

## *Virtual Mentor*

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### **VIEWPOINT**

#### **Giving Oneself: When Researchers Become Subjects**

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In the late 19th century, one of the worst scourges known was yellow fever. In 1878, for example, the disease killed more than 20,000 in the United States alone. Although it infected and killed many in the southeastern United States, its epicenter was in Havana, Cuba. Enter Walter Reed and his team of physicians who confirmed the causes of yellow fever a hundred years ago. Perhaps the most heroic member of the team was Jesse Lazear who experimented on himself to learn about the cause of the dreaded disease.

With the Spanish-American War a recent memory, the United States set out to rid Havana of the yellow fever pestilence. Though Havana was at the time one of the world's cleanest cities, a new epidemic broke out in its most sanitary sections. This raised a conundrum: why did some areas, no matter how clean, harbor the disease while other areas did not? In 1900 Major Walter Reed headed a Yellow Fever Commission whose other members included Drs. James Carroll and Jesse Lazear.

Reed at first decided to test the hypothesis of [Dr. Carlos Finlay](#) (1833-1915) that yellow fever is carried by the *Stegomyia* mosquito (Finlay was a Cuban physician who first proffered the theory in 1881 that the mosquito was the carrier of yellow fever). Carroll and Lazear allowed themselves to be bitten by some of these mosquitos which had already fed on the blood of fever patients. They both contracted the disease and Lazear died. Reed then built a camp at Quemados near Havana for a complete study of the cause of yellow fever and called for volunteers. The commission established that the fever can be carried only by the *Stegomyia* mosquito and not by filth or contact with the victims as hitherto believed. This species of mosquito was eradicated in Havana and later in Panama, enabling the United States to build the Canal.

Many unsung heroes fought in the battle against yellow fever. But the example of Dr. Lazear who gave his life deserves special recognition and respect. Today, in a busy corridor at Johns Hopkins Hospital, a brass plaque commemorates Jesse Lazear. The inscription includes the following: "With more than the courage and devotion of the soldier, he risked and lost his life to show how a fearful pestilence is communicated and how its ravages may be prevented." Dr. Lazear gave the ultimate gift; both he and Dr. Carroll took the ultimate risk in the effort to save others. For that we name Drs. Jesse Lazear and James Carroll role models in the field of research medicine.

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