

Bullets and bacilli *The Spanish-American War and military medicine*

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Book Review

In his book *Bullets and bacilli: the Spanish-American War and military medicine*, Vincent Cirillo presents a highly readable account of the medical history of the Spanish-American War, a war that fundamentally altered the geopolitical role of the US, as it afterwards bestrode the Caribbean area as well as the Philippines in the Far East. The actual military encounters of the war occurred mainly in Cuba and involved approximately 22,000 US soldiers in combat for less than one month before the Spanish forces surrendered on July 16, 1898. Of the 1691 combat casualties, 260 were fatal. However, the ravages of yellow fever, typhoid, malaria, and dysentery were so severe that, by the beginning of August, less than one-quarter of the Army that had gone ashore on June 22, 1898, remained fit for service. This precipitated evacuation of the entire corps from Cuba to the hurriedly established Camp Wikoff at the eastern end of Long Island. Within the continental US, matters were not much better. In preparation for hostilities, 108,000 volunteers from various states had been assembled in a handful of national encampments located in Georgia, Florida, Virginia, and Pennsylvania. With some notable exceptions, military officers had very little knowledge of the role of hygiene in the prevention of disease. As a result, the sanitary facilities in the camps rapidly became overwhelmed, [...]

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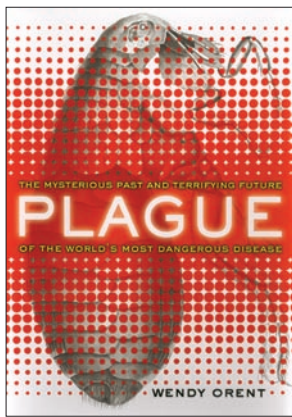
cause of the disease since injection of filtered serum from a patient could transmit the disease to volunteers.

Major William Gorgas, as the chief sanitary officer of Havana, took immediate action by carrying out a mosquito eradication program and, for the first time in history, the city was free of yellow fever. This served as a prelude to his famous sanitary work in Panama, which rendered the construction of the Isthmian Canal possible.

Cirillo's book also summarizes the work of the Tropical Disease Board, primarily active in the Philippines, which identified dengue as a mosquito-borne disease and beriberi as due to dietary deficiency. The early development of typhoid vaccination and the remarkably rapid introduction of X-ray technology into the treatment of battlefield wounds is also briefly reviewed. A chapter on the Boer War documents that the British military leadership, despite knowing of the

American experience, remained benighted about the need to enforce sanitation; consequently, their troops suffered monstrosly from typhoid fever and dysentery.

This very readable book on the state of military medicine at the turn of the last century is a deft recounting of the tragedies and the heroic advances that have always accompanied wars. Many readers will find this a welcome springboard to more extensive accounts of this conflict.



Plague

The mysterious past and terrifying future of the world's most deadly disease

Wendy Orent

Free Press. New York, New York, USA. 2004.

276 pp. \$25.00. ISBN: 0-743-23685-8 (hardcover).

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Plague is caused by *Yersinia pestis*, perhaps the most notorious of all infectious agents that nowadays can be considered a “down, but not out” pathogen. Globally, the WHO estimates that there are 1,000 to 3,000 cases of the disease every year.

In *Plague: the mysterious past and terrifying future of the world's most deadly disease*, Wendy Orent details the past pandemics of plague and examines the likelihood of its return either through natural causes or nefarious practices. The book presents a fascinating history of the three plague pandemics – the Justinian Plague, the Black Death, and modern-day plague – and links these pandemics to present-day knowledge about plague. The book is thoroughly researched, with numerous references to historical accounts and publications by modern experts both in the US and the former Soviet Union. It is easy to read, particularly as more detailed

information is referenced and expanded on at the end of the book for those who wish to learn more.

Yersinia pestis and plague have traditionally been controversial topics, and Wendy Orent argues convincingly on three contentious issues. The first is that *Yersinia pestis* is indeed the infectious agent responsible for the Black Death. Arguments against *Yersinia pestis* being the causative agent have been based on mathematical models, but these are only as good as the assumptions behind them, and the author makes the case that many of these assumptions are incorrect. Second, although it is generally accepted that plague is transmitted by the bite of infected rodent fleas, it has been argued that in some circumstances, *human* fleas can be responsible for the rapid transmission of plague. The author brings in historical accounts that support this hypothesis, but it has not

been proven experimentally. Third, and most important, is the notion that some plague strains, particularly those associated with certain hosts, such as marmots in Central Asia, are extremely virulent and hence still pose a significant public health threat. Again the case is well argued. Perhaps the one disappointing omission in the book is that the genome sequences of the Antiqua and Orientalis strains of *Yersinia pestis*, which have become available in recent years, are not discussed. These data provide the genetic blueprint for this fascinating pathogen, which, with its highly flexible genome, could explain some of the vagaries of plague, such as the rapid rise and fall of plague pandemics.

Plague should appeal to a wide readership of historians, clinicians, and scientists investigating the evolution of extremely virulent pathogens. Overall this is a highly readable and interesting book.