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# Dr. William Gorgas and his Management Style in the Eradication of Yellow Fever during the Panama Canal Construction: A Historical Case Study

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## ABSTRACT

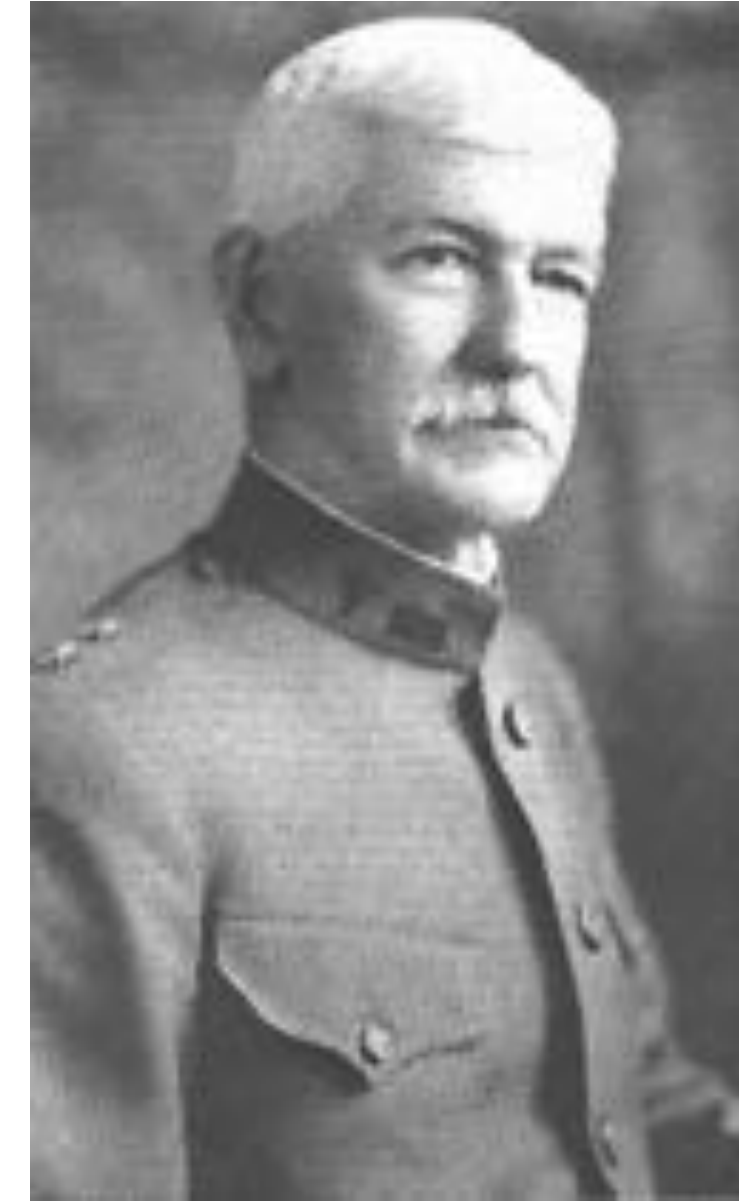
This study describes the style of management of Dr. William Gorgas as he led the public health effort to reduce diseases to a level that permitted the completion of the Panama Canal construction. Initially, Gorgas was skeptical of the mosquito vector theory. He fully accepted this theory after participating in Walter Reed's massive cleanup of Havana, Cuba during the Spanish American War of 1898. During 1905 to 1914, Gorgas was selected to lead the sanitary effort during the construction of the Panama Canal. The lessons learned from this historical case study provide public health administrators with guidance to effectively lead current and future infectious diseases threats. Understanding styles of management within the context of disease control is essential in tackling epidemics like yellow fever and other infectious diseases.

## PROBLEM

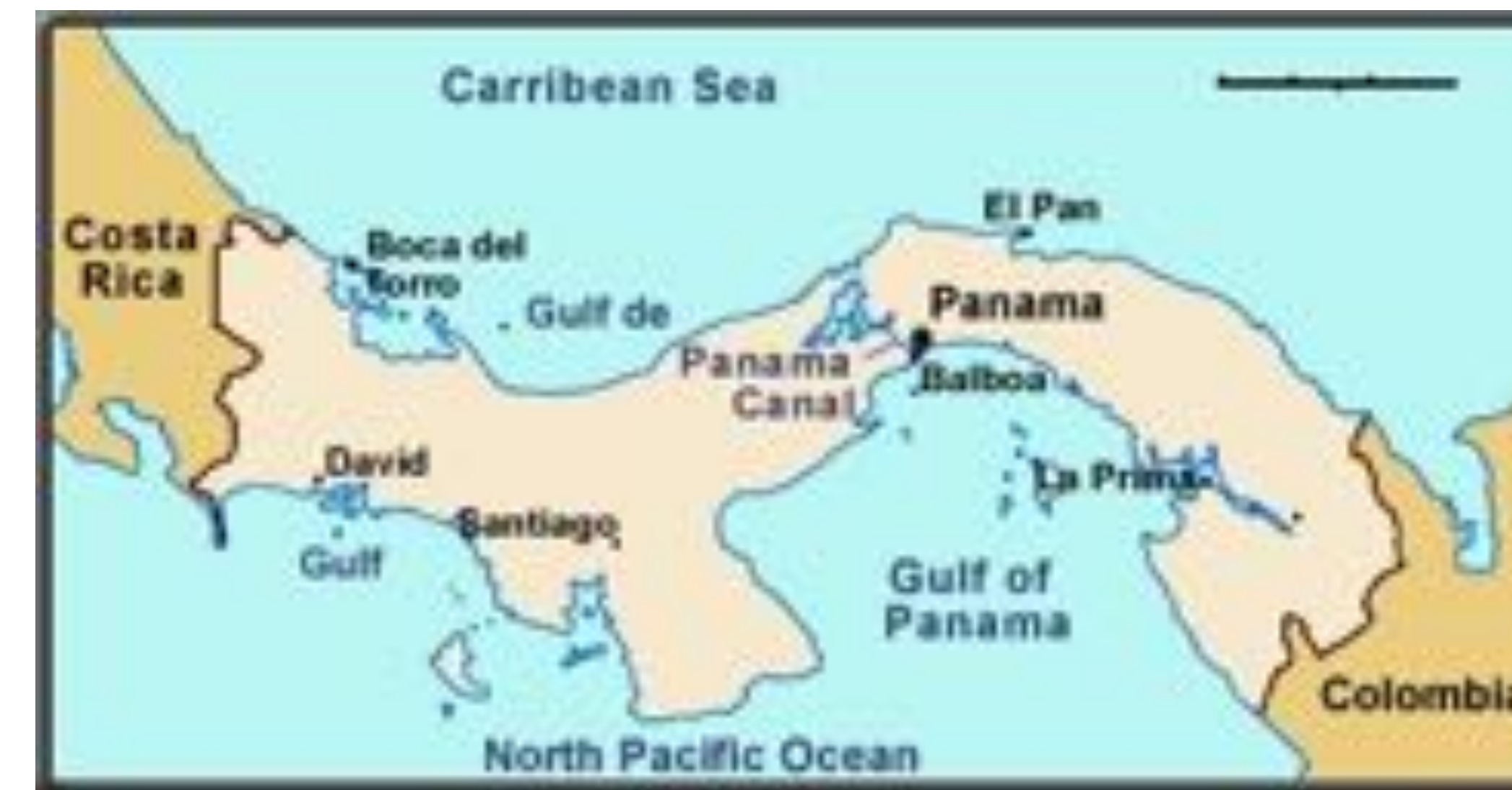
It is understood that diseases have been great killers of people and often decisive shapers of history. Penetration of the tropics by Europeans was often met with disaster because of tropical diseases. In the late 19<sup>th</sup> to early 20<sup>th</sup> century, medical doctors were unaware of disease etiology in the tropics. The practice of tropical medicine stemmed from the need of imperial nations to extend their colonial power. The control of disease was central to imperialism.

European colonizers established sanitary camps for their troops on the basis of the miasmatic theory which stated that disease was caused by noxious emanations from the Earth. During this period, tropical medicine and other studies of diseases held two models, the long-accepted miasmatic theory and the newly postulated disease-agent theory (microorganisms cause disease). The latter theory was gaining acceptance during this period, as the discovery of Alphonse Laveran and Ronald Ross became widely known and accepted. Gorgas came to accept this model of disease causation during his work.

## DR. WILLIAM GORGAS



## PANAMA CANAL



## RESULTS/CONCLUSION

Gorgas was a key participant of the science and management of tropical disease. The conclusions reveal the need to be a flexible and yet structured leader during the construction of the Panama Canal from 1904 to 1914. The conclusions address four key themes:

**Personal Traits:** There can be no doubt that starting from his childhood years, Gorgas relished challenges and admired the military culture of organization and command. These qualities coupled with his years of experience and maturity provided a perfect match to properly face the quagmire, frustrations and delays he encountered from the canal commission. He was flexible to understand that he had to play various leadership styles at different points in time to ensure that his health department was operational under three separate canal commissions.

**Scientific Context:** Gorgas had understood the mosquito theory and was well acquainted with Reed's experiment and Finlay's earlier experiment that proved it was the mosquito causing yellow fever illness. He had come to understand and quickly began to implement measures to specifically address the mosquito cause. He appreciated and appraised the science behind his work.

**Military Command Structure:** Gorgas was methodical and an organized man which was reinforced by being part of the U.S army culture. This keen understanding of the role of chain of command and organizational structures played an important role.

**External Endorsement:** This was pivotal in ensuring that he had important allies like the American Medical Association that endorsed his work at a crucial moment when President Roosevelt was close to removing Gorgas. This external endorsement underscores the importance for any nurse leader in building partnerships and collaborating with others towards a health project.

Gorgas effort reveals that an organizational design eliciting the energy and help of local residents (followers) on the ground is paramount.

## METHODS

The methodology primarily used a case study approach and a historical archival review. A case study method involves a longitudinal examination of a single event. As a case study approach, this study had clearly identifiable cases with defined boundaries. They are as follows:

- Prevalence and incidence of yellow fever.
- Population data and statistics of the time period.
- Cases of death and ill afflicted with the disease.

Data sources include congressional records, journals, books, presidential summary reports. The case study approach provides a systematic way of looking at events, collecting data, analyzing information and reporting the outcome. As a result, the researcher gains a sharpened understanding of why the instance happened as it did and what might become important to examine more extensively in future research. Case studies lend themselves to both generating and testing hypotheses.

This study examines Gorgas's using the historical case study method. This paper describes Gorgas's skill in management that led him to be a successful administrator against the yellow fever epidemic during the Panama Canal construction.

## SOCIAL CHANGE IMPLICATIONS

The positive difference in this historical study is for the learner to develop an appreciation in addressing current complex public health challenges that require the kind of administrative "high art" found in Gorgas during the Panama Canal. The theme of this paper is clear, history should matter and must be preserved among current nurse & public health leaders or any position of leadership to better foster successful outcomes on the ground in tackling current and future public health threats like the recent Ebola, Avian Flu and other future threats..

References are available upon request