disease, public health practitioners defined their mission in terms of the broader environment within which populations lived. Rather than being technicians who administered a universal cure or standardized medical regimen for a set of complaints, medical practitioners for much of the century saw themselves as responsible for adjusting dosages, altering prescriptions, and changing regimens as conditions demanded. Public health practice looked into the peculiar environmental conditions of housing, nutrition, or employment but also saw solutions arising from much broader environmental manipulations such as street sweeping or providing pure water supplies to the larger community.

The prevention, diagnosis, and treatment of tuberculosis, “the great white plague,” commonly called consumption and phthisis (a descriptive term derived from the Greek, meaning “to waste away”), developed within this general milieu. Despite the attention paid to epidemics of smallpox, cholera, or typhoid, tuberculosis was the single most important disease in nineteenth-century New York. For the previous two centuries, this condition had been the greatest cause of death in Europe and America. The symptoms of wasting away, coughing, spitting, and weakening appeared in victims from various classes and social strata. The disease took on different meanings for different classes and groups in the changing urban and industrial societies of western Europe and the United States, however. Physicians “faced with a confusing array of signs and symptoms, bearing no obvious relation to one another,” saw these signs as “the expression of different maladies.” For middle-class sufferers the disease was often presented in an almost romantic light. The translucent flush of Victorian ladies suffering from this disease became a standard image in the nineteenth-century novel. For the working class, however, the disease had a much more threatening aspect: workers and their families huddled together in the slum dwellings of large cities such as London, Paris, and New York.

The apparent idiosyncrasy of the symptoms that marked phthisis among different individuals and social classes during most of the first half of the nineteenth century reinforced standard ideas regarding the nature, course, and treatment of disease. Phthisis could be linked to the ongoing, long-term moral and social environment that predisposed a victim to a disease process. Medical practitioners and the public as well shared a common set of assumptions about the cause and treatment of the disease. Phthisis could be rooted in personal behavior such as drinking, social position, poor living quarters, the malaise of an urban lifestyle, and indoor, unhealthful work. “Treatment was to be sensitively gauged not to a disease entity but to such distinctive features of the patient as age, gender, ethnicity, socioeconomic position, and moral status, and to attributes of place like climate, topography and population density.” A practitioner needed a complete knowledge of the life history of the patient in order to make an accurate diagnosis and plan of treatment. Public health practitioners had to understand the environmental conditions that allowed for the disease’s spread.

Public health practitioners such as Hermann Biggs in New York City, Charles Chapin in Rhode Island, and others had documented the importance of a variety of sources for phthisis. Among them were conditions in the home and crowding, impure air, and dust in the workplace. In New York City in 1879, Roger Tracy, the registrar of vital statistics, noted the symptoms of disease among workers in the metal trades. “The disease comes on very gradually . . . and its duration may be extended over four or five years.” He described that the disease “begins with the cough of irritation, dry and hacking at first, with very scanty expectoration, whitish and stringy in character. . . . The expectoration gradually increases in amount and becomes reddish, and soon after this tinge appears there may be haemoptysis.”

Consumption, or phthisis, had a varied set of symptoms. It could be of an acute nature and “prove fatal in a few weeks.” Or it might start with acute symptoms and evolve into a chronic condition. Its symptoms might appear slowly, gradually getting worse over many years. It could affect lungs, bones, the brain, and other organs of the body. Pulmonary consumption was of primary importance, but the variety of symptoms, prognoses, and sites gave medical researchers a basis for developing a complex and all-encompassing nosology.

In the years following Pasteur’s work on rabies and the bacterial origins of yeast, the medical community began to change its views regarding the multiple sources of illness. Increasingly, laboratory science began to hold out the possibility that disease could be explained rationally through the discovery of specific microorganisms. For the practitioner, this meant that the detailed life history was no longer as essential for understanding the diagnosis of disease. Although medical practitioners continued to speak of the significance of the “history” in diagnosing patient’s illnesses, the concept of a medical history changed.

In the years following Koch’s discovery of the tuberculosis bacillus, medical history became a listing of physiological and hereditary factors that might explain the symptom. “In attempting to arrive at a correct solution of the problem,” noted one physician explaining the method of diagnosing tuberculosis in 1904, “the greatest care should always be exercised to ascertain and carefully [list] all the facts that can be learned concerning the patient’s past history and mode of life.” In the middle years of the nineteenth century this might have meant exploring personal behavior, work history, and living conditions, but by now it simply meant examining “the probable duration of the disease, the occurrence of a foregoing haemoptysis, a history of an attack of typhoid pneumonia, pleurisy, or protracted influenza, and, to a certain extent the individual’s appearance.” The impact of this changing medical culture was critical in the study of phthisis. The disease came to be understood as...
tuberculosis, caused by a specific organism and spread like other infectious diseases. "Medical science claims that the presence of the tubercle bacillus in the lungs is the fundamental cause of phthisis, or consumption," trumpeted a New York writer to Scientific American in 1904.79

For the public health and medical fields, the trick was to reconcile the myriad of symptoms with the new "scientific" germ model. After all, the discovery of the bacillus held out the possibility that an effective vaccine could be developed to protect humanity from this age-old scourge. "We are now anxiously waiting the development of Dr. Koch's cure for consumption," said one professor of pathology at the University of Michigan in 1890.80

With the revolution in bacteriology that followed the discoveries of Pasteur, Lister, and Koch in the middle decades of the nineteenth century, a new faith in laboratory science had emerged not only among physicians but also among public health workers. "Bacteriology thus became an ideological marker, sharply differentiating the 'old' public health, the province of untrained amateurs, from the 'new' public health, which belonged to scientifically trained professionals," points out Elizabeth Fee.81 Despite the different professional mandates of public health workers and physicians, members of both professions who identified themselves with the science of medicine and public health began to share a common faith in the significance of the disease-specific germ entity in creating consumption. The implications for professional and public health understanding were that the modes of transmission of the bacteria had to be clearly identified if an effective campaign to eliminate the sources of the disease was to be mounted. Why were the poor so likely to be struck by disease? Because the hot, crowded dwellings in which they lived allowed the germ to propagate and to spread among a population weakened by inadequate nutrition and horrid living conditions. Why did children appear to be a high-risk group? Because tainted milk from tubercular cows poisoned children. How did individuals outside any particular risk group come down with the disease? Because they had a hereditary predisposition that left them vulnerable to infection. Why did workers have a higher rate of tuberculosis than farmers? Because close quarters combined with long hours and inadequate diet to leave them susceptible to phthisis.

For the new public health, it was the specificity of the bacterial agent that was important. The older generation's emphasis on cleaning up the general environment seemed misdirected and inefficient. One of the advocates of the new public health summed up the revolution in ideology that overtook the field in the 1880s: "Before 1880 we knew nothing; after 1890 we knew it all; it was a glorious ten years."82 A new model was gaining greater acceptance: a bacillus made people sick and phthisis was caused by germs that propagated in stagnant air. The slums of large cities came to be seen as "breeding grounds" that were "seeded" with tuberculosis bacilli waiting to infect the susceptible victim. Tuberculosis came to be viewed as a disease that could be transmitted to susceptible individuals by means of air impregnated with bacteria from dried sputum, breathing, and other sources. Dusting furniture could blow into the air the "dried sputum" of tuberculars. Crowded public spaces or unclean home conditions with moist, warm, and stagnant air were seen as the most likely conduits for the disease.83

The prospect of bacteriological explanations held promise not only that specific cures and preventive vaccines could be developed but also that focusing on specific disease-prevention programs could result in more efficient uses of public health resources. "A careless or ignorant expectorating consumptive can eliminate and distribute seven billions of bacilli in twenty-four hours," warned S. A. Knopf in the journal Charities in 1901.84 Hence, by encouraging the tuberculous to carry and use flasks to dispose of their spittle so that "it cannot dry and be blown about to be inhaled by others," journals declared that responsible tuberculars could stem the disease. Public health policies that focused on the sources of specific infection rather than on the general sanitary conditions of the broader city had numerous attractions. Among them was the prospect of efficiently stemming infection without disrupting existing social relationships between tenant and landlord, employer and worker, political leaders and voters. Health and wealth could both be attained.85

The relative simplicity, usefulness, and cohesiveness of the germ theory of disease was incorporated into older sanitary notions regarding the relationship between cleanliness, godliness, and health. The need for a synthesis was pressed on public health leaders by a diverse group of Progressive Era reformers who were concerned with the plight of the urban poor in the newly emerging industrial capitalism of the city and country. They continually pressed the point that disease could not be divorced from the terrible conditions of life and work and that health and social problems had to be addressed together. Charity and settlement house workers, for example, documented that nearly one out of every four dwellings in New York City in 1890 experienced a death from phthisis. In the poorer neighborhoods, it was clear, the toll was much higher, leaving these communities devastated by the disease.86 For these reformers, phthisis was a disease of poverty as much as it was one of germs. One of the leading social welfare reformers of the time, Graham Taylor, declared that tuberculosis was a "disease of the working classes" and that "everything which makes the life of the workingman harder, everything which is attendant upon poverty, makes for the increase of this disease."87 "Housing, playgrounds, diet, income, . . . physical education, . . . immigration" and even dental hygiene "appear to be very diverse if not incongruous topics, [but when] grouped about the central idea of promoting immunity their interdependence becomes obvious."88

Especially clear was the connection between work and tuberculosis.89 "Where there is dirt and grime and dust, long hours, foul air and bad pay, the community pays for what it calls cheap prices by a little money and many
lives sacrificed to greed, ignorance and indifference," pointed out one labor representative in 1906." Graham Taylor saw four "characteristics of employment" that put workers at risk: "insanitary conditions," "low rate of wages," "fatigue," and "long and irregular hours." Under the heading of insanitary conditions, Taylor identified two major subcategories: "hygienic surroundings which are not inherent in the trade itself and those conditions which are to a certain extent necessitated by the character of the trade."22

TWENTIETH-CENTURY PUBLIC HEALTH

A half-century after the Citizens' Association report, the city's public health officials were continuing to adjust and incorporate new ideas into older patterns of practice. Further, they were incorporating the germ theory into older notions regarding the relationship of the changing urban environment and the health of its people. In large measure because of the efforts of the organizers of the 1865 report, the city now had in place a permanent department of health with responsibility for controlling some of the city's worst environmental problems. Garbage collection, meat and milk inspections, pure water, and sewerage systems had been installed throughout the city. Dead animals were now regularly picked up off the streets, and fire safety codes augmented stricter enforcement of housing laws. Yet serious and pervasive problems persisted, and the types of diseases the city faced appeared to be changing. Neither smallpox, the classic epidemic disease of the eighteenth and nineteenth centuries, nor polio, a twentieth-century terror, would be completely controlled until after World War II.

New Public Health and Old Health Conditions

Despite decades of agitation and a rapidly evolving view of disease causation, the Department of Health still faced daunting environmental hazards. In 1912, it issued an annual report that, in language as dispassionate as any, detailed the continuing environmental problems that New Yorkers faced. The department picked up over 20,000 dead horses, mules, donkeys, and cattle from the city's streets during the year and recorded 343,000 complaints from citizens, inspectors, and officials about problems ranging from inadequate ventilation and leaking cesspools and water closets to unlicensed manure dumps and animals kept without permits. The department also removed nearly half a million smaller animals such as pigs, hogs, calves, and sheep. Furthermore, its meat inspection unit removed 5,669,470 pounds of spoiled poultry, fish, offal, pork, and beef and carted 1,946 cubic yards of night soil from the backyards and privies of the city's tenements.23

The scope of activities had expanded enormously over the course of the previous half-century, and the department's budget now amounted to nearly four million dollars. Significantly, a "remarkable and continuous decrease in the death rate . . . accompanied the development . . . of public sanitation," the report began. "In 1866, the year in which the department was organized, the death rate of New York City was 36.31 per thousand." The rate continued to decline decade after decade, and had recently fallen to below 16 per thousand. The department was justifiably proud: over the course of just forty-five years, there was a decrease of over 50 percent.24

"Public Health Is Purchasable": New Health Issues Emerge

Somewhat startling, however, was the emergence of changing patterns of death in the city. The report's author wondered whether the nature of disease in the city was undergoing a perceptible shift. "An enormous reduction in mortality [had] taken place in all age groups below forty-five, while there has [been] an actual increase in the mortality at all ages over forty-five." The infectious diseases of the nineteenth century such as smallpox, typhoid fever, diphtheria, and pulmonary tuberculosis appeared to be claiming fewer and fewer of the city's children and young adults. Cancer, heart disease, and pneumonia were claiming larger and larger numbers of elderly, however "Without exception," the report quizzically pointed out, "the diseases in which a reduction of mortality has been effected belong to the class of infectious diseases, while of those diseases in which there has been an increase in the mortality only one, pneumonia, belongs to that group." To the public health officials writing the annual report, "these facts [were] doubly significant." On the one hand, they showed "in an unmistakable manner the success of public sanitary administration which has heretofore directed its efforts almost entirely against infectious diseases." On the other hand, they "point[ed] with equal clearness toward the field in which public hygiene must [focus] in the future, namely, the reduction of mortality from the diseases of middle and old age." What new techniques could be employed to address these new challenges? Were the traditional tools of environmental cleanup or the newer techniques of vaccination and medical interventions adequate?

Unlike the moral undertone of the report of 1866, which had laid the groundwork for the creation of the department, the 1912 annual report used decidedly different language to describe the progress of the past five decades. The victory of sanitary science over the disease toll of poverty and commercial development pointed to some lessons that appeared self-evident in early-twentieth-century America: "Generally speaking, a study of the vital statistics of New York or any community can hardly fail to indicate the enormous advances achieved by sanitary science in the past fifty years. Since the full benefits of the methods and practice of sanitary science are available to any intelligent and well-organized community which will make the necessary expenditures, it may be truly said that within certain limits public health is purchasable."25

The moral tone of the 1866 Citizens' Association report was replaced with
new, professional, and technocratic approaches to controlling infectious diseases. Cleaning the streets, improving sewerage systems, providing pure water, and quarantining the sick became administrative and organizational feats that were accomplished without the moral and political fervor that had marked earlier reform efforts. For many in the city, infectious diseases became less of a threat, and New Yorkers undoubtedly benefited, as measured both by declining mortality and lowered costs, from the improved environments. Public health supplemented its original mission to prevent disease with a new mission to attack the specific sources of disease through the use of the laboratory, medical science, individual treatment, and the identification and sometimes isolation of individuals capable of spreading disease.

The culmination of fifty years of political struggles to establish the department as an important arm of the city’s administration had left it with a new mandate and a changing set of problems. No longer would public health be limited to environmental engineering and food inspection. In future years it would find itself coming into conflict with providers of medical care as disease prevention through inoculation and vaccination, prenatal and well-baby care, factory inspection, and occupational-disease prevention as well as treatment of communicable diseases such as syphilis and gonorrhea would force the field to venture into areas previously the preserve of physicians. Further, the emergence of chronic diseases and the apparent decline of infectious illness challenged the department to redefine its mission and elaborate a new purpose and role. By the 1970s, just before the reemergence of communicable diseases such as AIDS and tuberculosis as pressing health problems in the country, public health professionals would venture into a wide range of policy and administrative areas.

**CHANGING NOTIONS OF DISEASE**

The essays in this book are suggestive of a research agenda for the future. Together, they illustrate that the health problems we face as a city are largely of our own making and also are potentially under our own control. Our current fatalism notwithstanding, AIDS, tuberculosis, and diseases associated with poverty and homelessness are in a very real way social creations and therefore can be addressed through social decisions. In a recent essay on what he calls “framing” disease, Charles Rosenberg notes that “disease is at once a biological event, a generation-specific repertoire of verbal constructs reflecting medicine’s intellectual and institutional history,” and “a sanction for cultural values.” Pointing out that disease is a “social phenomenon,” he indicates that in large measure “disease does not exist until we have agreed that it does, by perceiving, naming, and responding to it.” Yet disease takes specific forms at different moments in history. Not only do we define different symptoms as pathological events, we also create the physical environments and social relationships that allow for the emergence of very real new problems. We create our environment, and hence we create the conditions within which diseases thrive. Whether cholera, silicosis, or yellow fever in the nineteenth century, or AIDS, cancer, heart disease, or tuberculosis today, the manner in which we address disease becomes emblematic of a specific society at a particular moment in history. Just as physicians, the elites, and the politicians in the middle nineteenth century presented cholera as a moral as well as medical stigma, so, too, do we use disease as metaphor. We need only recall that as recently as a decade ago newspapers, politicians, and public health professionals presented AIDS as a disease peculiar to Haitians and gay men to realize how deeply social values and specific historical circumstance shape our understanding of disease and how quickly our assumptions about the causes and victims of disease can change.

As we enter the second decade of the AIDS epidemic, certain statements that only a decade ago may have been provocative now seem self-evident. But epidemic disease has marked and shaped life in America’s premier city for much of the nineteenth and twentieth centuries. For a few decades midway through this century most health analysts optimistically believed that infectious diseases were “conquered” or problems of the past. The reappearance of virulent strains of tuberculosis, the pandemic of AIDS, and the outbreaks of cholera in South and Central America raise anew the issue of whether such optimistic assessments were simply passing reflections of a generation’s unbridled faith in the potential of curative medicine. This volume is intended to refocus our attention on the social responses to infectious diseases in their various forms and on our need to balance our belief in the possibilities of curing disease with the need to prevent them by improving the city’s infrastructure, economy, and social and educational services, as well as its primary care and hospital system. Acute infectious diseases, such as cholera, yellow fever, typhoid, and typhus were as much part of the specific built environments that we as a culture created in the nineteenth century as are chronic disease such as heart disease and cancer, AIDS, and tuberculosis today. Specific diseases, and our responses to them, can be understood as concrete indicators of community and social relationships as well as discrete biological or socially negotiated entities. By focusing on New York City and on the demographic pressures as well as the economic and political responses to epidemic disease, this volume seeks to provide a window into the social world that helped “frame debates about society and social policy.”

Traditionally, we have defined epidemics as infectious disease that attack a population, causing high mortality and morbidity over a short period of time. Currently, we speak of a host of conditions that do not fit this classic model. Today we speak of drug use as epidemic, although the problem is clearly chronic in nature and is not related to a pathogen. Similarly, we describe cancer rates as being epidemic, although we generally think of cancer itself as
a chronic, noninfectious disease. Alcohol use and car accidents, as well as AIDS, are all presented as epidemic despite the vast differences in prevalence, period of onset, symptoms, and treatments that separate them from nineteenth century epidemics of infection. As Charles Rosenberg details elsewhere, we use the word *epidemic* in a variety of ways that are neither linguistically or historically precise.

In light of the ambiguity in the very meaning of *epidemic*, to edit a book that makes any pretense of comprehensiveness is either arrogant or meaningless. Hence, a brief caveat is in order for those readers who expect that this book will address the entire scope of epidemic disease or public health practice. Clearly, this volume is not meant as an encyclopedia of the history of epidemics in New York. Nor should one expect to find comprehensive essays on the scores of conditions that at different moments in history are considered epidemic. There are numerous books on different New York institutions that impacted on our disease experience, hundreds of reports on specific disease problems, and a handful of books on the history of particular epidemic diseases. Hospitals, dispensaries, social service agencies, city departments, immigrant histories, and the like all have something to say to the place of disease in New York. The Department of Health itself is the focus of John Duffy’s massive two-volume work; Charles Rosenberg’s *Cholera Years* is a book about just one disease during one century; and my own book on hospitals in the city is necessarily cursory, focusing on the short period of thirty years. It is hoped, however, that this volume will add to an ongoing discussion of the ways this community has created the environment for disease outbreaks, responded to the very diseases that plagued it, and built health into the agencies of government. Hence, the essays in the volume are grouped in three thematic sections. The first section, “Breeding Grounds for Disease,” is composed of three essays about the disease environment of the nineteenth-century city and its relationship to broad changes in housing and population. The second section, “When Epidemic Strikes,” addresses our experiences with three emblematic epidemic diseases—smallpox, polio, and AIDS—and seeks to look at different moments in the twentieth century during which changing social and scientific assumptions shaped our response. The final section of the book, “The City Responds,” addresses the manner with which nineteenth- and twentieth-century New York organized, and responded to epidemic disease. The first essay in this section outlines the activities of the city’s Department of Health in the nineteenth and early twentieth centuries; the second essay outlines the transformation of the concept of public health in the twentieth century. New demands, coupled with changing ideas about the limits of public health, led to a subtle redefinition of the scope of the field and the responsibilities of public health officials. Together, these essays should be read as a contribution to the intellectual literature on the social and political history of the city. They should also serve to remind us that aspects of the current health crises in the city are not unique to this era and that, as in the past, a concerted effort to face up to modern epidemics can lead to meaningful and humanitarian responses.

Notes

5. See, for example, Richard Wiebe, *The Search for Order. 1870–1920* (New York: Hill and Wang, 1966), which still ranks as one of the best overviews of the transformation of American life in the late nineteenth century.
8. *Sanitary Condition of the City*, xi. See also Charles Rosenberg, *The Cholera Years* (Chicago: University of Chicago Press, 1964), for what is still the best description of the shifting reaction of the city to this recurrent epidemic during the course of the nineteenth century.
10. *Sanitary Condition of the City*, xii.
11. Ibid., xvi.
12. Ibid., xvii.
13. Ibid., 75.
14. Ibid., 77.
15. Ibid., 76.
16. Ibid., 80.
17. Ibid., xxxiv.
18. Ibid., cxliii.
19. Ibid., cxliii.
20. The significance of these changing economic and social relationships is detailed in Elizabeth Blackmar, *Manhattan for Rent. 1785–1850* (Ithaca: Cornell University Press, 1989), as well as in her essay in this volume.
32. This review of the pre-Progressive and European literature is based on Teley, *History*, 196–210.
34. A. Knopf, “Our Duties Toward the Consumptive Poor,” *Charities* 6 (February 2, 1901): 76.