Public Health: The Development of a Discipline. Volume 1: From the Age of Hippocrates to the Progressive Era
Edited by Dona Schneider and David E. Lilienfeld

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Public Health: The Development of a Discipline. Volume 2: Twentieth-Century Challenges
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My review of the first volume of Public Health: The Development of a Discipline (1) was entitled “A Must” (2). Now the second volume, which covers the Twentieth Century Challenges, is available (3). Both volumes are compilations of critical papers in the evolution of public health. The editors are Dona Schneider, Professor and Director of Undergraduate Programs at the Edward J. Bloustein School of Planning and Public Policy, Rutgers University, and David E. Lilienfeld, an epidemiologist who has written about the history of epidemiology and also co-authored, first with his father Abraham Lilienfeld and then with Paul Stolley, the textbook Foundations of Epidemiology (4).

Overall, the 2 volumes together total 1,700 pages. Schneider and Lilienfeld have produced a reference document that is also a pleasant read. The carefully selected papers were not simply scanned and bound; all of the texts and tables have been uniformly processed so that the layout is consistent across volumes. Many of the papers were new to me, but even those I had read several times, such as those by Cornfield et al. (5) and Dawber et al. (6), read differently in their new format.

The 2 volumes would serve as an excellent foundation for an introductory course about public health, particularly for the United Kingdom and the United States. They are well edited with useful features, including a timeline, index, chapter-specific bibliography, and notes. The volumes need to be complemented, however, with material on mental health, urban health, and social and economic determinants of health. Also, public health beyond the English-speaking countries is not well represented. Appropriate papers could have been assembled from France (Sully Lederman), Italy (Giulio Maccacaro), Germany (Max von Pettenkofer), Brazil (Carlos Chagas), and undoubtedly others. There is more diversity in the development of public health than is highlighted by the 2 volumes.

VOLUME 1

The first volume has 3 parts, each covering 1 of the following eras: early roots (before the 19th century), the Sanitary Reform Movement (most of the 19th century), and the Progressive Era (the turn of the 20th century). In each part, every chapter references a specific pre-1920 author whose excerpted or abridged work is preceded by a biography, a note about the text included in the anthology, and a bibliography.

The selections include classic texts of public health authored by, for example, William Farr, Edwin Chadwick, Lemuel Shattuck, John Snow, William Budd, Jacob A. Riis, and Joseph Goldberger and extend to Alice Hamilton and Abel Woman. In general, the biography and the notes are well written and interesting, even for someone familiar with the topics. Most importantly, however, the reader has access to the primary documents and can directly read the words of those who proposed critical public health ideas. There is no substitute for reading the original documents and appreciating the clarity with which they were written.

VOLUME 2

The second volume’s chapters are about specific “challenges,” presented in 3 sections: “Population Health Issues,” “Diseases, Therapy, and Prevention,” and “Improving Public Health”. Part I covers food and nutrition, tobacco, dental diseases, environmental health, and child and women’s health. The second is about tuberculosis, human immunodeficiency virus/acquired immunodeficiency syndrome, and vaccines and preventable diseases, namely cancer, heart disease, and stroke. The third covers medical and preventive care, medical ethics and human research, and
global health. Every chapter has a 10–15-page introduction and 3 reprinted papers. The structure by challenges succeeds, but even though the selection of the papers is explained, the basis for choosing some papers rather than others is not evident. For example, the editors comment that Davis’s 1912 paper on “Prevention of infant mortality by breast feeding” was chosen because it “provides some of the first available data on infant mortality stratified by feeding practice” (3, p. 307), but Newsholme’s 1906 “Domestic infection in relation to epidemic diarrhoea” (7) would have seemed even more relevant in terms of priority, methods, and originality.

Some weaknesses common to the 2 volumes became more evident in the second. First, the information about the authors of the selected articles is too often missing, including their affiliation. Second, there is not a clear connection between the short introductions, which are not referenced, and the bibliographies that follow. Given the tendency of the authors to sprinkle the text with anecdotes, there are some unfortunate passages for which I would have liked to know the exact source used by the authors. For example, Schneider and Lilienfeld write about Ernst Wynder, who reported in 1950 on a case-control study of tobacco smoking and lung cancer that he had conducted with the thoracic surgeon Evarts A. Graham:

“Wynder has asked the cases ‘Do you smoke?’ and the controls ‘you don’t smoke, do you?’ The difference in question structure could have biased the results” (3, p. 61).

This is not a minor criticism, and if true, it represents a serious flaw. However, the anecdote does not ring true with the 1950 paper by Wynder and Graham that was published in the Journal of the American Medical Association. That paper included the full standardized questionnaire and ruled out such potentially extreme information bias. Asked about this anecdote, Steven Stellman, who knew Wynder well, said:

“I am certain that they are mistaken. I suspect that they are misremembering and perhaps conflating two anecdotes that I heard Wynder tell many times, often during our annual interviewer retraining sessions. In the first anecdote he described a clinician of his acquaintance who interviewed the cases because they were his patients and were therefore “interesting,” but delegated interviews with controls to an assistant because he couldn’t be bothered. In the second, he acted out a way in which an interviewer might introduce bias by asking a case “Do you smoke?,” but asking a control, “You don’t smoke, do you?,” always modulating his tone of voice so that no one would mistake which method of questioning was the correct one. In both instances it was always very clear that he was illustrating potential pitfalls that he was careful to avoid in his own work” (Steven Stellman, Columbia University, personal communication, 2012).

This possible anecdote and other inaccuracies are of concern. Schneider and Lilienfeld write, for example, that the “interest in the health effects of tobacco focused on cancer until 1940” (3, p. 60). In reality, a case-control study on tobacco and heart diseases (8) preceded the first group comparison of tobacco and cancer (9). Schneider and Lilienfeld unquestioningly accept the proposition that researchers in Nazi Germany discovered that “cigarette smoking caused lung cancer and other health adverse health outcomes” (3, pp. 59–60), although this is a highly debatable opinion (10), and that the 1948 streptomycin trial was the first modern randomized controlled trial, which it was not (11). There are other examples, but the authors developed an anthology and not a history book.

**WHAT IS PUBLIC HEALTH?**

There is, however, a deeper question that Schneider and Lilienfeld do not address: What is public health? The 2 volumes seem to be based on an assumption that the answer to the question is self-evident and that the discipline of public health has 2,500-year-old roots in the work of the Hippocratic doctors. Can we really speak of “public health” in ancient Greece? When can we start speaking of public health? I end this review with an examination of these questions.

In the classic passage of Hippocrates’s *Airs, Waters, and Places*, reproduced in volume 1, we read that the traveling physician arriving at a foreign place had to examine its geographic position, winds, sun, quality of water, and yearlong climatic variation (1, p. 7) Yes, the factors mentioned are strictly natural (seasons and water). Yes, there is no reliance on magic, astrology, superstition, or religion. However, the Hippocratics did not consider location, winds, sun, quality of water, and yearlong climatic variation as health determinants that can cause diseases in the way we think of causes or “risk factors.” All these elements form the “constitution” of the place. In the holistic worldview of the Hippocratics, constitutions help doctors to interpret individual signs and symptoms and manage individual patients. Individual health is a subtle harmony between the universe (including the local constitution) and the human body, but this does not apply to populations—the public.

There are several reasons to doubt that the Hippocrates meant to identify ways of protecting the health of populations. First, in sharp contrast to the empirical descriptions of patients, signs, and symptoms, the treatises are speculative about the connections between components of the constitution of an area. For example, also in *Airs, Water, and Places*, Hippocrates writes about the differences between Europe and Asia, that is, the Middle and Near East:

“And with regard to the pusillanimity and cowardice of the inhabitants, the principal reason the Asiatics are more unwarlike and of gentler disposition than the Europeans is, the nature of the seasons, which do not undergo any great changes either to heat or cold, or the like.” (1, p. 18)

These conjectures about climate and character or other human traits are typical of the Hippocratic thinking. Second, the treatises do not group patients to relate environmental factors to population health. Books I and III of *Epidemics*, for example, describe 40 patients, one at a time, and never attempt to aggregate them. Third, had the Hippocrates been interested in public health, it would be extremely surprising that this school of medical giants, who dominated European clinical medicine for more than 2,000 years and whose aphorisms, clinical descriptions, and oath..."
are still used today, would not have contributed at all to our understanding of effective ways to prevent at least some the then potentially controllable epidemics, such as diarrheal diseases. Schneider and Lilienfeld need to better justify the starting point of their anthology.

**A GAP OF 2000 YEARS?**

If public health did not originate in ancient Greece, when did it? The text following *Airs, Waters, and Places* in volume 1 is the *Natural and Political Observations... Upon the Bills of Mortality* by John Graunt, who lived in the 17th century, that is, more than 2,000 later. Is there no other text in between worth mentioning in this anthology? Can it be that there was no public health during that period?

In my view, the answer is yes, twice. Since antiquity, states have invested in providing sewage removal, clean water, latrines, and other hygiene measures. These public works were indispensable for the development of cities, the historical seats of civilizations. Large human concentrations required garbage removal, pipes, and roads or else they became uninhabitable cesspools. But there is no evidence that these activities of the (weak) state were specifically intended to prevent recurrent epidemics of dysentery or other gastrointestinal diseases. Of course, some public interventions during antiquity can be viewed as “activity connected with community health” (12, p. 1), such as the availability of public doctors, but these actions were directed at individuals.

During the Middle Ages, urban magistrates, unaware that plague could be transmitted by rat fleas, fought against it by setting burial regulations, banning the sick from entering the city, jailing any intruders, and sealing plague victims and their relatives in their homes until death (13). Only the rats and their fleas could escape. They ordained the killing of cats and dogs, viewed as potential carriers of the disease to neighboring houses. However, these animals also kept rats and their fleas away from humans. Similar repressive police measures were applied to the plague and to criminals. They were not yet public health initiatives. They had a distinct nature compared with those proposed in the 18th century by Johann Peter Frank in his *A System of a Complete Health Police* (14). Frank, not included in volume 1, recommended using a health police to regulate “marital hygiene,” the manual labor of women, children’s education, and hygiene in schools. He used, maybe for the first time, the expression “public health legislation” (in Latin), stressing, however, that it was less important than alleviating people’s extreme misery.

Thus, it is not obvious that the roots of public health can be traced to activities before the end of the 17th century when population thinking, population data, and epidemiology rise all at the same time. The roots of a public health, qualitatively different from public “medicine,” can be discerned, for example, in the isolation of the sick, the use of soap, and the inoculation of smallpox to the Continental Army. Indeed, besides Hippocrates, all the works featured as “early roots” in volume 1 were published between 1662 (John Graunt) and 1848 (Peter Ludwig Panum).

However, it is only in the 19th century that supporters of social reforms called for public works, such as sewage and garbage removal, to eliminate the sources of air pollution, which they believed caused sickness and death in the poor neighborhoods of the cities. In England and the United States, these social reformers called themselves, “sanitarians,” from the Latin *sanitas*, which means “health.” There were sanitary laws, public health acts, and sanitary inspections. It was also in the 19th century that toilets were considered as “sanitary” installations. The qualifier sanitary was, from then on, associated with many activities of the state directly relevant to the health of the public. This surge of laws and actions, and their beneficial consequences, in the 19th century are the indisputable hallmarks of public health, an activity explicitly aimed at protecting the health of the public.

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**REFERENCES**


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