Pioneer Science and the Great Plagues
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decomposition from antemortem change. Look at the new chief of the pathological division at Washington. He was out to see me last August with Fitch and he wouldn’t risk looking into a microscope at a tumor Fitch could not diagnose. He would not take a chance.” Crocker ends his letter: “If you will have Dr. Benbrook do one complete autopsy on a horse or cow as a demonstration . . . you will admit it to be the first time you ever saw an autopsy.”

Edward A. Benbrook accepted Stange’s offer to join the research department at Iowa State College and to be responsible for the Veterinary Diagnostic Laboratory, and moved to Ames in 1918. Appointed head of the Department of Veterinary Pathology a year later, he held that position until 1955 and was a leader of the College of Veterinary Medicine longer than any other faculty member. Exploiting the technology he had learned at Penn, he applied microscopy and photography to work.

20. WORLD WAR I: BIOWARFARE, PREJUDICE, AND THE U.S. ARMY VETERINARY CORPS

On a cold November night in 1915, a stevedore walked silently through the darkened dockside corrals at the Breeze Point wharf off the shipyards in Newport News, Virginia. Awaiting the trip to European remount depots, mules and horses purchased by British and French agents crowded the corrals. Dockworker John Grant carried a brown paper package containing rubber gloves and two needlel syringes filled with brownish fluid. Jabbing the syringes into the rumps of as many animals as he could, Grant dumped the remaining fluid into the watering troughs. The brown fluids were cultures of the glanders bacillus and the horses would sicken and die within the next four weeks—the carcasses thrown overboard at sea—or, better from Grant’s view, arrive alive to spread glanders to European remount depots.

The possibility that Germany might resort to biological warfare against the neutral America’s livestock industry was a persistent worry since the European War started. The U.S. was shipping horses and mules to the Allies—animals that were being used to expand their transport and cavalry. In 1915 Germany began a clandestine program of sabotage along the eastern U.S. coast. Attempts to bomb or derail trains headed for British remount depots in Canada and Newport News, Virginia, did not succeed, and biological attacks failed because
an uneducated saboteur named Erik von Steinmetz allowed bacteria in the cultures to die. German agents in Baltimore, surreptitiously employed by the North German Lloyd Steamship Company, needed a microbiologist. They found one in Anton Casimir Dilger, a physician in the Imperial German Army working in Serbia. He was a microbiologist and U.S. citizen, spoke perfect English, and held an American passport. He had been born on a horse farm named Greenfield near Front Royal, Virginia. His father, an artilleryman, held the Medal of Honor earned at the Battle of Chancellorsville. In Germany, his grandfather had been a biologist and his maternal great-grandfather a respected physiologist. His three American sisters had married Germans and lived there; Anton Dilger followed to be educated and earned his medical diploma from Heidelberg University.

With orders to build a laboratory that could produce glanders and anthrax germs, Dilger returned to the U.S. and rented a fashionable two-story brick house in the 5500 block of Thirty-Third Street NW near Connecticut Avenue, close to Chevy Chase Circle in Washington, D.C. Working with his brewmaster brother Carl and housekeeper sister, he converted the basement into a bacterial laboratory and began to produce virulent liquid cultures of bacteria. German agents from Baltimore stopped by each week to pick up bacterial cultures for dockworkers willing to infect horses in shipping depots in New York, Baltimore, Norfolk, and Newport News. For one year — until 1916 — recruited longshoremen moved among stockades where animals were being shipped, sticking them with lethal germs. Dilger was interviewed by the Bureau of Investigation but cleared of suspicion. Although the Dilger operation killed thousands of horses, it did not influence the war. One estimate was that two and a half million horses and mules were exported to Europe during World War I.

A New York City police detective and head of the bomb squad, having information on Steinmetz’s failed attempt at biowarfare, ordered doubling of the guard at the city’s dockside horse corrals. He began asking around about saboteurs. In late January, Dilger — cautioned by one of the German agents that “they’re on to us” — returned to Germany. He was awarded the Iron Cross. Brother Carl switched to producing incendiary bombs, one of which was connected to the Black Tom explosion in New Jersey. As police were closing in, Carl too returned to Germany. Another employ moved to Missouri.

The diseases that had developed in farm livestock were never officially reported. An outbreak of anthrax in cattle in Harford County, Maryland, close to the
Pennsylvania line, was reported in 1915 and noted to be rare for the territory. On October 17, 1917, a suspicious fire destroyed much of the Kansas City Stockyards, burning to death twelve thousand cattle and six thousand hogs; they were doused with oil and incinerated where they lay the next day.

The National Defense Act of 1916 raised the national Army by nearly 50 percent. The next year, war came for the U.S. when the British passed on to the Americans a telegram they had intercepted in which the German foreign minister, Arthur Zimmerman, invited Mexico to join the war against the U.S. with a promise to help Mexico regain Texas, New Mexico, and Arizona. The impact of America’s entry into the war on veterinary students was made clear when the Selective Service Act was enacted on May 18, 1917. It required all males aged twenty-one to thirty to register for the draft. In the next two years, two and a half million men were drafted and two million more men volunteered for military duty.

In 1918, Germans were the dominant immigrant group in America. Taking over entire small communities in the Midwest, they spoke German at home as well as in their churches and German schools. In New York City the German Veterinary Association met monthly for presentations in German. The Nebraska City German language newspaper, the Nebraska Deutsche Zeitung, had been serving immigrants since 1861 and had nationwide circulation.

As World War I raged on and doughboys of the American Expeditionary Forces were being gassed and killed in France, the public turned against German immigrants. In Davenport, Iowa, twenty-seven teachers were fired for the crime of teaching German. The prosperous German Savings Bank in Carroll was vandalized three times, covered in yellow paint (the color of traitors) until it changed its name. A German immigrant farmer was dragged around the town square in Audubon by a noose until he agreed to buy war bonds. Sauerkraut became liberty kraut. Iowa towns changed their Germanic names. In Tama County the town of Berlin became Lincoln. Guttenberg reverted to Prairie La Porte, the name given it by French explorers. In Indiana, East Germantown was renamed Pershing—with some irony: the German Pershing family name had been changed from Pfoerschin.

President Wilson fanned the flames of misplaced prejudice in a 1917 Flag Day speech, saying that Germany had “filled our unsuspecting communities
with vicious spies and conspirators.” In Collinsville, Illinois, a mob of citizens lynched Paul Prager, who had made pro-German comments. It was the same year so many sons of German immigrants died for America; one was Otto Radke of nearby Barrington, Illinois.

On May 23, 1918, Iowa governor William Harding issued the Babel Proclamation, an executive order that declared English to be the official language of the state. The proclamation forbade Iowans from using foreign languages in schools, for public speeches, and for “conversation in public places, on trains, and over the telephone.” At Iowa State, the major textbook on clinical veterinary medicine was German—Dean Stange spoke fluent German and had translated sections of the book into English for its American publisher, the Chicago Book Company. He was uncertain if its use would be prohibited. Governor Harding had also prohibited the use of foreign languages for religious ceremonies. He received a letter of protest from a Norwegian Lutheran pastor in Decorah, writing that if he gave his sermons in English, 95 percent of his congregation would not understand him. The German branch of the Methodist Church, at its general meeting in St. Louis, encouraged its churches to discontinue German services.

The governor, not about to leave any foreigners untouched, tells the crowd at a Fourth of July celebration in Sac County that it is not only Germans that must assimilate but also those from “the filth of Denmark.” As the war ended in November, the hysteria abated. Guttenberg returned to its original name. The matter ended officially in 1920 when the U.S. Supreme Court struck down Nebraska’s English-in-Schools law—and by extension all other Babel laws.47

The Babel episode had one impact on veterinary science. At the end of the war, interned Iowa State College veterinary professor Schern could leave Germany. His home in Bromberg had been assigned by the 1919 Treaty of Versailles to the re-created nation of Poland. Having gotten word of anti-German sentiments in Iowa, Schern did not return to America but took a position in Uruguay.

In the summer of 1913, Kurt Schern had been brought to Iowa from the Kaiser Wilhelm Federal Research Institute for Agriculture in Bromberg, Germany, to be the first director of the new Department of Veterinary Investigation at Iowa State College. College president Pearson had met Berlin veterinary professor Ostertag on a trip to Germany and suggested that Stange
write to him for candidates. Schern, Ostertag’s first choice, was hired and came to Ames, bringing his assistant, Paul Purwin. Schern had been educated at the University of Leipzig in natural science, and the Berlin Veterinary College, where he graduated in 1904 (his professors had been mentored by Robert Koch and Rudolf Virchow). At Bromberg, Schern had started as an assistant in the veterinary section to work on diseases of cattle and had just been promoted to a post in Berlin.48

Schern spent the first year in Ames supervising the installation of laboratory equipment. Most had been ordered from Germany and was failing to arrive because of the unstable political conditions in Europe. The European War struggled on for three years with the increasing likelihood that America would be sucked into the battle. During mid-summer 1914, despite the risk, Schern left to attend the World Veterinary Congress in London. For three summer months tensions had increased, and on August 4 Britain declared war against Germany. The World Veterinary Congress was canceled after the first lecture. Schern fled to Germany via Holland and was interned, unable to leave the country.

Veterinary colleges lost both students and faculty to the war. All had enlisted and were gone with the U.S. Army’s American Expeditionary Forces, shipping off to France. Gone from Iowa State College were the veterinary surgery staff of Bemis and Guard, the head of the ambulatory clinic, N. L. Nelson, and a research scientist, L. E. Willey. In January 1918, Majors George McKillip, Bemis, and Blair were ordered to Camp Lee to form three veterinary units for overseas duty. Each division sent overseas had a full veterinary unit: twelve officers and fifty-one enlisted men—veterinary students, agriculture students, stablemen, and farmers, as well as horseshoers, saddlers, and pharmacists. Four schools—for blacksmiths, farriers, teamsters, and packers—were established at Camp Grant on ninety-six acres near Rockford, Illinois. Major McKillip’s Veterinary Hospital No. 6 was the first unit sent to France, arriving in April. In February 1918, D. S. White from The Ohio State University, D. H. Udall from New York, and C. J. Marshall from Pennsylvania were commissioned as majors and rapidly promoted to lieutenant colonel in the Veterinary Corps.

Dean Stange remembers 1917 and the onset of war as a “nightmare.” President Pearson moved to Washington to be assistant secretary of agriculture, and Dean Stanton was once again asked to step in as acting college president. The campus was “turned into a training camp,” with the Student Army Training Corps
dominating the college for the year. Stange writes: “We did not know always to whom we were responsible, the acting president or the chief military officer. Both claimed jurisdiction.” Fraternity and club houses were transformed to barracks and the gym was used for a mess hall “to and from which the students marched in military formation.” Defined study hours were set aside and students were required to congregate in assigned rooms, where an officer was designated to supervise the study.

Veterinarians west of the Mississippi River who enlisted in the Veterinary Corps were sent to the veterinary section of the Medical Officers’ Training School at Fort Riley, Kansas, the home of the Army’s Cavalry School. In the East, there were veterinary officer training schools at Camp Lee, Virginia, and Camp Greenleaf (Fort Oglethorpe), Georgia.

After finishing basic training, veterinary officers were sent to the new School for Meat and Dairy Inspectors in Chicago. Established in June 1917 to train both officers and enlisted men, it adapted the methods used by the Bureau of Animal Industry. When the course was completed, officers were assigned to the Quartermaster Corps to inspect procurement of meat destined for shipment to France for the American Expeditionary Forces. The first class of thirty received the assignment to inspect beef and bacon racks in commercial freezers, railroad cars, and loading storage sites in a commercial chain that stretched from Utah to New York.

Finding so many defects in the food chain, the Veterinary Corps was soon inspecting every link. With bacon, inspectors examined selection, trimming, piling, curing, overhauling, brushing, smoking, wrapping, boxing, and shipping. They were so successful in removing dirty procedures that their work spread to all meat products as well as cheese, butter, lard, and oleomargarine. Soon, a reinspection of all meat products was added at the Port Supply Office in New York. Suspect specimens from military food inspections were sent to be examined at the newly established Army Veterinary Laboratory Service. The laboratory was critical for detecting bacterial contamination of the military food supply. Arrangements had been made with the School of Veterinary Medicine at the University of Pennsylvania for quarters to set up the laboratory.

Veterinarians with orders to join the U.S. Army European force, the American Expeditionary Forces, arrived in France to encounter horses that had been cared for poorly and treated badly. The cavalry had forgotten lessons of horse care
learned in the Spanish-American and Civil Wars. In the Army, even good cavalry riders were often inattentive to the health of their steeds.

French military officers were appalled by the health and living conditions of horses in the U.S. Army. Worried that their diseases would spread to French farms, the premier of France organized the Franco-American veterinary liaison mission that allowed French veterinarians to inspect U.S. Army horses and recommend treatments. They found strangles, glanders, pneumonia, mange, and pink eye. To encourage American veterinary care, the French refused to supply Americans with fresh horses. This drove the U.S. Army to place an Army veterinarian in Paris and the surgeon general to begin organizing a veterinary reserve corps. By October 1918, five thousand veterinary officers were in service.

The liaison mission improved conditions throughout the war zones of France as U.S. Army veterinary hospitals were created to deal with equine diseases as well as injuries from mustard gas, wounds, and the debility of improper care. One of the best was the Third Army Veterinary Hospital, commanded by its chief veterinarian, Major H. E. Bemis, enlisted from the surgery staff at Iowa State College. Improving diagnoses by coordinating case materials with the Army’s central veterinary diagnostic laboratory, Bemis proved to be an exemplary officer for the Veterinary Corps.

When the armistice was declared on November 11, 1918, there was a logistics problem of transporting soldiers of the American Expeditionary Forces back to the U.S. The Army commanding general decided that the way to expend the surplus energy of two million American young men was to start an education program and he founded the American Expeditionary Forces University at Beaume (Côte-d’Or). Science courses were offered and undergraduates were to receive academic credit on their return home. Included was a veterinary college, the School of Veterinary Medicine of the American Expeditionary Forces University. Major George McNeill of Chicago was appointed dean and Major D. H. Udall of Cornell was the principal teacher. In the end, it was not possible to transfer credits to American universities and, as the soldiers were transported home much faster than expected, the AEF veterinary school lasted only from February to June.

As soldiers returned home from Europe in 1918, the influenza epidemic came with them. The Spanish flu had come in three successive pandemics
in 1918—first in spring, then in fall, and again in winter. It would kill nearly fifty million people worldwide. Influenza had a devastating impact on college campuses. At Iowa State College, the gymnasium was changed from wartime mess hall to college hospital and morgue. The college was quarantined by the military officer in charge, and all persons going to and from the campus were required to have passes. Guards were stationed at all college entrances. Parents coming as a result of a telegram to see a son or daughter sick with influenza (who were often dead when the parents arrived) were transported in specially designated cars.

State Gym at Iowa State College converted into a hospital during the influenza outbreak in 1918. The locker rooms were used as a morgue. (COURTESY OF THE IOWA STATE UNIVERSITY LIBRARY SPECIAL COLLECTIONS AND UNIVERSITY ARCHIVES.)