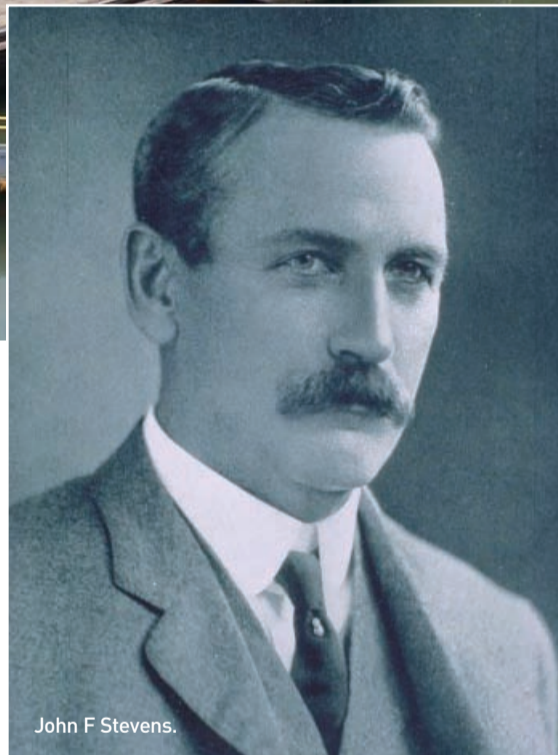


Panama Canal – Rail Ingenuity and Staff Health



John F Stevens.

It's not widely known but the original chief engineer behind the construction of the Panama Canal was a railway man, writes Dr Steve Malleson of Express Medicals.

John F Stevens believed healthy staff and modern rail links were essential to delivering major projects like a canal that connects the Atlantic and Pacific oceans.

The first main attempt at constructing a canal across the Isthmus of Panama was undertaken by the French in 1880 under Ferdinand de Lesseps who decided on a sea level cutting. However the French began without sufficient study of the geology and the hydrology of the region. More importantly malaria and yellow fever killed vast numbers of employees.

These conditions made it impossible to complete the project. In 1893 the scheme was finally abandoned, defeated by disease and topography.

Estimates vary but as many as

22,000 workers are thought to have died during this period of French construction. The collapse of the project dealt a deep blow to French confidence and economy.

President Theodore Roosevelt

The Americans, ever anxious to provide transcontinental east-west links, decided to revisit the idea. President Theodore Roosevelt was a keen supporter. A canal across the isthmus would help trade and enhance the power of US naval forces. Stevens convinced Roosevelt to let him build a canal that used locks and dams to lift itself over the isthmus.

John F. Stevens was appointed chief engineer in 1905. Originally from Maine he was one of the most experienced railway builders in the United States having spent his adult life building railroads on the US western frontier.

Being no stranger to rough liv-

ing Stevens had been chief engineer of the Great Northern Railway and the Chicago Rock Island and Pacific Railroad. His triumphs at Great Northern included building the railroad across the continental divide - Stevens Pass in the Cascade Mountains is named after him - between Minneapolis - St. Paul and Seattle on the Pacific coast. In his travels he had been marooned in blizzards and attacked by Apaches and wolves.

Stevens turned his knowledge and expertise in railway construction to the mammoth task of canal building. He saw the need for providing proper housing, a good food supply and eradicating disease among his workforce.

The Panama Railroad, which Stevens saw at once to be the lifeline of canal construction, had to be completely overhauled. This railway would not only transfer the rock and soil excavated but would also have to distribute all the equipment and building supplies for the labour force.

He developed an ingenious system of canal excavation and disposal of the spoil and devised a complex but workable and efficient system of tracks at different levels within the cut. Schedules were precisely coordinated. All excavation spoil was taken out by train immediately, the trains keeping pace with the work.

Stevens understood that this project could not be undertaken

until the problems of malaria and yellow fever in the area had been confronted and overcome. William Gorgas was appointed as head of hospitals and sanitation. Gorgas set about progressing a concerted programme of draining and filling swamps and cutting grass and brush away over wide areas together with fumigation of residences.

There was considerable resistance to this programme particularly as the 'mosquito theory' for the propagation of malaria and yellow fever was still considered controversial and unproven. In addition he implemented a programme of quarantining those people infected, introducing transportable screen structures to prevent mosquitoes biting an infected person and carrying diseases to others.

Gorgas also had thousands of workers on the canal sleep on screened verandas as mosquitoes which breed malaria are nocturnal and would infect most people at night. Within a year of Stevens's appointment this programme had shown significant results and in 1906 only one case of yellow fever was reported. By the end of the Panama Canal project Yellow Fever had largely been eradicated from the area.

The success of this largest of all civil engineering projects should be seen as proof of the value of combining railway construction and occupational health.

