

The Panama Canal and Public Health

Conquering Yellow Fever

The First French Effort to Dig a Canal across Panama

Catastrophic failure

Misplaced faith in large machines



Wreckage from the French effort, with the jungle returning

Corruption

Squalid living conditions and disease



Bottle Alley in Colón. The small town had nearly 150 bars, with 40 in this street alone.

Panama had: Yellow fever, malaria, bubonic plague, and typhoid

Visitors to regions are less resistant to local pathogens

During the 1850s, 22,000 people died, annually one third of the workforce was sick

Disease was one of the main reasons why the French had to give up

The American Effort

Yellow fever

A virus, a mild attack gave life-long immunity

In places like Panama, the adults were immune, but not the visitors

1900 in Havana: Public health efforts led by Colonel William Crawford Gorgas

Experiments showed that yellow fever spread, not through filth, rather mosquitoes

Aedes aegypti: the mosquito that transmits yellow fever

Other experiments to confer immunity through controlled mosquito bites, killed people

Successful Public Health Measures

Yellow fever patients screened in

Buildings fumigated

Standing water drained or oil spread on the surface

Same methods to be applied in Panama

Hampered by political opposing

From whom? why?

Gorgas asked later why the demonstration in Cuba did not convince people?

President Theodore Roosevelt convinced by medical experts:

"If you fall back upon the old methods of sanitation, you will fail, just as the French failed. If you back up Gorgas and let him pursue his campaign against the mosquitoes, you will get your canal.

Fumigation

Clearing building of people and pets, sealing them airtight with paper and wood framing, and burning an insecticide like pyrethrum or sulphur



A fumigation squad, carrying ladders, paper, and paste, assembles in Panama City, 1905.

Screening in infected people

Tons of insecticide

Whereas *Aedes aegypti* had made up ten percent of the mosquitoes in Havana, the percentage was ninety in Panama

All homes in Panama were fumigated three times

Mosquito catchers

Caught individual mosquitoes in test tubes and killed them with chloroform

Aedes aegypti was "domesticated"

Preferred to live inside of homes and to lay eggs in clean, still water

Panamanians depended on rain water for drinking water

Standing water was cleaned up throughout the city

In the hospitals, nurses had set bed legs in tins of water to stop ants

When the sewage and water systems were installed, many of the mosquito breeding places disappeared

These public health measures were for the foreigners working on the canal, not the locals: why?

Local adults had immunity

Suffered these invasive procedures without seeing the need

Malaria

Malaria and yellow fever are both transmitted by mosquitoes, but are also different

Malaria is a chronic, debilitating disease

Spread by different mosquitoes

Anopheles preferred swamps and forests

Thus much more difficult to find and destroy

Quinine existed as a drug against malaria, to remedy and resist infection

Behavior of these mosquitoes studied

Men lay on cots with pill boxes, as bait for mosquitoes, waiting to capture them

Captured mosquitoes were dyed blue, then released

Results: this mosquito disliked bright light and typically did not fly more than 200 yards

Remedy: brush and grass were cut and standing water drained for that distance around inhabited areas

"Clever": Water was set out to attract mosquitoes to lay their eggs, and was then dumped out

Drainage ditches were dug to carry away standing water

These had to be maintained

By 1906 the Canal Zone was safe enough for President Theodore Roosevelt to visit



Roosevelt, here in a white suit, making a "Strenuous Exhibition" in Panama.

The Workers



A steamer carrying laborers from Barbados arrives in Colón. The tiny island provided the bulk of the thousands of workers for the American Panama Canal effort.

Pneumonia was common among West Indian workers

Poor standard of living

One set of clothes, poor nutrition



An official mess kitchen for the West Indian workers. No chairs or tables were provided, and the food was often inedible. After a short time, most workers made their own arrangements.

Accidental deaths

Example: Hidden cache of dynamite exploded

Killed two white engineers, and twenty-three black laborers



A cemetery on photographed shortly after the completion of the canal.

Gorgas

What he would have done differently: Raise wages

Combination of modern technology and old-fashioned labor



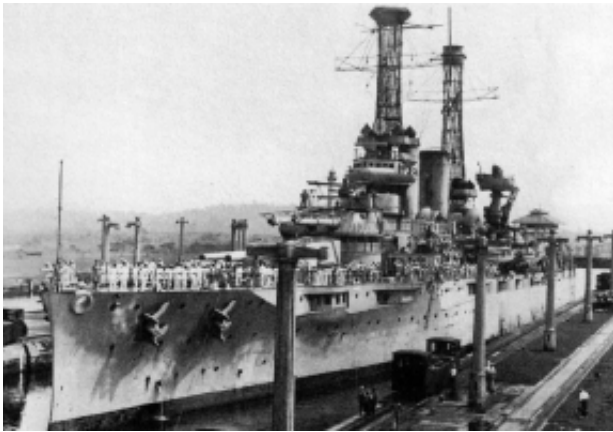
Workers at the base of the lower gate of Gatún Locks.

The final joining of the oceans being accomplished by pick-and-shovel men digging a channel.



Subsequent Effort to Rid the Southern US of Malaria

Reluctance to follow the example of Panama: why?



The U.S.S. Texas in Gatún Locks in July 1919.
