Animal health care in North America evolved from farriers and itinerant cow leeches to science-based veterinary medicine in one century, from 1860 to 1960. This history focuses on the scientists and institutions that pioneered veterinary education and research. It memorializes the events and ideas that propelled science forward and those that blocked progress. An important part of the story is how cycles of discovery were enhanced or retarded by viability of the economy, by demands of war, and by idiosyncrasies of political culture—elements of society that are linked together.

Veterinary science in the rural Midwest arose from agriculture, but in urban Philadelphia it came from medicine; similar differences occurred in Canada between Toronto and Montreal. The Iowa Agricultural College was the first to establish a state-supported school of veterinary medicine in the United States that survived; its first scientists were agriculturalists and its graduates founded colleges and departments of veterinary medicine in the Midwest, Great Plains, Atlantic Seaboard, South, and the Palouse of the Northwest. In contrast, the University of Pennsylvania veterinary school was established as a cooperative venture with the medical school; its first science faculty were physicians who brought home the medical sciences from Europe.

As land grant colleges were established after the American Civil War, individual states followed divergent pathways in supporting veterinary science: one, a trade school curriculum that taught agriculturalists to empirically treat animal diseases; the other, a curriculum tied to science. The relevance of this, a pattern continued for a century, is that today some institutions have moved back to the trade school philosophy. Avoiding lessons of the 1910 Flexner Report on medical education reform, university-associated veterinary schools are being approved that do not have control of their own veterinary hospitals, diagnostic laboratories, and research institutes, components that are critical for training students in science. Underlying this change were twin idiosyncrasies of culture—disbelief in science and distrust of government—that spawned scientology, creationism, anti-vaccination movements, and other anti-science
scams. All of these scalawags had destructive impacts on science in general and in veterinary medicine in particular. And there were other bogeymen within science: fraudulent scientists that stole the work of others, dishonest entrepreneurs, and latter-day snake oil salesmen.

The most recent impact on veterinary science has been the ascendance of women. Not permitted to study for the profession in early times, female students exploded after World War II, from near 0 in 1960 to nearly 90 percent of all veterinary school graduates in 2000. Women continue to play an increasing role in scientific research in the great plagues: veterinarian Amy Vincent, a scientist at the National Animal Disease Center, was awarded membership in the National Academy of Medicine in 2020 for her work on surveillance, vaccines, and the pandemic potential of swine influenza models.

This book covers the century when the infectious diseases anthrax, tuberculosis, smallpox, tetanus, plague, and polio were conquered and illuminates the important role that veterinary research played in that battle. The narrative is driven by astonishing events that centered on animal disease: the influenza pandemic of 1872, discovery of the causes of anthrax and tuberculosis in 1880s, the conquest of Texas cattle fever and then yellow fever, the German anthrax attacks on the U.S. during World War I, the tuberculins war of 1931, Japanese biological warfare in the 1940s, and today’s bioterror dangers. These events illustrate how progress in biomedical science comes and goes in cycles. From 1860 to 1960, new investigative techniques appeared, shined brightly, and were replaced by technologies that were more advanced. When seminal discoveries were made, each generation of scientists was presented with new opportunities that lasted decades. This is the story of how pioneer veterinary scientists contributed to and capitalized on those discoveries for one century.

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