political philosophy) that the author, Kessel, summarizes and critiques as background for his thesis. In parallel with the public health theme, Kessel also develops the theme that in order to deal effectively with human-induced damage to the environment, our relationship to the environment needs to undergo radical change. At first blush, these themes (changing the philosophy of public health and changing our relationship to the environment), regardless of how sympathetic we are to each of them individually, seem difficult to integrate into a cohesive exposition. Unfortunately, based on this book at least, this initial impression turns out to be correct.

Kessel is an academician in the London School of Hygiene and Tropical Medicine (a school of public health), where he directs the International Programme for Ethics, Public Health, and Human Rights, and he is also a public health practitioner. He introduces this book with a helpful preview of its contents and the themes he plans to develop. Following this introduction, the book is divided into 4 parts that vaguely correspond to historical periods, but in which Kessel also jumps back and forth in time in attempting to draw out the threads that the reader hopes will be woven together into a cogent and coherent thesis. Each chapter is introduced with an overview and ends with a conclusion that works as a summary. How one views this extraordinary degree of summarization will depend on whether the book is read in only one (or very few) sittings, or whether it is read more leisurely (as I did). Is this extensive summarization too much

or really very helpful? I found it a little of both: helpful when I came back to the book after letting it sit awhile, and too much when reading several chapters in one sitting.

Part I reviews conceptions about medicine and of the role of air in health and disease, from the ancient Greeks to the middle of the 1800s. A holistic approach to health, as in antiquity, surfaces later, as the case is made for a radically different relationship between mankind and the environment. Early manifestations of public health are identified. Even Darwin and evolutionary theory are included, although the rationale for including these in an already far-ranging discussion never quite becomes clear.

Part II is devoted largely to a history of air pollution until about 1970. The conceptions about air in earlier periods have now changed to one that views air as polluted air. Even though adverse health effects of air pollution had been identified, the policy responses to controlling air pollution were sluggish at best. Being one of many, I suspect, who were under the misapprehension that the London Fog of 1952 single-handedly galvanized the political response to air pollution in England, I found the details on the motivations for policy change to be insightful. A history of public health in England is included here and provides a nice background for those interested in the evolution of public health practice and organization. American readers can be forgiven for drifting off because of the exclusive focus on England. In Kessel's defense, however, most of the action on the public health front and in air pollution regulation was in fact taking place in England at that time.

Part III continues the story of air pollution, again almost entirely in the British context, including developments in air pollution science and regulation. The further evolution of public health is also described. In this section, Kessel develops an argument about the limitations of science and its view of the world—an argument that surfaces later as other ways of viewing the world are promoted. While one can be sympathetic to the notion that science has many limitations, Kessel unfortunately takes too many liberties in making his case, and demonstrates some lack of familiarity with current air pollution science in the process.

As one example, he sets up a straw man in claiming that the time series study typifies what is wrong not only with air pollution epidemiology, but with biomedical sci-

ence in general. The time series study is the most common type of study in air pollution epidemiology. In a time series study, daily air pollution concentrations are related to daily counts of deaths or hospitalizations. Kessel wrongly equates time series studies with air pollution epidemiology itself. He criticizes them for being reductionistic and narrowly focused in order to achieve scientific validity by ignoring social, political, and economic contexts. In fact, cohort studies of the long-term effects of air pollution (epidemiological studies in which a defined population is followed over time for some health outcome, most commonly death), which Kessel conveniently ignored, are arguably more influential in air pollution epidemiology and regulatory policy than are time series studies, and cohort studies have also investigated the modifying effects of socioeconomic status on air pollution impacts. In a particularly galling argument, Kessel condemns time series studies for controlling for the effects of temperature in attempting to identify specific effects of air pollution, rather than considering important effects of greenhouse warming. However, from both a scientific and policy perspective, it is vital to determine whether air pollution is currently having effects on health that are not due to meteorology alone. I suspect that Kessel was trying to indicate that pollution, meteorology, and global warming are parts of a complex picture, which at least is true.

Quantitative risk assessment (an easy target) and evidence-based medicine and policy come in for treatment similar to that accorded the time series study. The points against evidence-based medicine—a sacred cow in many circles—I found to be fairly reasonable.

The picture of science presented here (reductionistic, narrowly focused, and socially and culturally conditioned) is one that intentionally invites consideration of alternative approaches to viewing the world. However, while science and its current world view can be legitimately criticized, it is more difficult to criticize the scientific *method*, which is really at the heart of science. It is the scientific method that allows us to judge alternatives to the way science currently views the world. Interestingly, there is no mention of complexity theory,¹ which provides a *scientific* alternative to the reductionism that pervades much of current scientific thinking, and which presents a very holistic world view of the sort that Kessel

favors. One wonders whether this might have shed a more favorable light on science than he would wish.

Part IV is almost entirely devoted to climate change. Here Kessel finds his voice. The earlier parts of the book barely intrude on the exposition, apart from a few tenuous threads, as he develops the thesis. Utilitarianism comes in for special criticism as the current bankrupt ethical basis for much environmental policy. Global climate change presents serious challenges to utilitarianism: policies of developed countries are adversely affecting developing countries, the spatial scale of impacts is global, and future generations may be more affected than current ones. The favored alternative ethical foundation is one based on fairness and justice, as presented in the writings of John Rawls. In this discussion, the reader may get the uneasy impression that Kessel, as even he himself fears, is making climate change a forum for “expressing dissatisfaction with the perceived reasons for many of the world’s ills.” In this light, the rhetoric used to present the solution to preventing climate change and its public health impacts as one requiring a “redistribution of wealth” becomes perhaps more understandable. If all this (a new relationship with the environment and redistribution of wealth) is required to prevent the dire consequences of climate change, then I suspect we are in for a very bad time.

A few other issues here deserve comment. Kessel confuses the reader (perhaps deliberately) when he repeatedly attributes climate change solely to the increase in anthropogenic (man-made) greenhouse gases. He was more on the mark when he ascribed a more limited role to anthropogenic pollution in contributing to climate change—a role that essentially, and most likely, “distorted a natural effect.” He also displays an excessive tendency to classification and definition, much like Aristotle (about whom Kessel appears to have mixed feelings), but that might be forgiven in a book that covers such a broad range of topics over a relatively few pages.

The concluding section of the book ends with a whimper, which is a strategically suspect approach to ending a book. I expected final recommendations for preventing environmental devastation and attenuating global warming and its likely negative impact on global public health. Instead we get recommendations on changes to public health *education*. These are recommenda-

tions that are not likely to bring new recruits to the battle against air pollution and climate change, although these could be influenced in an evolutionary manner by the recommendations. As an aside, readers who are familiar with public health education in the United States may protest the assertion that public health schools in the United States aim more at training those who work in federal or international agencies, rather than at the state or local level.

Air, the Environment, and Public Health covers a large amount of territory, but does not always tie it all together. The attempt to provide both a philosophical basis for policies to combat climate change and its effects, as well as practical advice on public health training, is perhaps too ambitious for this relatively slim volume. Nevertheless, I learned a fair amount in reading this book, despite the critical tenor of many of my comments. Kessel successfully engages the reader in the important debate on air pollution and global warming, and expands the boundaries of the debate to include some of the philosophical bases of Western civilization. And that is not a mean feat. I suspect that it will be only the rare reader of *RESPIRATORY CARE* who will find these to be compelling topics. But I could be surprised.

Sverre Vedal MD MSc

Department of Environmental and
Occupational Health Sciences
School of Public Health and
Community Medicine
University of Washington
Seattle, Washington

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Tropical Lung Disease, 2nd edition. Om P Sharma, editor. *Lung Biology in Health and Disease*, volume 211, Claude Lenfant, executive editor. Boca Raton: Taylor & Francis. 2006. Hard cover, illustrated, 541 pages, \$198.95.

The tropics is the geographical region of the Earth centered on the equator and limited by the Tropic of Cancer on the north

and the Tropic of Capricorn on the south. Tropical diseases are unique because of the hot climate present all year round. Large volumes of rain each year impact the formation of breeding grounds, the number and variety of animal diseases that can be transmitted to humans, and insect disease vectors. Socioeconomic factors also impact heavily on the epidemiology of tropical diseases, since most of the poorest nations are located within the tropics.

This book is timely; it reminds us that although these diseases are mostly seen in the tropics, they can have a worldwide impact because of the increased mobility of people and animals, as evidenced by the recent severe acute respiratory syndrome epidemic and the spread of avian influenza. In addition, weather and climate changes will impact the geography of tropical lung diseases, making this topic less exotic and more relevant than ever.

This book is divided into 3 main parts: an approach to tropical lung disease diagnosis (Chapters 1–5), common presentations of tropical lung disease (Chapters 6–9), and discussions on specific tropical diseases that affect the lung (Chapters 10–22).

The introductory chapters provide a good overview to the spectrum of tropical lung diseases and a useful clinical algorithm for approaching patients with these diseases. These chapters would be of interest to readers who are unfamiliar with tropical diseases, in that they provide a “bird’s eye view” of what medical conditions they might encounter when they travel to the tropics or consult on a patient who has recently returned from the tropics. Chapter 2 includes a detailed list of diseases by geographic distribution, which will be a useful quick reference guide for physicians. However, there was no mention that malaria is commonly encountered in many parts of South and Southeast Asia, which is an important point. The discussion of the role of diagnostic bronchoscopy in the diagnosis of tropical lung disease will be useful, especially to pulmonologists. A welcome addition to this chapter would have been information on infection-control practices, such as patient isolation, use of contact precaution, and use of the powered air purifying respirator, since many tropical diseases are infectious. Chapter 4, on lung immunology, provides an up-to-date summary of host defense mechanisms in the lung and is well-presented, since the topic is vast and new findings are published regularly. This chapter will be a good