

# Childhood's Deadly Scourge

by Evelyn Hammond

## EPILOGUE

*Disease is largely a removable evil. It continues to afflict humanity, not only because of incomplete knowledge of its causes and lack of individual and public hygiene, but also because it is extensively fostered by harsh economic and industrial conditions and by wretched housing in congested communities. . . . The reduction of the death rate is the principal statistical expression and index of human social progress. It means the saving and lengthening of the lives of thousands of citizens, the extension of the vigorous working period well into old age, and the prevention of inefficiency, misery, and suffering. These advances can be made by organized social effort. Public health is purchasable.*

HERMANN BIGGS, 1911

The successful immunization of hundreds of thousands of preschool and school-age children in 1930 led many observers to believe that diphtheria would soon be a thing of the past. Health officials envisioned a rosy future in which humanity would be free not only of diphtheria but of all infectious diseases. In many respects they were right. Improvements in immunizations for diphtheria and new immunizations for whooping cough, measles, and mumps led to impressive decreases in the incidence of these diseases throughout the population. Between 1980 and 1995, only forty-one cases of diphtheria were reported in the United States.<sup>1</sup> Drugs and vaccines, along with improved sanitation and nutrition, had seemingly defeated the dangerous microbes that were an ever-present reality at the beginning of the century. Chronic diseases such as cancer, cardiovascular disease, and mental illness moved to the center of medical and popular attention. Complacency about infectious disease settled in. As the infrastructure for monitoring and treating these diseases was dismantled, physicians viewed the study of infectious diseases "as a dead-end as a vocation and an increasing yawn as an intellectual discipline."<sup>2</sup>

Yet by the late 1980s the future seemed far less bright than Hermann Biggs, William Park, and Shirley Wynne had envisioned. The advent of the pandemic of human immunodeficiency virus (HIV), which is associated with the production of acquired immune deficiency disease syndrome (AIDS), shattered our complacency. AIDS had at last count reached over 5.8 million people worldwide, with over half a million infected in the United States alone.<sup>3</sup>

The AIDS epidemic refocused attention on the lessons learned in earlier confrontations with epidemics of infectious diseases. Scientists, journalists, the public, and historians all searched for analogies with past diseases to answer pressing questions of the day. Why had AIDS emerged when and where it did? How did the disease spread among members of particular groups? Most importantly, what does the history of medical science and public health in this century suggest about our ability to control the epidemic and eventually to cure the disease?<sup>4</sup> Although such questions have spurred renewed interest in the history of medicine and public health, they also put historians in the difficult position of using the past to explain the present. Historians are mindful that "history is not a predictive science." What the past can tell us about the present is always contingent and partial.<sup>5</sup>

With respect to this study, I must first note the obvious: diphtheria is not AIDS. Diphtheria evoked societal anxieties about protecting children, about the appropriate application of scientific and medical knowledge, and about the proper boundaries between science, public health, and the state. Along with these issues, AIDS has also triggered anxieties about sexuality, sexual orientation, drug abuse, and other so-called deviant behaviors. Diphtheria raised none of these issues. Diphtheria was a disease that ravaged innocent children, whereas AIDS strikes the innocent as well as those deemed guilty for engaging in dangerous behaviors.

Furthermore, the historical moment when diphtheria was brought under control cannot be recaptured, for institutional and societal structures and American society itself have all fundamentally changed since that time. It is no longer possible for a municipal health department to singly play a pivotal role in the control of a disease as the New York City Health Department did with diphtheria at the beginning of this century. In particular, developments in the institutional shape of the medical profession, the growth of the pharmaceutical industry, the evolution of the federal drug regulatory infrastructure, and the changing role of public health agencies all have made disease control more complex than could have been imagined at that time.

Yet acknowledging the broad differences between diphtheria and AIDS, it is also true that in different ways both of these diseases reveal our dependence on the laboratory and its findings, and the problematic relationship between medical knowledge and its applications. Diphtheria is situated at the opposite end of the spectrum from AIDS with respect to these issues. The control of diphtheria made evident for the first time the promise and the force of the laboratory in infectious disease control. AIDS, on the other hand, has shown us how deeply dependent we have become on the laboratory and how aware we are of its limitations. In both cases, expectations were high that laboratory sciences could control disease completely. The story of the control of diphtheria, as I have told it, reveals that the application of laboratory and medical knowledge was dependent on many factors—biological, political, and social. The history of the control of diphtheria, as told by those involved, emphasized the power of scientific knowledge rather than its limitations, and of technical rather than social solutions to disease control. As we sort out the conflict between the protection of public health and the protection of civil liberties with AIDS, we can more readily see what Biggs, Park, and Wynne could not—that technical solutions for disease control have a variety of complex social implications.

Despite my hesitation to use diphtheria to provide specific lessons for the control of AIDS, in a more general sense there are three aspects of the history of the control of diphtheria that could provide occasion for more serious interrogation of our current AIDS policies: mandatory testing, education campaigns, and government provision of vaccines.<sup>6</sup>

### Mandatory Testing

The introduction of mandatory throat cultures for the diagnosis of diphtheria provides an example of mandatory testing of the population. The success of this diagnostic program was due, first, to the distribution of culture kits and of test results to all physicians at accessible locations and at public expense. More important, criticism of the program by physicians and the public was muted when testing was linked to the use of antitoxin, which was also initially provided at public expense. In the case of diphtheria, testing was seen in a more positive light when it became a way to ensure treatment and prevention.

We can now track a similar change in attitude toward AIDS testing, as new

more effective treatments have emerged. Initially, calls for mandatory testing for AIDS were widely resisted, in part because there was no effective treatment available, and also because the stigma associated with an AIDS diagnosis resulted in severe social costs. Currently, tensions are easing as new treatments offer compelling reasons to notify and test people who might carry the virus. However, as I will discuss below, testing remains problematic if it is not connected to treatment.

The diphtheria case also shows that accessibility to testing was a factor in its acceptance. We must remember that because the stigma associated with diphtheria was not as severe as that with AIDS, the New York City Health Department did not have to address in any significant way the ethical dilemmas that testing raises today in pitting people's confidentiality rights against the state's duty to inform and protect the public's health.

### *Education Campaigns*

Biggs, Park, and other leaders in the New York City Health Department were well aware that they had to convince a skeptical medical community and the public of a radically new way of understanding disease; therefore, educating the public about diphtheria was an important part of their work. As I have pointed out, the antidiphtheria campaigns did not provide a forum for critical review of proposed interventions to control diphtheria. They did succeed, however, in creating a diphtheria-conscious public. Though it is difficult to directly assess the results of these educational campaigns in a city with a multiethnic population of varying degrees of literacy, what is notable is the concerted attempts to reach all ethnic groups. The recognition that New York City had an ethnically diverse population that required specific strategies targeted to these groups was a singular aspect of the antidiphtheria programs.

Surprisingly, what was recognized as a fairly obvious need for public health programs to address the diverse populations found in New York City in the 1920s seems to have been lost in the decades between 1930 and 1980, when AIDS appeared. Well into the first decade of the AIDS epidemic, educational efforts in communities of color in many urban and rural areas were fragmented and haphazard, as I have discussed elsewhere.<sup>7</sup> Reports indicate that many people in groups that are increasingly at risk — Native Americans,

lower-income Hispanic and African Americans — continue to lack some vital facts about the transmission and prevention of AIDS.<sup>8</sup> Treatment and prevention information in accessible language levels and in languages other than English were slow in coming.

### *Provision of Treatment*

I have argued that the public antidiphtheria campaigns were critical to the successful control of diphtheria. It is significant that these campaigns focused on removing the stigma associated with diphtheria and providing access to treatment and preventive vaccines for the entire population at risk. In the case of the campaigns to immunize the preschool population, Wynne and his supporters did not ignore the need to subsidize the costs of these immunizations through public and private efforts.

Again, the contrast with AIDS is striking. Now that viable treatments are available, many are unable to use them because the costs are prohibitive. The federal-state partnership designated to pay for AIDS drugs for the indigent has run out of funds in twenty-five states, so that the epidemic can now be characterized by the "therapeutic-haves" and the "therapeutic-have-nots".<sup>9</sup> This is precisely the kind of social fragmentation and stigma that the public health leaders in the diphtheria story sought to avoid. Biggs's ability to marshal public and private funds for diphtheria antitoxin, for example, was predicated on the argument that the funds would be used to provide relief to the poor. Containing diphtheria among the poor would then directly benefit those more well off. Public financing of diphtheria antitoxin was justified because everyone would benefit.

The ultimate success of the antidiphtheria programs was critically dependent on their being perceived by physicians and the public as classless rather than class-conscious interventions. By contrast, public health and government officials have not yet identified a strategy that can effectively marshal public support and the necessary public funding of drugs for many poor people with AIDS. Although the obvious complexities of our current health care financing crisis cannot be ignored, the lesson from the history of diphtheria is that public financing of drugs for treatment or prevention is key to the successful control of infectious disease that strikes a large part of the population.

## Conclusions

In sum, these lessons from the history of diphtheria do not offer simple solutions or easy resolutions to our current problems in the control of diseases like AIDS. These lessons cannot tell us, for example, whether widespread testing of the population is good or bad; nor can the control of diphtheria offer a blueprint for how new treatments should be dispersed to those most in need. This history reveals the deep tensions inherent in the research and policies that we develop to control disease. These tensions between public health and private medical interests, between private pharmaceutical firms and public health, between government and private interests, and between the public's fears of contagion and death and individual rights can only be addressed if we acknowledge them.

Diphtheria was controlled because Hermann Biggs led an effort that combined research in the new science of bacteriology with public health policies that applied that research to the broadest possible population. Though his ability to manipulate the public and the political system with outside money and publicity waxed and waned over the period under study, the search for the perfect control of the disease—the eradication of diphtheria—led his successors to develop a research and policy agenda that engaged every barrier impeding this goal. Biggs was aware that a reductionist focus on the detection and eradication of pathogenic bacteria was not the solution to all the problems associated with diphtheria and other diseases. Yet he and his successors held firmly to the belief that once the technical means for the prevention and eradication were available, efforts to control a disease such as diphtheria would be maintained.

This belief was misguided. The questions of long-term sustainability of immunization programs, public access to immunization, and long-term public financing of vaccine production and distribution were not addressed.<sup>10</sup> “Public health is purchasable” was the slogan that characterized the vision of Biggs and his colleagues. The slogan expressed the beliefs of a generation of public health reformers that had witnessed what was for them a dramatic decrease in infectious diseases due in part to their own efforts.

From the vantage of the present, the kind of leadership in public health that Biggs and Park exemplified and the powerful role that the institution they guided played in disease control were relatively short lived. Yet they left an important legacy that has largely faded from view. They recognized that

infectious disease poses extraordinary challenges to public health in a multi-ethnic, class-stratified country such as the United States. In their minds, the control of these diseases placed an equally extraordinary obligation on the state to prevent such diseases by all available means, in all segments of the population. In an era when there are increasing calls for the national government to turn over the implementation of public programs to private interests—a time, indeed, when the notion of any central role for government is suspect—it is important to remember that the public health triumphs described here could not have been realized without a serious commitment of resources and leadership by those in the public sector.