



Bacteria and Bayonets: The Impact of Disease in American Military History by David R. Petriello.

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In his preface, David Petriello (Caldwell Univ.) clearly states that his book “seeks to not only examine the interconnectedness between disease and American military history, but also challenges [sic] the reader to think of how the nation and the world would have been different had the various pestilences not arisen and impacted events when and how they did” (7). He does not try to write a comprehensive examination of disease and its effects in US military history. Rather he essays a brief survey featuring a succession of snapshots from that history, with occasional forays into “what-if” speculation. He begins with Columbus and a terse, sometimes inaccurate, account of the European introduction of non-native maladies into the Americas. He proceeds through the centuries, ending with a discussion of present-day bioterrorism. None of the information provided is new, and the what-if scenarios are un compelling.

Of the volume’s thirteen chapters, the first ten cover the fifteenth through nineteenth centuries. Chapter 11 is devoted to the World Wars; 12 to Korea, the Cold War, and Desert Storm; and 13 to twenty-first-century bioterrorism. Chapters 1 and 3 concern the effects of smallpox, tuberculosis, influenza, and measles, which killed up to 90 percent of the native populations that made contact with Europeans. This depopulation rendered it difficult or impossible for them to withstand or repel European encroachment. Chapter 2 veers into an unrelated discussion of disease in the Spanish Armada.

Chapters 4 through 7 review various wars of pre-revolutionary America, the Revolution War, and the early republic up to the Mexican-American War. Petriello stresses the debilitating effects of sickness among Native American populations during, for example, such conflicts between the colonists and natives as King Philip’s War in the seventeenth century; he notes that the French were disproportionately affected by this in fighting the English, who had the advantage of larger European populations in their colonies. He describes, too, the problems that scurvy posed for ill-fed colonial armies during long marches and sieges.

Chapter 8 concerns the Pacific Coast epidemics, during which fatalities mirrored those on the east coast; the tragedy of the “Trail of Tears”; and the Mexican-American War. Petriello argues that Winfield Scott’s avoidance of the “sickly season” in the assault on Veracruz greatly reduced the incidence of yellow fever among his troops. This represented forward thinking on Scott’s part. But the author fails to note that about 85 percent of the American deaths in this war were due to disease, mostly other than the yellow fever Scott planned to avoid. While Surgeon General Thomas Lawson’s directive against the use of ether was hard on the wounded, it had little if any effect on disease mortality.

Chapter 9, on the US Civil War, is fraught with problems. Petriello offers a what-if discussion of death and illness among political figures in the immediate prewar period. This is pure speculation bereft of supporting evidence, ignoring the realities of everyday deaths in the period from typhoid, tuberculosis, and even food poisoning. Petriello also confuses the (more common) bacillary dysentery with the (less common) amoebic dysentery. Civil War physicians could not accurately distinguish between them. The diagnosis of diarrhea vs. dysentery was often (incorrectly) based on the presence or

absence of fever or bloody stools. Neither bleeding nor the use of leeches was, as Petriello claims, standard practice in the Civil War, though a few older physicians still resorted to them.

We read nothing here about the scourge of “hospital gangrene,” a condition of unknown origin that seems similar to present-day “flesh eating bacteria.” It killed many soldiers who had survived their wounds and initial surgeries, despite intense research and experimentation conducted by the Union Medical Department. The author also describes the effects of diseases on commanders like Robert E. Lee, A.P. Hill, and George McClellan, among others, showing how a sick general could cause confusion at the wrong time for an army.

Chapter 10 covers the Indian Wars, the Spanish-American War, the Panama Canal, and the Philippine Insurrection. Discussing the invasion of Cuba, Petriello points out the legitimate fear that yellow fever might decimate US troops and notes the appalling rates of illness and death in training camps in the United States. But he makes a major mistake in his characterization of the typhoid problem:

Surgeon General Sternberg had issued his Circular No. 1 to specifically address the issue of sanitation and illness in camps. Concerned specifically with typhoid, Sternberg advised that troops without access to approved water sources boil their fluids. In addition, he advised that camps be located far from stagnant water and constructed with proper drainage. Finally, waste materials were to be removed and latrines dug and moved often.... [T]he Surgeon General’s orders reflected a *miasma view of contagion*... [my emphasis]. (178)

Sternberg was, in fact, the premier American bacteriologist of his day, known as the father of American bacteriology and the author of a standard text on the subject. The bacterium that caused typhoid had been identified in 1884, and a English physician Almroth E. Wright had developed a vaccine in 1896, though it was not in wide use in 1898. The precautions listed in Circular No. 1 reflected a good knowledge of typhoid bacteria and the fecal-oral pathway of its spread. Most physicians had abandoned the miasmatic theory of disease by the end of the nineteenth century.¹ While the author does mention the Dodge Commission, he fails to indicate that it stated that the medical department had made appropriate scientific recommendations to prevent disease in the camps. The responsible military officers simply did not heed them.

The Typhoid Board and its chairman, Dr. Walter Reed, well aware that the disease was caused by a bacterium, prescribed proper sanitation, clean water supplies, and latrine trenches well away from eating and cooking areas, which were to be screened to prevent bacteria-bearing flies from contaminating the army’s food. Petriello’s misunderstanding of the Board’s findings and advice is regrettable.

Chapter 11 addresses modern biological warfare, especially in the First World War. It covers as well such earlier biowar methods as the catapulting of plague victims’ corpses into the besieged city of Kaffa and the “gifting” of smallpox blankets to Native Americans. The author details supposed German plots to infect livestock and horses in Allied countries with diseases including glanders and to poison wells in France with corpses, only to discount them as figments of propaganda like the alleged atrocities in Belgium. Then why mention them at all? By contrast, he does detect nefarious German plotting behind typhus outbreaks in the Balkans and on the Eastern Front, even though contemporary accounts demonstrate that soldiers’ and refugees’ wretched living conditions made ideal breeding grounds for an illness already endemic in the region.

Most of chapter 12, spanning from World War II to Desert Storm, is dedicated to biological warfare. We read of the Imperial Japanese Army’s notorious Unit 731’s attacks and human experiments in

1. By the Spanish-American War, the pathogen causing malaria (the classic “bad air”/miasmatic disease) had been identified as the *Plasmodium* spp. parasite.

Asia, Nazi human experimentation, and (unproven) German and Soviet biological efforts on the eastern front. Petriello then turns to post-Second World War US biowar projects. He rightly dismisses Chinese claims of American biological attacks in Korea as mere propaganda. As for US biological projects before the international Biological Weapons Convention took force in 1975, the author notes that they may have caused one human death and certainly killed six thousand sheep on ranches near the Dugway Proving Ground in Utah. It is not made clear what relevance such accidents have to the volume's subject.

Petriello asserts (without attribution) that the biological laboratory on Plum Island, New York, "holds the dubious honor of being accused by various researchers and authors of being responsible for the spread of numerous diseases on the mainland. A spike in Lyme Disease cases after 1975 and the arrival of West Nile Virus in America in 1999 have all been tentatively blamed on accidents at the facility" (215–16). This flouts the findings of the Centers for Disease Control (CDC) and other researchers.

The final chapter, on twenty-first-century bioterrorism, reviews the post-9/11 anthrax outbreak and quotes Jihadist sources claiming religious and practical justifications for using biological agents. The response teams of the US military and the CDC are not discussed, though the post-9/11 vaccine program is touched on.

Besides the shortcomings I have identified above, Petriello nowhere draws on the extensive materials available in US Army and Navy medical department archives, instead depending almost entirely on secondary literature. The upshot is that knowledgeable readers seeking new insights in *Bacteria and Bayonets* will be sorely disappointed and newcomers to its subject will often be led astray.