

# DISEASE IN THE INDUSTRIAL ERA

Nineteenth-century advances in natural science and technology paralleled the advances made in pathology, the study of disease. Comparison of normal tissues and organs with diseased ones led to changing concepts of disease. The German pathologist Rudolf Virchow laid the foundation for the cellular study of disease. He had a somewhat holistic view of the body and health, and he applied this same perspective to social conditions surrounding disease outbreaks, or epidemics. Virchow held that poverty, malnutrition, and other breakdowns in society were linked to epidemic outbreaks; he thereby established himself as a founder in the field of public health.

Another important figure in this area is John Snow, who in the 1840s and 1850s studied cholera and determined that an epidemic of this disease in London at the time could be traced to contaminated water coming from a single well. At first, Snow's thesis seemed unlikely to the authorities, who blamed foul air instead; but ultimately Snow was proved right, leading to changes in water and sewage systems.

As microscopes were perfected, scientists used this instrument to discover the association between bacteria and various illness. Indeed, bacterial infections were the first type of infectious diseases to be recognized—in the late nineteenth century. Viruses would come later, in the early twentieth. In the meantime, public health officials launched sanitation campaigns in large cities to reduce the spread of illness; they also instituted quarantines under certain conditions, as when an outbreak was still containable at the local level or when travelers en-

tered a country from a suspect locale. One common enemy was tuberculosis, a bacterial disease that spreads between people living in crowded, substandard living quarters and workplaces. We include in this section a look at a few such ameliorative efforts of the time.

The 1918–19 flu pandemic killed many millions worldwide (estimates range from between 15 and 45 million), and yet only in recent years has it become the subject of serious study by historians. At the time, the outbreak was considered less a global pandemic for which governments should pull out all the stops to deal with, than a bothersome, albeit unfortunate, situation that distracted governments from the main business of World War I, and from transitioning from war to peace once the conflict was over (in November 1918).

Meanwhile, other diseases remained of concern too, including syphilis, which tended to find a home among soldiers and sailors, given their patronage of professional sex services while abroad. A 1924 pneumonic plague outbreak in Los Angeles reminded people that that disease was still around, and outbreaks of polio continued to arise among child populations until the 1950s, when a vaccine was finally made available. A treatment for tuberculosis was developed only a few years earlier, leading to the control of that longtime nemesis. Vaccines for measles, mumps, and rubella were rolled out in the 1960s, and by 1971 had been combined into a single MMR vaccine that became part of the standard immunization regime for young children.