

FORT SHERMAN  
Toro Point on Limon Bay  
Colon Vicinity  
Former Panama Canal Zone  
Republic of Panama

HABS No. CZ-6

HABS  
CZ  
1-COLON.V  
2-

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN BUILDINGS SURVEY  
Rocky Mountain Regional Office  
National Park Service  
Department of the Interior  
12795 W. Alameda Parkway  
Denver, Colorado 80225

HISTORIC AMERICAN BUILDINGS SURVEY

FORT SHERMAN

HABS No. CZ-6

HABS  
CZ  
1-COLON  
2-

- Location: Toro Point on Limon Bay, Colon Vicinity, Former Panama Canal Zone, Republic of Panama, Central America.
- Present Owner: United States Department of Defense
- Original Use: Coast Artillery installation
- Present Use: Army Jungle Operations Training
- Significance: One of three original permanent United States Army posts at the Atlantic entrance to the Panama Canal, Fort Sherman was created to be the site of the Coast Artillery Atlantic defenses (primarily gun batteries). Fort Sherman was constructed on a point of land across Limon Bay from the Isthmian Canal Commission town of Cristobal. As the first installation on the west side of the Canal, Fort Sherman was dependent upon water transportation. This is reflected in the early layout of the installation, as most buildings line the shore. The Panama Canal Building Division originally erected frame structures similar to early Canal buildings in style and materials. These were later replaced with the concrete and tile structures ubiquitous to the permanent Canal communities and military installations. Fort Sherman is today one of only two unit-level jungle training centers in the world.

## PART 1. HISTORICAL INFORMATION

### A. Physical History

1. Original Construction Date: 1915
2. Planner: United States Department of Defense and The Panama Canal
3. Original and Subsequent owners: United States Department of Defense
4. Builders, Contractors and Suppliers: Building Division, The Panama Canal
5. Alterations and Additions: Fort Sherman has evolved over the years, primarily through the 1920 addition of land extending beyond the Chagres River. After World War II, the gun batteries were dismantled.

### B. Historical Context:

#### Early Explorations of Water and Land Routes

While the Panama Canal and the surrounding Canal Zone are most frequently associated with the United States, interest in building or discovering a waterway to connect the Atlantic and Pacific Oceans at the Isthmus of Panama began centuries ago. Christopher Columbus searched for such a waterway in his final voyage, as did Vasco Nunez de Balboa, who discovered the Pacific Ocean in 1513, and Mexican explorer Hernando Cortez in the 1520s, before the development of projects for artificial passages through the Isthmus had begun.<sup>1</sup>

In 1533 the Chagres River was made navigable to within twenty miles of Panama City at Venta de Cruces, which means "the crossing." The eighteen-mile Las Cruces Trail provided access the rest of the way to the Pacific.<sup>2</sup>

King Charles V of Spain took the first official step towards construction of a canal in 1534, when he had a survey made of the land from the end of the Chagres River to the Pacific, which is the route of the Panama Canal today. In 1534, however, Pascual de Andagoya, the commissioner

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<sup>1</sup>Hugh Gordon Miller, The Isthmian Highway: A Review of the Problems of the Caribbean, (New York: MacMillan Co., 1929), 7; John O. Collins, The Panama Guide, (Mount Hope, CZ: I.C.C. Press, 1912), 57.

<sup>2</sup>John and Mavis Biesanz, The People of Panama, (New York: Columbia University Press, 1955), 25; Miller, The Isthmian Highway, 7; Collins, The Panama Guide, 57.

who made the survey, said there were too many obstacles for even the vast resources of the powerful king to consider building a canal.<sup>3</sup>

During this time Spain conquered Peru, and Charles needed to transfer gold and other precious valuable metals through the Isthmus. The Las Cruces Trail became the most popular route. Much of this trail was built over swamps and had to be filled in with rocks carried several miles. When the trail was finished, it was wide enough to accommodate two carts. The Spaniards sent boats down the Atlantic and into the Chagres as far as Cruces where the trail crossed the river. There they would receive the riches brought in carts, on pack mules, or by slaves, and take it back to the Atlantic harbor at Nombre de Dios.

In 1536, a trading post, wharf, and warehouse were built at Venta de Cruces. Cruces became the largest and most important village in the Isthmus interior. Throughout the sixteenth century, transit was often halted by cimarrones (runaway Negro slaves). To protect traffic on the Chagres, Spain built Fort San Lorenzo at the river's mouth, a fortress at the entrance to the Nombre de Dios harbor, and a fortification at Venta de Cruces by 1597. The Las Cruces Trail was paved by 1630, and Spain continued to grow richer and more powerful in the New World. Panama became the crossing place for trade routes from China, Japan, and India as well as South America.<sup>4</sup>

#### Spain and Britain Fight for Isthmian Control

Despite the negative reports of the 1534 survey, Charles V was still interested in building a canal. There were four major routes under consideration -- Panama, Nicaragua, Darien (southeast of Panama), and Tehuantepec (Mexico). Spanish historian Francisco Lopez de Gomara supported his king, and wrote in 1552 that any of the four sites would be beneficial to supplying a trade route to the Indies. Portuguese navigator Antonio Galvao also published a book expressing his interest in digging a canal at any of the four sites.<sup>5</sup>

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<sup>3</sup>Miller, The Isthmian Highway, 7; Collins, The Panama Guide, 57; Miles P. DuVal, Cadiz to Cathay: The Story of the Long Struggle for a Waterway Across the American Isthmus, (Stanford, CA: Stanford University Press, 1940), 6.

<sup>4</sup>Susie Pearl Core, Trails of Progress, or the Story of Panama and its Canal (New York: Knickerbocker Press, 1925), 24-26; Gerstle Mack, The Land Divided: A History of the Panama Canal and Other Isthmian Canal Projects, (New York: Alfred A. Knopf, 1944), 53-55; U.S. Department of State, Final Environmental Impact Statement for the New Panama Canal Treaties, (Washington, D.C.: GPO, December 1977), Appendix, G.14.

<sup>5</sup>DuVal, Cadiz to Cathay, 6-7.

Charles V abdicated the throne in 1555. His son and successor, Philip II, was opposed to the idea of a canal. Although he did order a survey in 1567 to consider the possibility of a canal through Nicaragua, via the San Juan River and Lake Nicaragua, the report was as unfavorable as the Panama survey, and plans for a canal were abandoned. Philip believed the Isthmus served as protection for Spanish shipping on the Pacific. The opening of a canal would encourage other countries to compete for its possession. Philip increased the tolls through the Isthmus, and it became the only legal means of transit for goods from Argentina and the Philippines. Although Spain temporarily had to use Nicaragua when English explorer Francis Drake invaded the Pacific in 1579 and interfered with the Panama route, Philip maintained this policy until his death in 1598, even saying that a canal would directly violate the laws of God, who had created the Isthmus as it was. Although his successor, Philip III, considered a canal route via the Gulf of Darien and the Atrato River in 1616, the idea was quickly abandoned, and the policy of Philip II was firmly entrenched in Spain for the next two hundred years.<sup>6</sup>

British explorers and pirates continued to raid Spanish ships and territories in the 1600s, for mahogany wood as well as gold and silver. Oliver Cromwell conquered Jamaica in 1655. Edward Hume led an expedition across the San Juan River and Lake Nicaragua and took Fort San Carlos and the city of Leon. Here the British first realized the significance of Lake Nicaragua as a potential canal route, and sought to gain control of it. When Spain began counterattacks in that area, Britain moved south again. In 1671, Sir Henry Morgan conquered Porto Bello, which had replaced Nombre de Dios as the main Atlantic port, and also destroyed the city of Panama. To temporarily prevent further aggression, the countries negotiated a treaty which included an article giving the King of England a right to retain forever "any part of America" then in possession of his subjects. This greatly increased Britain's log-cutting trade in Central America, and gained them an alliance with the Miskito Indians, who had been treated cruelly by the Spanish. The area where this tribe was located, between the San Juan River and Cape Honduras, became known as the Mosquito Coast.<sup>7</sup>

#### Initial Interest from America and France

Panama was in a state of decline in the eighteenth century. Although the city of Panama was rebuilt, it ceased to be the main trade route for Spanish treasure. Heavy taxes prevented trade with other colonies and discouraged industry and agriculture. Attacks from runaway slaves continued, and many colonists left for better climates. France made its initial survey of a potential

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<sup>6</sup>DuVal, Cadiz to Cathay, 7-8; Miller, The Isthmian Highway, 8; Core, Trails of Progress, 28, 82; Collins, The Panama Guide, 109; Biesanz, People of Panama, 28-29.

<sup>7</sup>Mary W. Williams, Anglo-American Isthmian Diplomacy, 1815-1915, (Washington, DC: American Historical Association, 1916), 4; DuVal, Cadiz to Cathay, 9, 12-13; Biesanz, People of Panama, 29-31.

canal in 1735, sending astronomer Charles Maire de la Condamine on a scientific expedition to Quito. Returning to France in 1740, Condamine said a canal at Nicaragua would be practical, but nothing was done.<sup>8</sup>

In the Treaty of 1763, Britain agreed to abolish its fortifications in the Honduras Bay area and most of the Spanish territories of Central America. However, with the help of the Indians, who had never been conquered by Spain, the British continued to control the Mosquito Coast, including the mouth of the San Juan River. British hostility in Central America caused Spain to help the colonists in the Revolutionary War, while continuing to fight for the Mosquito area. Under Captain Horatio Nelson, the British set sail from Jamaica and reached the San Juan River on 24 March 1780. They captured several Spanish outposts before tropical rains, fevers, and diseases took their toll on the men. After Britain was defeated in the American Revolution, Spain was determined to drive them out of the Mosquito Coast. On 14 July 1786, in a treaty signed at London, Britain agreed to get out of the Mosquito Coast. They kept their woodcutting area in Belize, but were not to engage in other businesses; however, they secretly continued to conduct business with the Miskitos.

American interest in the canal dates back to 1779, when diplomat Benjamin Franklin, while in France, received a letter from French peasant Pierre-Andre Gargaz, who was in prison at the time, asking Franklin to read his manuscript on building canals at Panama and Suez. The canals would reduce the global circumnavigation time from three years to ten months, and establish beneficial trade and money circulation between many different nations. Franklin was so impressed with the manuscript, entitled "A Project for Universal Peace," that when Gargaz was released from prison in 1781, Franklin printed and provided him with a desired number of copies for distribution in France. Thomas Jefferson, who succeeded Franklin as U.S. Minister in Paris, also read Gargaz's manuscript, along with other sources on canal plans. He wrote two letters to Spanish Minister William Carmichael in 1787 and 1788 expressing his interest in obtaining copies of the surveys and reports made on the Isthmus.<sup>9</sup>

#### Revival Under Humboldt

Fresh new interest in the canal was revived early in the nineteenth century by German explorer Alexander von Humboldt. Humboldt explored Spanish America from Peru to Mexico in the years 1799 to 1804. In his Political Essay on the Kingdom of New Spain, published in 1808, he criticized the Panama route, though he never saw it, because of its high mountains, and said that Nicaragua, with its vast water supply, would be the best route. At the end of his travels, Humboldt likely discussed the canal with President Jefferson, whom he visited at the White House

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<sup>8</sup>Biesanz, People of Panama, 32-33; DuVal, Cadiz to Cathay, 12.

<sup>9</sup>DuVal, Cadiz to Cathay, 13-19.

in 1804. His trip coincided with the journey of Lewis and Clark, whom Jefferson ordered to seek a northwest passage to the Pacific, a route Humboldt also strongly endorsed.

Spain's final chance for a canal came in 1814 when the government endorsed the Nicaraguan route and the formation of a company to start work. However, revolutionary movements by its colonies ended Spanish hopes for a canal. Spanish interest in the Isthmus ended in 1821 when Central America declared its independence. The Isthmian area united with Gran Colombia (later New Granada), led by president Simon Bolivar.<sup>10</sup>

Gran Colombia was interested in building a canal, and proposed Nicaragua and Panama projects with the U.S. in 1825 and 1826. Aaron Palmer of New York agreed to build a canal, but could not get the necessary funding. Bolivar tried to do the project himself, with assistance from French, British, and English engineers, but was unsuccessful. Gran Colombia disbanded in 1831, with New Granada retaining the rights to Panama. The Dutch failed in their only attempt to build a canal at this time as well.

American John Lloyd Stephens passed through Nicaragua in 1840 while exploring Mexico, and said Nicaragua would be the perfect place to build a canal, with a cost of \$25 million. He called it "an enchanting land of blue lakes and trade winds, towering volcanic mountains, rolling green savannas and grazing cattle."<sup>11</sup>

France became interested in the Panama route by way of the Chagres River in 1838, when New Granada granted the French firm of Augustin Salomon a contract to construct a road or canal across the Isthmus. Humboldt even wrote to Salomon in 1842, expressing his disappointment that a route had still not been firmly established. French engineer Napoleon Garella was sent to Panama for further study in 1843, and recommended an entrance at Limon Bay, again with a cost of \$25 million. While the survey was positive, the cost was too high, and New Granada canceled the contract. Mexico's government made investigations for the Tehuantepec route in 1824 and 1842, using combinations of a canal, carriage road, or railroad. But these plans failed, like all the others in the early half of the nineteenth century, either through lack of money, or lack of foresight by people in charge of the surveys.<sup>12</sup>

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<sup>10</sup>David McCullough, The Path Between the Seas: The Creation of the Panama Canal, 1870-1914, (New York: Simon and Schuster, 1977), 28-30; Stephen Wolff Frenkel, Cultural Imperialism and the Development of the Panama Canal Zone, 1912-1960, (Ann Arbor, Michigan: UMI Dissertation Services, 1995), 94; DuVal, Cadiz to Cathay, 21-23.

<sup>11</sup>McCullough, Path Between the Seas, 32.

<sup>12</sup>McCullough, Path Between the Seas, 30-32; DuVal, Cadiz to Cathay, 23-33.

## Gold and the Panama Railroad

The U.S. took the next initiative in the battle for the Isthmus under the administration of President James Polk. Polk's Minister to Central America, Benjamin Bidlack, negotiated a treaty on his own in 1846, in which New Granada guaranteed the U.S. exclusive right of transit across the Isthmus in exchange for New Granada's right of sovereignty there. The treaty was finally ratified in 1848.

Another incident occurred in 1848 that drastically changed the course of Panamanian as well as American history. Gold was discovered in California, and by 1849, thousands of men were crossing the Isthmus every year to seek their fortune. They found boiling heat and blinding rain. The Chagres was filled with heavy green slime, and the Las Cruces Trail was covered with mud. Huts were infested with bugs. Fever, cholera, and dysentery were common. Despite this, many were thrilled with the spectacle of the jungle and the brilliant green mountains. The distance saved by traveling from New York to San Francisco using the Isthmus instead of Cape Horn was eight thousand miles.<sup>13</sup>

The U.S. Congress selected a committee to travel to the Isthmus in 1849. They recommended construction of a railroad, with eventual plans for a canal. On 12 June, the Panama Railroad Company was founded under the direction of John Lloyd Stephens (who had earlier traveled to Nicaragua), William Henry Aspinwall, and Henry Chauncey. Construction began in 1850, and was finished in 1855 at a cost of \$8 million, six times higher than estimated. Almost six thousand workers died, including Stephens in 1852. But the first transcontinental railroad, at forty-seven and a half miles long, was an instant financial windfall. Profits in the first six years of operation exceeded \$7 million. At \$295 a share, the Panama Railroad was the highest-priced stock on the New York Exchange. Over 400,000 people used the railroad in the first ten years.<sup>14</sup>

The United States and England nearly went to war over the Nicaragua route. In 1848, Britain took San Juan Del Norte, at the mouth of the San Juan River, renaming it Greytown. The U.S. considered this a violation of the 1823 Monroe Doctrine, which considered any European expansion in the Western Hemisphere a threat to American safety and security. An 1850 treaty binding the two countries to joint control of any canal built in Central America averted the crisis. The Clayton-Bulwar Treaty was named after U.S. Secretary of State John Clayton and British envoy Sir Henry Lytton Bulwar.<sup>15</sup>

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<sup>13</sup>McCullough, Path Between the Seas, 34.

<sup>14</sup>McCullough, Path Between the Seas, 33-37; DuVal, Cadiz to Cathay, 35-39.

<sup>15</sup>McCullough, Path Between the Seas, 38; DuVal, Cadiz to Cathay, 61-62, 460-464.



## U.S. Progress Towards a Canal

The U.S. Senate on 19 March 1866 resolved the Secretary of the Navy to supply a study of all practical lines of ship canals over the Isthmus. Rear Admiral C.H. Davis reported that Darien was the site to be pursued. In 1869, General Ulysses Grant became President. He had traveled the Isthmus in 1852 while in the Army, and realized its value. Beginning with Navy Commander Thomas O. Selfridge, who led a survey to Darien, Grant ordered seven Central American expeditions between 1870 and 1875. In 1872, Grant appointed the first U.S. Isthmian Canal Commission, which recommended Nicaragua as the ideal route in 1876. Grant's successor, Rutherford B. Hayes, in an 8 March 1890 speech to Congress, declared "The policy of this country is a canal under American control. The United States cannot consent to the surrender of this control to any European power...."<sup>16</sup>

On 15 December 1884, Navy Secretary William E. Chandler ordered A.G. Menocal to survey Nicaragua. Menocal recommended a total of seven locks and a 169 mile canal. In 1887, the Nicaraguan government gave the Nicaragua Canal Commission of New York a concession to begin canal excavation. Two years later, the U.S. Congress incorporated the group with the Maritime Canal Company of Nicaragua. Construction began at Greytown on 8 June 1890. Despite initial success, funds were exhausted in three years, and the project was terminated.

Under Ferdinand de Lesseps, who played a large role in building the Suez Canal in 1869, France had begun building a canal at Panama in 1881. This project would fail by 1889, when the U.S. Senate passed a resolution that would look with disapproval on any European government trying to construct a canal across Central America.

With France out of the picture, Congress and President William McKinley continued investigating canal possibilities in Panama and Nicaragua. They also were involved in a diplomatic dispute with Great Britain over Isthmian territory. Secretary of State John Hay and British Ambassador Sir Julian Pauceforte signed a treaty in 1900 that gave the U.S. the right to construct, own, and operate, but not fortify, a canal. Rejected by Congress, Hay was forced to renegotiate the treaty. On 18 November 1901, a new Hay-Pauceforte Treaty was signed, which removed the constraints of the Clayton-Bulwar Treaty of 1850, and gave the U.S. full authority to defend and govern a canal.<sup>17</sup>

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<sup>16</sup>McCullough, Path Between the Seas, 19-20, 27; DuVal, Cadiz to Cathay, 71-75, 78-80; U.S. Senate, A Chronology of Events Relating to the Panama Canal: Prepared for the Committee on Foreign Relations, (Washington, D.C.: GPO, December 1977), 2, hereafter cited as U.S. Senate, Chronology.

<sup>17</sup>DuVal, Cadiz to Cathay, 83-85, 102, 107, 110-121, 465-467; McCullough, Path Between the Seas, 52-53, 131, 256-259; U.S. Senate, Chronology, 2; Logan Marshall, The

## Roosevelt and the Panamanian Revolution

In September 1901 McKinley was assassinated, and Theodore Roosevelt became President. To Roosevelt, the canal was indispensable, a vital path to the global destiny of the U.S. for the twentieth century. He saw the canal linking American commanding power on the Atlantic and Pacific Oceans. During the first Hay-Paueforte negotiations, while still Governor of New York, Roosevelt wrote to Hay expressing his concern that the treaty did not give the U.S. fortification rights, and that it violated the Monroe Doctrine. While the Isthmian Canal Commission recommended the Nicaragua route in November 1901, the French New Panama Canal company agreed to sell its assets for \$40 million, and the Commission changed its support to Panama two months later. In 1903, the U.S. signed the Hay-Herran Treaty, negotiated between Hay and Dr. Tomas Herran, Colombian Minister to the U.S., that would have granted the U.S. a 100-year lease on a zone of land ten miles wide to build a Panama Canal. But this treaty was rejected by the Colombian Senate, because it threatened Colombian sovereignty.<sup>18</sup>

Another way to ensure construction of the canal would be the establishment of an independent Panama. Dr. Manuel Amador Guerro and several associates were involved in plotting the course of a Panamanian Revolution. Amador had been elected President of the State of Panama in 1867, then was a doctor at the Santo Tomas Hospital in Panama City and for the Panama Railroad Company. He witnessed a number of revolutionary attempts in Colombia in the late 1800s, and perceived that Panama was ready to seek independence. French engineer Philippe Bunau-Varilla worked under de Lesseps and was a division leader in the French canal plan in the 1880s. He made it his lifelong goal to build a sea-level canal at Panama. By the early years of the new century, he was actively involved in Washington, DC diplomatic circles and was advocating an independent Panama.

On 3 November 1903, Panama declared its independence from Colombia. The American ship Nashville, along with United States forces on both sides of the Isthmus, acted to protect the Panama Railroad according to the 1846 Mallarino-Bidlack Treaty. Colombian troops at Colon were therefore prevented from reaching Panama City. With no intervention by Colombian troops, the revolution succeeded and three days later the United States formally recognized the new republic. On 18 November, the Hay-Bunau-Varilla Treaty granted the United States "in perpetuity the use, occupation, and control" of a ten-mile wide area of land across the Isthmus to construct and defend a canal, with "all the rights, power and authority within the zone...which the

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Story of the Panama Canal, (New York: L.T. Myers, 1913), 202.

<sup>18</sup>DuVal, Cadiz to Cathay, 116, 119-121, 148, 174-175, 468-481; McCullough, Path Between the Seas, 246-247, 250, 257, 269; U.S. Senate, Chronology, 2-3.

United States would possess and exercise if it were the sovereign of the territory."<sup>19</sup> The United States agreed to pay Panama \$10 million in compensation, and an annuity of \$250,000 per year after canal completion. No Panamanian signed this treaty.

After the Senate ratified the treaty in February 1904, Bunau-Varilla resigned as Minister Plenipotentiary to Panama and returned to France. For him, the treaty was especially gratifying. Along with Ohio Senator Mark Hanna, he had been the strongest advocate of the Panama route. Panama would be 134.5 miles shorter than Nicaragua; it would take less time, twelve hours to thirty-three, to pass through. It had better harbors, would require fewer locks, and would cost less. The majority of engineers supported Panama. There were also concerns about the presence of volcanos near the Nicaraguan route. These concerns finalized the decision to build at Panama in June 1902, which was further solidified by the Revolution.<sup>20</sup>

### Building the Canal

The French property on the Isthmus was officially turned over to the United States on 4 May 1904. The cities of Colon and Panama were in the Republic, but outside the Canal Zone (Figure 1). Rear Admiral John G. Walker, a retired Naval officer, was made chairman of the seven-member Isthmian Canal Commission appointed by President Roosevelt. This Federal agency was responsible for construction of the Panama Canal, reporting directly to the Secretary of War and the President of the United States. Major-General George Davis became Governor of the Canal Zone, John Wallace was Chief Engineer, and Dr. William Gorgas was Chief Sanitation Officer. The Commission did not work well together. On 1 April 1905, President Roosevelt directed the Commission Chairman, Chief Engineer, and Canal Zone Governor to constitute an executive committee. In July, Wallace resigned and was replaced by John Stevens. He was recommended by James T. Hill of Minnesota, whom he worked for as a railroad engineer in 1889.<sup>21</sup>

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<sup>19</sup>DuVal, Cadiz to Cathay, 124, 130-131, 138-140, 333-340, 482-492; McCullough, Path Between the Seas, 341-342, 371-377; U.S. Senate, Chronology, 3; Joseph Bucklin Bishop and Farnham Bishop, Goethals: Genius of the Panama Canal, (New York and London: Harper and Brothers Publishers, 1930), 117-119.

<sup>20</sup>DuVal, Cadiz to Cathay, 418-419; U.S. Senate, Chronology, 4; McCullough, Path Between the Seas, 322-324.

<sup>21</sup>McCullough, Path Between the Seas, 407, 421, 449, 457, 459; Suzanne Johnson, "An American Legacy in Panama: A Brief History of the Department of Defense Installations and Properties, The Former Canal Zone, Republic of Panama," (Corozal, Panama: Directorate of Engineering and Housing, United States Army Garrison-Panama, 1995), 12.

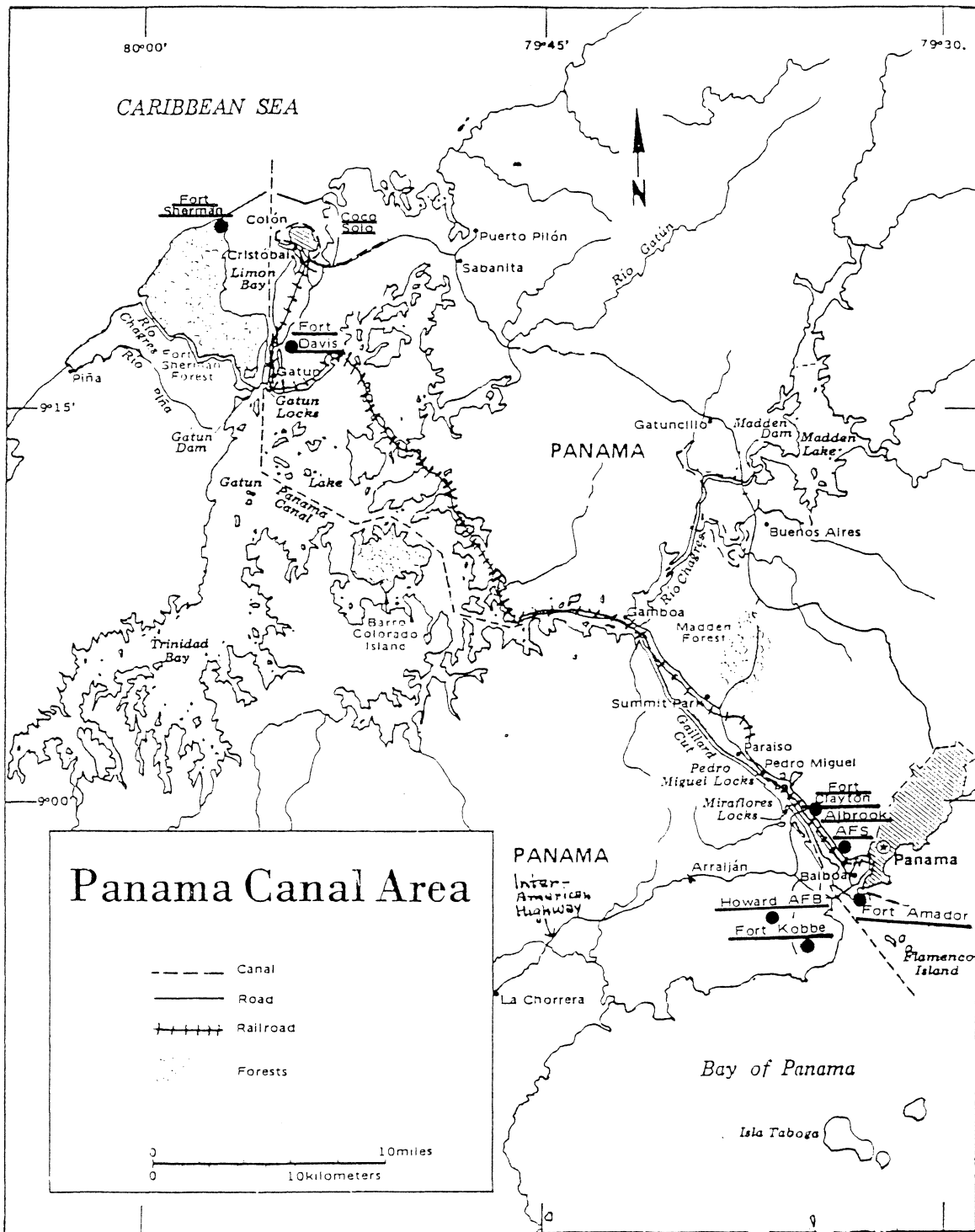


Figure 1. Source: Army Community Service, U.S. Army Garrison-Panama, Corozal, Republic of Panama.

Stevens moved the administration offices from Panama City to the Culebra Cut, where the largest excavation work was done. Under Wallace, working conditions had deteriorated, and Stevens' first task was cleaning up. He supported Gorgas, who believed yellow fever-carrying mosquitoes, could be eradicated through proper sanitation, by giving him four thousand workers and an unlimited budget for supplies. The cities of Panama and Colon were fumigated house by house, provided with running water, and streets were cleaned and paved. Entire new communities were established. The yellow fever epidemic was stopped by the end of 1905, but workers were still suffering and dying from malaria, pneumonia, tuberculosis, and intestinal diseases.

Once the yellow fever was contained, Stevens resumed construction. The Panama railroad was essential for transporting dirt, and he devised an elaborate double-tracking plan for dirt trains to be constantly moving in and out of the Culebra Cut. By the end of 1906, there were almost 24,000 workers. White Americans made up the bulk of the skilled laborers, averaging a salary of \$87 per month. Unskilled laborers, mostly Blacks from the Caribbean Islands, were paid ten cents an hour, and worked ten-hour days.<sup>22</sup>

The next decision was the type of canal to be built, sea-level or lock. The sea-level was originally planned, but Stevens was concerned that it would cost \$100 million dollars more and take three or four years longer to build. A lock passage would be wider and safer for ships. The lock proposal was recommended by the Commission in February, approved by the President, and approved by Congress in June. There would be a dam for the Chagres River built at Gatun, nearly a mile and a half long and over a hundred feet high. The lake would be eighty-five feet high. A ship would enter three locks built at the east end of the dam, elevate to the level of the lake, travel twenty-three miles across the lake, then nine miles through the Culebra Cut. At Pedro Miguel there would be a lock and small dam. The ship would be lowered thirty-one feet to a small lake, pass through two locks at La Boca, return to sea-level and head into the Pacific Ocean. With the creation of a Gatun Lake, 164 square miles of jungle would be under water, and a new railroad would have to be built.<sup>23</sup>

In November 1906, Roosevelt went to Panama, becoming the first sitting president to leave the United States. At this time 6,000 Americans were working in the Zone. Roosevelt was impressed by progress on the Culebra Cut, in health and sanitation. Although he went in the rainy season, he admired the natural beauty of the tropical land. After his return, he wrote the "Special Message Concerning the Panama Canal" to Congress, including photographs and sketches, and urged the country to take notice. "It is a stupendous work upon which our fellow countrymen are

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<sup>22</sup>Bishop and Bishop, Goethals, 125-128; McCullough, Path Between the Seas, 448, 457-473, 480.

<sup>23</sup>McCullough, Path Between the Seas, 483-489.

engaged in down there on the Isthmus," he said. "No man can see these young, vigorous men energetically doing their duty without a thrill of pride..."<sup>24</sup>

However, by February 1907, within a few weeks of each other, Stevens and Commission Chairman Theodore Shonts resigned. Secretary of War William Howard Taft recommended Major (soon to be Lieutenant Colonel) George Washington Goethals to replace Stevens. He was officially approved on 18 February 1907 and given complete authority. Goethals came from West Point and the Corps of Engineers, where he was assistant to the Chief of Engineers, and became a member of the General Staff under Secretary Elihu Root in 1903.

By the end of his first year, several important engineering changes has been made. The bottom of the channel of the Culebra Cut was widened from two hundred to three hundred feet. The lock chambers were enlarged from 95 to 110 feet. A breakwater was planned for the Pacific side to prevent mud from clogging entrance to the Canal. The dam and second set of locks were pulled from Sosa Hill and moved to Miraflores, farther away from the Pacific. The Pacific locks would then be better prepared for a sea attack. Goethals had chiefs running three geographic units, the Atlantic, Central, and Pacific Divisions. He estimated the new railroad would take five years and cost \$9 million. Lieutenant Colonel Harry Foote Hodges was in charge of designing the locks, and was Goethals' second-in-command.<sup>25</sup>

The struggle to dig the Culebra Cut lasted seven years. The most difficult setbacks were the mudslides, particularly at Cucaracha on the east bank. In October 1907, after heavy rains, an avalanche deposited 500,000 cubic yards of mud in the canal. After 1911, when the Cut was deeper and rock formations became unstable, slides were more frequent. Shovels, trains, tracks, and cars would be completely buried. In 1912, four and a half months were spent removing slides. Thirty buildings from the town of Culebra had to be moved back. The uppermost portions of the Cut were dug at an angle to help decrease the pressure. The workers referred to the Cut as "Hell's Gorge."<sup>26</sup>

Work on the locks began in 1909 and took about four years. The bases of the lock chambers were concrete, with steel gates. The walls were a thousand feet long and eighty feet high. Six pairs of chambers were built (to handle two lanes of traffic). Gates were opened and closed by steel struts connected to "bull wheels" twenty feet in diameter, which were geared to an electric motor. The locks were controlled by a central control board.

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<sup>24</sup>Ibid., 492-493, 498-500.

<sup>25</sup>Bishop and Bishop, Goethals, 137-141, 153-156, 193, 204, 211-12; McCullough, Path Between the Seas, 503-511, 539-543.

<sup>26</sup>McCullough, Path Between the Seas, 549-554; Bishop and Bishop, Goethals, 207-209.

By the summer of 1913, the locks and the Cut were finished. On 26 September at Gatun, water was first turned into the locks. On 10 October, President Woodrow Wilson pressed a button in Washington that carried to Panama to blow up the Gamboa Dike and fill the Culebra Cut. This act also marked the final stage in the creation of Lake Gatun, the largest man-made lake at that time. In 1914, Wilson disbanded the Isthmian Canal Commission, and named Goethals the first Governor of The Panama Canal. The position of Governor was the head of a civilian agency, but the governor was always a military man, most often from the Army Corps of Engineers. On 15 August, in a small ceremony, the Canal opened when the ship Ancon successfully passed through.<sup>27</sup>

From 1904 to its opening, the Canal had cost \$352 million, and 5,609 workers died. The United States also agreed to pay Colombia \$25 million over disputes from the Panama Revolution, and allowed certain Colombian ships free transit. Normal tolls for the Canal were ninety cents per cargo ton. In September of 1915, an avalanche in the Culebra Cut (renamed the Gaillard Cut after David Gaillard, who served as Chief of the Central Division under Goethals) closed the Canal for seven months. World War I in Europe dampened enthusiasm for the Canal in the first few years, but by 1924, the Canal was handling more than five thousand ships per year. Its creation has to be considered one of mankind's greatest accomplishments.<sup>28</sup>

#### Construction for Canal Zone Communities

From the beginning of the Canal project, ancillary construction was necessary to provide for the social and business needs of the enterprise. Housing, offices, health care facilities, recreational facilities, retail establishments, public safety; all aspects of life represented some need for shelter. The Federal agency responsible for construction of the Canal also provided for the building needs. During construction of the Canal, this agency was the Isthmian Canal Commission. Upon completion of the Canal in 1914, this agency was disbanded and The Panama Canal was created to operate and maintain the Canal and administer the Canal Zone. In 1951, the agency was reorganized as the Panama Canal Company, and remained as such until the Panama Canal Treaty of 1977. Upon treaty implementation, the Panama Canal Company was disestablished and replaced by the Panama Canal Commission, a joint U.S.-Panamanian agency. This administrative body will remain in place until the end of the U.S. presence in Panama on 31 December 1999.

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<sup>27</sup>McCullough, Path Between the Seas, 594-599, 604-609; Bishop and Bishop, Goethals, 260-264; Herbert and Mary Knapp, Red, White, and Blue Paradise: The American Canal Zone in Panama, (San Diego, CA: Harcourt Brace Jovanovich, Publishers, 1984), 124; Mack, The Land Divided, 513; U.S. Senate, Chronology, 5.

<sup>28</sup>McCullough, Path Between the Seas, 610-614; Bishop and Bishop, Goethals, 267-268; U.S. Senate, Chronology, 5.

Chief Engineer John F. Wallace established the first ICC architectural department 23 July 1904, with M. O. Johnson as Chief Architect.<sup>29</sup> Johnson died of yellow fever in the spring of 1905, and A. M. Burt became the supervising architect and head of the Bureau of Architecture and Building, with P. O. Wright as assistant supervising architect.<sup>30</sup> In September 1906, the name was changed to the Division of Building Construction.<sup>31</sup> On 1 August 1908, the Division of Building Construction was abolished, and its duties and personnel were reassigned to the Division of Engineers and the Chief Quartermaster. The drafting staff were transferred to the Chief Engineer's office.<sup>32</sup> It was during this early period that the majority of temporary quarters were designed and constructed, being designated as "type houses." By 1907, there were twenty-two different types ranging from a 1-story, 1-family married quarters to a 2-story, 24-room bachelor quarters.<sup>33</sup>

Every aspect of life for the employees of the ICC (and the later administrative organizations) was defined by their status. A system of racial discrimination prevailed which recognized two main classes of employees based upon the standard used for their pay. "Gold" employees were skilled workers and almost always white Americans. "Silver" employees provided unskilled labor and were predominantly black West Indians. These distinctions effectively segregated the work force and their families. In some cases separate, but definitely not equal, facilities were built for both groups, and separate waiting lines were established for shopping. Hospital wards were separated by race, and the children of "gold" and "silver" employees went to different schools. The "silver" construction towns provided crude, common barracks and mess facilities for workers, as well as a few family quarters. As a result, the majority of "silver" married workers had to rely upon renting tenements in Colon or Panama City, or simply setting up slums in the jungle with scavenged materials. "Gold" towns possessed housing specifically designed to be comfortable and equipped to withstand the tropical conditions. These towns were also equipped with clubhouses,

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<sup>29</sup>Canal Record, 11 December 1907, 117; McCullough, Path Between the Seas, 449.

<sup>30</sup>Isthmian Canal Commission, Annual Report of the Isthmian Canal Commission for the Year Ending December 1, 1905, (Washington, D.C.: GPO, 1905), 147; McCullough, Path Between the Seas, 451.

<sup>31</sup>Isthmian Canal Commission, Annual Report of the Isthmian Canal Commission for the Year Ending December 1, 1906, (Washington, D.C.: GPO, 1906) 99.

<sup>32</sup>Canal Record, 22 July 1908, 375.

<sup>33</sup>"Type Houses," January 1907, File 13-A-8, Part 1, General Records 1914-34, Records of The Panama Canal, 1914-1950, Record Group 185, National Archives, Washington, DC.



bandstands, hotels, ballparks, Y.M.C.A.s and churches.<sup>34</sup> The full range of ancillary structures required to support the creation of the Panama Canal was enormous. In 1908, for example, the Annual Report contains this accounting:<sup>35</sup>

Among the more important items of construction performed by this division [Building Division] during the year are the following: 33 hospital buildings, 37 storehouses, 7 fire department buildings, 9 laborers' bath houses, 26 laborers' range closets, 6 fumigation houses, 5 corrals, 9 schoolhouses, 5 commissaries, 1 clubhouse, 4 post-offices, 9 office buildings, 2 lodge halls, 18 standard laborers' barracks, 5 band stands, 2 Gallego mess halls, 5 hotels, 4 jails, 8 powder and detonator houses, 4 markets, 35 shop buildings, 8 laborers' washhouses, 3 bridges, and 200 type quarters for "gold" employees.

Sanitary guidelines and climate considerations were incorporated into the design of Canal Zone structures from the beginning, especially the facilities constructed for the "gold" employees. "The French plans and buildings furnished some valuable features of tropical architecture. These were fully appreciated by the Architectural Department, and were later incorporated in the design of buildings erected by the Commission."<sup>36</sup> It was decided that a style of architecture was needed where all buildings were constructed of wood with "plenty of openings for ventilation; and every opening, including verandas, must be provided with fine copper screening in order to, just as far as practicable, exclude all mosquitos."<sup>37</sup>

Required building materials had to stand shipment from the States with little or no damage. Wood and concrete became the main structural components, with corrugated, galvanized iron for roofing. Concrete footings supported wood foundation posts raising the structures off the ground. Walls were wooden, often with exposed studs on the interior, as empty space between the walls created by an interior sheathing provided a breeding ground for rats.

Where available, the houses were connected to sewer and electric lines. The need for electricity was perhaps higher than in a more temperate environment, because of the problems with mold engendered by the tropics. Typical closets provided an ideal environment for the growth of mold,

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<sup>34</sup>McCullough, Path Between the Seas, 472, 478, 576; Stephen Frenkel, "Geography, Empire, and Environmental Determinism," Geographical Review 82, (April 1992): 147-148.

<sup>35</sup>Isthmian Canal Commission, Annual Report of the Isthmian Canal Commission for the Year Ended June 30, 1908, (Washington, D.C.: GPO, 1909), 93.

<sup>36</sup>Canal Record, 11 December 1907, 117.

<sup>37</sup>Isthmian Canal Commission, Annual Report, 1906, 100-101.

so the "better class" of houses included a "dry room" which could be closed up tightly and in which an electric bulb burned continuously. This problem continued until air conditioning was installed between 1957 and 1960. According to a longtime Canal resident, "...if you left your shoes under the bed for a couple of days, they sprouted beards of mold. Shoes had to be kept in 'dry closets' where light bulbs burned day and night. Light bulbs burned inside 'dry cupboards,' too, and hung on extension cords inside pianos."<sup>38</sup>

This construction camp style of architecture was to predominate almost exclusively until permanent communities were begun after completion of the Canal. This style was arrived at through efforts to develop sanitary and comfortable housing, and presented a distinctive appearance. Arriving in the construction town of Culebra in 1907, Mrs. Gaillard described the upper echelon housing as "...an enormous cube, entirely enclosed in wire screening and lifted high on spindling foundations."<sup>39</sup> The grouping of houses, bare of screening foliage due to mosquito eradication efforts, caused her to remark on these "...houses as queer and ungainly as ours which stood here and there on the hillside like gargantuan bird cages!"<sup>40</sup>

As Canal construction drew to a close, the ICC began to plan for the communities necessary to permanently house and maintain the operating work force. In 1912, the ICC hired Mr. Austin W. Lord of New York to direct the design aspects of the permanent construction. At that time, Mr. Lord was the senior member of the firm Lord, Hewlett, and Tallant concurrent with being head of the Architecture Department at Columbia University. Mr. Lord spent part of July and August 1912 on the Isthmus studying local conditions and meeting with Canal officials. It was decided to present a unified scheme where all permanent buildings would be of the same style.<sup>41</sup>

Mr. Mario J. Schiavoni was hired as Mr. Lord's assistant on the Isthmus. General drawings were produced in the New York office, and working drawings were completed in Panama. Mr. Lord's plans were primarily focused on the Administration Building and the planned "gold" town of Balboa. Among the plans prepared by his office were official and permanent quarters, a post office, schoolhouse, hotel, social hall, fire and police stations, dispensary, church, telephone

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<sup>38</sup>Knapp and Knapp, Red, White, and Blue Paradise, 42.

<sup>39</sup>Katherine Gaillard, manuscript, published as "Katherine Gaillard writes of Canal construction days, part 2: first impressions," Panama Canal Spillway, n.d.

<sup>40</sup>Ibid.

<sup>41</sup>Canal Record, 7 August 1912, 397.

building, clubhouse, and commissary store. Landscape architect William L. Phillips was responsible for permanent townsites, streets, parks, and other necessary features.<sup>42</sup>

This organization continued until August 1913, when the arrangement with Mr. Lord ended and Mr. Schiavoni was placed in charge of the designs for the primary company town of Balboa.<sup>43</sup> Mr. Schiavoni resigned on 5 December 1913, and was succeeded by Mr. Samuel M. Hitt as architect.<sup>44</sup> The buildings they designed had to meet sanitary regulations such as being "rat proof" and well-screened. For durability and economic concerns, it was decided to construct them from reinforced concrete with clay tile roofs.<sup>45</sup> This red and white color scheme, along with the common design elements of large screened porches, numerous windows, and some restrained Mediterranean, Spanish Colonial Revival or Mission stylistic devices provide a continuity of appearance from one end of the Canal to the other.

### Fortifying the Canal

The Hay-Paueforte and Hay-Bunau-Varilla treaties implied but did not specifically give the United States the right to fortify the Canal Zone. Central to America's decision to fortify was Article Three of the Hay-Bunau-Varilla treaty, which gave the United States all powers, rights, and authority in the Zone. Panama protested in 1904 when the United States government used this sovereignty in establishing ports of entry, customhouses, tariffs, and post offices in the Zone. An amendment giving some concessions to Panama in those areas was made after Secretary of War Taft, George Goethals, and other Army leaders visited the Isthmus in November 1904 to determine questions relating to possible fortifications. The amendment was supposed to be in

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<sup>42</sup>Canal Record, 7 August 1912, 397; Isthmian Canal Commission, Annual Report of the Isthmian Canal Commission for the Year Ended June 30, 1913, (Washington, D.C.: GPO, 1913), 21; Canal Record, 18 June 1913, 361.

<sup>43</sup>U.S. Senate, Panama Canal: Message From the President of the United States Transmitting a Report by the Commission of Fine Arts in Relation to the Artistic Structure of the Panama Canal, 63rd Cong., 1st sess., 1913, S. Doc. 146, 13.

<sup>44</sup>Isthmian Canal Commission, Annual Report of the Isthmian Canal Commission and The Panama Canal for the Fiscal Year Ended June 30, 1914, (Washington, D.C.: GPO, 1914), 311.

<sup>45</sup>The Panama Canal, Annual Report of the Governor of the Panama Canal for the Fiscal Year Ended June 30, 1915, (Washington, D.C.: GPO, 1915), 32, 62.; Canal Record, 18 June 1913, 361; The Panama Canal, Annual Report of the Governor of the Panama Canal for the Fiscal Year Ended June 30, 1916, (Washington, D.C.: GPO, 1916), 285; Johnson, "An American Legacy in Panama," 20.

effect only during the construction period, but it lasted until 1924, and efforts for a new treaty were unsuccessful.

The debate over Canal fortification continued until 1911, when the House of Representatives made a \$2 million appropriation for that purpose. The following year, they added \$1 million for gun and mortar batteries and \$200,000 for land defenses. Construction began on 7 August 1911 under Sydney Williamson, Goethals' Chief of the Pacific Division, and on 1 January 1912, Goethals' son, Lieutenant George R. Goethals, was put in charge of fortification work. The no longer needed construction towns of Empire and Culebra were used for the Army garrisons. There were large forts with gun batteries built at each end of the Canal, with field work for six thousand mobile force troops (infantry, cavalry, engineer, signal, and field artillery). The work of The Panama Canal staff increased significantly with the 1915 military appropriation of \$1,290,000, and subsequent assignment of Army barracks and quarters construction. All design and construction work for Army post buildings was assigned to The Panama Canal. Much of the early quarters construction undertaken by The Panama Canal for the Army utilized existing "type house" designs. By June 1915, almost \$15 million had been spent on fortifying the Canal, including the locks and dams. Military reservations were officially designated on 18 September 1917 as Fort Grant, Fort Amador, Fort Sherman, Fort Randolph, and Fort de Lesseps.<sup>46</sup> That same year The Panama Canal designers were asked "...to furnish preliminary plans and estimates for cantonment construction for Army troops and for the proposed permanent posts for mobile troops on the Canal Zone."<sup>47</sup>

This request developed from the investigation and findings of an Army Board of Officers convened to recommend post locations for the troops in the Canal Zone, and to recommend the type and character of buildings required. The Board members represented the Infantry, Engineer Corps, Cavalry, Medical Corps, and Field Artillery. In their report, dated 28 August 1917, the Board recommended placing one brigade of infantry at Gatun, and all other mobile force troops on the Pacific side. There, they supported the location of one infantry brigade at Miraflores Dump, another adjacent to the Curundu River, and one artillery brigade and one cavalry regiment south of the Diablo Ridge. Corozal was the location recommended for the sanitary troops, the

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<sup>46</sup>Marshall, Story of the Panama Canal, 202-203; Bishop and Bishop, Goethals, 132, 221; Mack, The Land Divided, 512-513; Frederic J. Haskin, The Panama Canal, (Garden City, NY: Doubleday, Page & Company, 1913), 283-284; The Panama Canal, Annual Report 1915, 31-32; George M. Wells, Resident Engineer, The Panama Canal to Governor, The Panama Canal, January 27, 1916, File 13-U-2/25, Part 2, January 1, 1916-April 30, 1934, General Records 1914-34, Records of The Panama Canal, 1914-1950, Record Group 185, National Archives, Washington, DC.

<sup>47</sup>The Panama Canal, Annual Report of the Governor of The Panama Canal for the Fiscal Year Ended June 30, 1917, (Washington, D.C.: GPO, 1917), 75.

Signal Corps troops, and the Engineer regiment, as well as for the main supply depot site. Quarry Heights (created on the site of the former Ancon Quarry) would serve as department and division headquarters.<sup>48</sup>

The placement of troops on the Isthmus did not wait for the construction of military reservations. As early as 1903, there was a Marine detachment present which kept the Panama Railroad open during the revolution. This detachment remained until January 1914, and at the end consisted of 12 officers and 375 enlisted men. The first permanent Army troops (Tenth Infantry) arrived in October 1911 and were stationed at Camp E. S. Otis in Empire. Three companies of the Coast Artillery Corps arrived on the Isthmus September 1914 and were in temporary quarters at Fort Amador and Fort Sherman by November. That same month the Fifth Infantry arrived with several members of the Medical Corps and the Quartermaster Corps, and the regiment was quartered at Empire. Continued arrivals placed the troop strength on the Canal Zone at approximately 5,000 when the United States entered World War I.<sup>49</sup> Authority over the Panama Canal and the Canal Zone was transferred from the Canal Zone Governor to the commanding general of the U.S. Army forces in the Canal Zone by President Woodrow Wilson in a 9 April 1917 Executive Order.<sup>50</sup> An additional Executive Order was used to proclaim the neutrality of the Canal on 23 May 1917.<sup>51</sup>

A consolidated command called United States Troops, Panama Canal Zone had been put into place on 6 January 1915 under Brig. Gen. C. R. Edwards, as part of the Eastern Department. Initially located at Ancon, the headquarters were moved to Quarry Heights in 1916. A separate geographical department was created 1 July 1917 and named the Panama Canal Department of the United States Army. Also headquartered at Quarry Heights, the Department was first

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<sup>48</sup>Board of Officers to Brigadier General A. Cronkhite, U.S.A., August 28, 1917, File 13-U-2/25, Part 2, January 1, 1916-April 30, 1934, General Records 1914-34, Records of The Panama Canal, 1914-1950, Record Group 185, National Archives, Washington, DC.

<sup>49</sup>"The Army and Navy: The military and naval activities on the Canal Zone are important elements of the Canal enterprise," in Panama Canal: Twenty-Fifth Anniversary, 1914-1939, (Mount Hope, Canal Zone: The Panama Canal Press, 1939), 93-94.

<sup>50</sup>Dolores De Mena, "History of the United States Army in the Panama Canal Area," Unpublished manuscript, USARSO History Office, Ft. Clayton, Panama, 1994, 4.

<sup>51</sup>Canal Record, 13 June 1917, 515.

commanded by Brigadier General Cronkhite.<sup>52</sup> The war passed quietly enough in the Canal Zone, and control of the Canal was returned to the Governor at the war's end.

For the Panama Canal Department, the inter-war years provided an opportunity to increase defensive strength by creating permanent posts and upgrading defenses against the growing threat of air attack. By late 1920, the Army aviation base of France Field, and the infantry bases of Fort Clayton (Pacific) and Fort Davis (Atlantic) were in place and manned. A Pacific side air field (Albrook Field) was constructed in 1931.<sup>53</sup>

When Canal defense requirements were first considered, the threat to be countered was primarily a naval one. Armament and fortifications were planned to repel a frontal naval assault and landing. As aviation technology developed, aerial attacks were perceived as a growing threat, and steps were taken to counteract it. The Army Air Service in the Canal Zone was implemented to "gain and maintain sufficient air superiority to secure the Canal and its accessories against an air attack, to observe fire for the Coast and Field Artillery, to cooperate with the Infantry, to attack any enemy land or naval forces and to cooperate with the Navy in the execution of its mission."<sup>54</sup> From an initial complement in March 1917 of 2 officers, 51 enlisted men and 2 Curtis R-4 planes, the air defenses of the Panama Canal Department were expanded in the inter-war period. France Field was constructed near the Atlantic terminus city of Colon and by 1925 was staffed with 38 planes, 57 officers and 623 enlisted men.<sup>55</sup> This same year saw the Coast Artillery District abolished and Coast Defense units organized into regiments with separate anti-aircraft batteries.

In 1932, the Department was divided into Atlantic and Pacific sectors. The Atlantic Sector contained France Field and Forts Sherman, Randolph, Davis, and de Lesseps, while Forts Amador, Clayton, and Kobbe, Albrook Field, the Post of Corozal, and the Panama Air Depot were located in the Pacific Sector.<sup>56</sup> Headquarters remained at Quarry Heights. In January

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<sup>52</sup> "The Army and Navy," 94; John R. Baldwin, "History of the Panama Canal Department," Infantry Journal 26 (April 1925): 367-368; De Mena, "History of the United States Army in the Panama Canal Area," 4.

<sup>53</sup>Baldwin, "History of the Panama Canal Department," 369; De Mena, "History of the United States Army in the Panama Canal Area," 4-6.

<sup>54</sup>T. S. Voss, "The Army Air Service," Infantry Journal 26, (April 1925): 417.

<sup>55</sup>Ibid.

<sup>56</sup>Panama Canal Department Historical Section, History of the Panama Canal Department, vol. 1, Introduction and Historical Background 1903-1939 (n.p., 1949), 48; "The Army and Navy," 94.

1934, the Department consisted of 419 officers and 8,884 enlisted men. This manpower level was considered to be restrictive, and by 1936 enlisted strength had increased to 12,990.<sup>57</sup>

Diplomatic issues continued to be negotiated between Panama and the United States. The Hull-Alfaro Treaty, signed on 2 March 1936, helped settle differences over the devaluing Panama dollar and the Canal annuity payments. It guaranteed joint action and consultation between the countries in times of emergency. The United States also gave up the right to intervene in Panama to maintain public order. After debate in the United States that it did not adequately protect American interests in the area, the Senate ratified it three years later.<sup>58</sup>

As World War II broke out in Europe, efforts were underway in the Canal Zone to heighten defenses. One of these efforts had both defensive and economic justifications. The original Canal designers were aware that transit capacity would need to be increased in the future, both in the size and number of ships able to transit at any one time. After several years of military and civilian study, Congress authorized the construction of an additional set of locks in 1939. Known as the "third locks project," new, larger locks would be constructed near the existing ones at Gatun, Pedro Miguel, and Miraflores to increase capacity. For defense purposes, they would be built some distance away (1,500 to 3,000 feet) and connected to the existing locks by approach channels. An initial appropriation of \$15,000,000 was made through the War Department Civil Appropriations Act of 1941. The total cost was estimated at \$277,000,000. A Special Engineering Division of the Department of Operation and Maintenance was created to handle the work in close cooperation with existing Panama Canal organizations. Canal forces had been producing plans for the design and construction and selecting potential key employees in the United States since the 1939 authorization. Among the first orders of business were three new construction towns (Caecal, Diablo Heights, and Margarita) for the estimated 6,300 employees and dependants associated with the project.<sup>59</sup>

Excavation at the Pacific end of what would be the approach channel to the new Miraflores lock was begun on July 1, 1940. The new locks were designed to be used by the 58,000 ton *Montana* class battleships on order for the Navy. As the threat of war heated up, this consideration soon

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<sup>57</sup>Panama Canal Department, vol. 1, Introduction and Historical Background 1903-1939, 49-50.

<sup>58</sup>U.S. Senate, Background Documents Relating to the Panama Canal, Committee on Foreign Relations, (Washington, D.C.: GPO, 1977), 972-975, hereafter cited as U.S. Senate, Background Documents; U.S. Senate, Chronology, 4-5.

<sup>59</sup>The Panama Canal, The Third Locks Project, (Canal Zone, Panama: The Panama Canal, 1941), 1-4; John Hannaman, interview by Susan Enscoe, 8 February 1994, Directorate of Engineering and Housing Office, Corozal, Panama.

outweighed those of commerce. Upon the United States' entry into the war, continuation of the project was uncertain. There was strong Navy support for completing the project as soon as possible to accommodate the warships due in late 1945. Through a series of meetings held in January 1942, the War Department decided to accept the Navy position and to press for rapid completion. Some military officers, however, felt the extra locks only provided another target for air attack. Several months later circumstances changed when the Navy indefinitely postponed the battleship construction program. As a result of these factors, the War Department, the Navy, and the President all concurred in a decision to halt almost all work on the third locks, effectively canceling the project.<sup>60</sup>

As World War II approached, Canal Zone Army installations were reinforced by increasing the troop strength in Panama from 13,451 in 1939 to 31,400 by the time of the United States' entry in December 1941. Housing these reinforcements constituted only part of a large construction program, however, as some troops arrived before construction had begun, housing was given the highest priority. Congress appropriated \$50,000,000 in June 1939. Subsequent contract discussions delayed calls for bids until March 1940. In the meantime, soldiers cleared vegetation, prepared sites and even put in footings. Once begun, actual construction was swift, as it was essential to get men and materiel out of tents and into buildings as quickly as possible. Even so, the job was tremendous and every available soldier was detailed to some aspect of construction. There was a severe shortage of civilian labor due to the competing demand for workers on the Third Locks project, and the additional labor force required only increased the ongoing housing shortage.<sup>61</sup> Due to the severe time constraints, much of the new construction was of a temporary nature. Commonly, this resulted in the use of existing building plans, but the substitution of readily available, less expensive, and less labor-intensive construction materials. Designs were stripped down to the essentials, and all ornamental details were eliminated. Temporary structures were less durable, and were often meant to be easily disassembled and re-erected elsewhere.

Emergency measures were initiated in the last days of August 1939, and in addition to troop build-up, included anti-sabotage measures and a change of Canal authority. The Army garrison was given the mission of "protecting the Canal against sabotage and of defending it from positions

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<sup>60</sup>Stetson Conn, Rose C. Engelman, and Byron Fairchild, The Western Hemisphere: Guarding the United States and Its Outposts, vol. 12 of United States Army in World War II, ed. Stetson Conn (Washington, D.C.: GPO, 1964), 319-321.

<sup>61</sup>Susan Harp, "Panama Canal Defense Vital During Second World War," Panama Canal Spillway, 2 July 1993; Conn, Engelman, and Fairchild, Guarding the United States and Its Outposts, 309; Panama Canal Department Historical Section, History of the Panama Canal Department, vol. 2, Preparation for War 1939-1941 (n.p., 1949), 53, 67.



within the Canal Zone."<sup>62</sup> The Navy was tasked to provide offshore defense, provide armed guards for ships transiting the Canal, and maintain a harbor patrol at both ends of the Canal.<sup>63</sup> As early as 5 September 1939, an Executive Order was issued transferring jurisdiction and authority over the Canal and the Canal Zone to the Army's Panama Canal Department.<sup>64</sup> Eventually, photography of Canal installations was banned for the duration, mines were placed at both entrances to the Canal, low altitude barrage balloons were placed over the locks with anti-submarine and torpedo nets placed in front of the locks, and chemical smoke pots were positioned throughout a sixty square mile area. The massive guns and batteries on military installations at either end of the Canal were prepared for use. The 6 to 16 inch guns were housed in 11 Atlantic and 12 Pacific batteries, and had a range up to 25 miles. To protect against air attack, anti-aircraft batteries were put in place across the Zone and two anti-aircraft detachments were sent in September 1939. Two long range radar stations were also established that autumn. The main runway at Albrook Field was improved to allow deployment of the more modern bombers which had arrived in June 1939. Military dependants were evacuated to the United States by October 1941.<sup>65</sup>

Also around 1939, the Panama Canal Department commander began an effort to secure additional defense sites outside the Canal Zone in the Republic of Panama, primarily for airfields. Dozens of sites were eventually requested, but action on this request ran into diplomatic trouble between the United States and Panama. The primary problems were leasing versus buying the sites, and the limits of United States defense authority as defined in the as yet unratified 1936 Hull-Alfaro Treaty. The Treaty was finally ratified on 17 April 1939, and negotiations continued for the additional defense sites even as funding was allocated to lease them from the Panamanian government. An agreement was reached on 21 March 1941 to allow United States forces to acquire sites and begin use before final formal approval. On 18 May 1942, the two countries signed the Defense Sites Agreement, in which the United States would build 134 bases leased from Panama to use until one year after the end of the war.<sup>66</sup>

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<sup>62</sup>Conn, Engelman, and Fairchild, Guarding the United States and Its Outposts, 302.

<sup>63</sup>Ibid., 302-303.

<sup>64</sup>Harp, "Panama Canal Defense Vital During Second World War," 2 July 1993.

<sup>65</sup>Harp, "Panama Canal Defense Vital During Second World War," 2 July 1993 and 5 November 1993; Conn, Engelman, and Fairchild, Guarding the United States and Its Outposts, 304, 310-316.

<sup>66</sup>Conn, Engelman, and Fairchild, Guarding the United States and Its Outposts, 306-309, 344-348.

In 1941, a major command reorganization was precipitated by the United States' taking into protective custody the British possessions (and prospective base sites) of Jamaica, Antigua, St. Lucia, Trinidad, and British Guiana. To administer these new bases, and to quell issues of command extent between the various Army and Navy forces in the area, a theater command was established. The Caribbean Defense Command was officially activated on 10 February 1941, under the command of General Daniel Van Voorhis, then the commander of the Panama Canal Department. The Caribbean Defense Command was initially set up as strictly Army, and coordination with Navy operations was by "mutual cooperation." A separate command, the Caribbean Air Force, was established for air defense about the same time. General Frank M. Andrews succeeded General Van Voorhis in August 1941.<sup>67</sup>

The Army and Navy personnel in Panama had been on full alert since midsummer 1941. The first immediate effects of the United States' December entry into the war were ones of command structure and reinforcements. The first order of business was to create a unified command through which the Army and Navy could be coordinated. President Roosevelt placed the Army in charge of the Panama sector, and the Navy in charge of the more distant Caribbean Coastal Frontier on 12 December. General Andrews thus became commander of the Army and Navy on 18 December.<sup>68</sup> Both air and ground forces were heavily augmented over the next two months, with the Panama garrison strength reaching 39,000 by the end of December, and rising to 47,600 by the end of January 1942.<sup>69</sup>

For those living and working in the Canal Zone, World War II was "a time of perceived danger during which the movement of materiel, troops and supplies through the waterway was a critical part of the war effort."<sup>70</sup> While Panama and the Canal both escaped enemy attack, a damaging U-boat campaign was carried out against shipping in the Caribbean. From February through December 1942, some 270 ships in the area had been sunk by U-boats.<sup>71</sup> Caribbean Defense Command peak strength of 119,000 was reached in December 1942. Of these, over half were

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<sup>67</sup>Ibid., 327-335.

<sup>68</sup> Conn, Engelman, and Fairchild, Guarding the United States and Its Outposts, 409-412; Panama Canal Department Historical Section, History of the Panama Canal Department, vol. 3, The War Period 1941-1945, (n.p., 1949), 1-3.

<sup>69</sup>Conn, Engelman, and Fairchild, Guarding the United States and Its Outposts, 412.

<sup>70</sup>Harp, "Panama Canal Defense Vital During Second World War," 2 July 1993.

<sup>71</sup>Conn, Engelman, and Fairchild, Guarding the United States and Its Outposts, 424.

stationed in Panama to protect the Canal from attack or sabotage.<sup>72</sup> By mid-summer 1943, the U-boat threat was receding due to increased effectiveness of the theater's antisubmarine forces, the effects of Allied victories in other waters, and the shift of U-boats away from the Caribbean.<sup>73</sup>

With the threat of Canal attack diminishing, the reduction of troop strength became a viable option. Downsizing was begun in January 1943, and continued until the end of the war. From a peak of 119,000, Army forces had dropped to 91,000 by the end of 1943. When the war in Europe ended in May 1945, Caribbean Defense Command strength was down to 67,500.<sup>74</sup> War-time defenses, including large artillery guns, landing fields, and mine fields were removed as the military returned to a peace-time defensive position. The Caribbean Defense Command was reorganized into the U.S. Army Caribbean and the Caribbean Command (a unified authority over the Army, Navy, and Air Force components).<sup>75</sup> This command structure would last until 1963, when the Caribbean Command was redesignated as the United States Southern Command (USSOUTHCOM), and the Army component became the United States Army Forces Southern Command (USAFSO). The major Army command would be inactivated in 1974, then re-activated as the United States Army South in 1986.<sup>76</sup>

In October 1947, the United States tried to negotiate an agreement for five more years occupation of thirteen auxiliary World War II sites, and the military air base at Rio Hato, seventy miles west of Panama City, for ten to twenty years. In December, with pressure from the Communist Party in Panama and student anti-American demonstrations, the Panamanian Assembly unanimously rejected the agreement, and the United States agreed to evacuate the remaining fourteen sites immediately, while continuing to negotiate. With national elections coming up in 1948, members wanted to reduce American influence in Panama as much as possible to appease the voters.<sup>77</sup>

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<sup>72</sup>Ibid., 414.

<sup>73</sup>Ibid., 437.

<sup>74</sup>Ibid., 441.

<sup>75</sup>De Mena, "History of the United States Army in the Panama Canal Area," 9.

<sup>76</sup>Ibid., 11, 14.

<sup>77</sup>U.S. Senate, Background Documents, 921-923, 975-979; U.S. Senate, Chronology, 6; Almon R. Wright, "Defense Sites Negotiations between the United States and Panama, 1936-1948," Department of State Bulletin, vol. 27, 11 August 1952, 212-217; Paul Ryan, The Panama Controversy: U.S. Diplomacy and Defense Interests, (Stanford, CA: Hoover Institution Press, 1977), 28-31; Paolo E. Coletta, ed., United States Navy and Marine Corps Bases Overseas, (Westport, CT: Greenwood Press, 1985), 259; U.S. Department of the Navy, Naval Historical

In the 1950s, the United States made several concessions to the Panamanians: a single pay scale for American and Panamanian workers was established; Spanish became an official language in the Zone along with English; and Panama was given more money for Canal toll collections. The United States was given 19,000 acres in the Rio Hato area for military training. Panama, however, twice rejected requests by the U.S. to deploy Nike missiles in 1956 and 1958. Two ground-to-air HAWK-AW missile batteries were deployed in 1960 at Fort Sherman and Fort Amador. Growing nationalistic sentiment expressed in student demonstrations in 1955, 1958, 1959, and 1964 helped to finally convince the United States to renegotiate the Hay-Bunau-Varilla Treaty.<sup>78</sup>

In 1974, the United States, under chief negotiator Ellsworth Bunker, agreed in principle to give the Panama Canal and the Canal Zone back to Panama. There were then about 46,000 people living in the Canal Zone. Most (30,000) were active duty military, their dependents, and civilian employees. Roughly 10,000 Americans (employees and dependents) were associated with the Panama Canal Company. During the administrations of President Jimmy Carter and General Omar Torrijos, two treaties were negotiated. The first, called the Panama Canal Treaty, abolished the Canal Zone and returned the territory to Panama, with the United States having the authority to manage, operate and defend the Canal with increasing participation by the Republic of Panama. At noon on 31 December 1999, Panama will assume control of the area and responsibility for the Canal as the United States' presence ends. The second treaty gave the United States the permanent right to defend, jointly with the Republic of Panama, the Canal's neutrality. The treaties were signed on 7 September 1977 by Presidents Carter and Torrijos at the Organization of American States. After months of heated debate, the United States Senate passed the two treaties in March and April 1978, each by a vote of 68 to 32, drastically changing American military and political influence in Panama.<sup>79</sup>

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Center, Washington, DC, Operational Archives.

<sup>78</sup>U.S. Senate, Chronology, 7-9; U.S. House, Panama Canal, 1971: Hearings before the Subcommittee on Inter-American Affairs of the Committee on Foreign Affairs, (Washington, D.C.: GPO, 1971), 18, 30-31, 35-37, 114; Knapp and Knapp, Red, White, and Blue Paradise, 54-59; William Jordan, Panama Odyssey, (Austin, TX: University of Texas Press, 1984), 38-49; Coletta, Navy and Marine Corps Bases Overseas, 259-260.

<sup>79</sup>U.S. Senate, Chronology, 9-36; U.S. Senate, Defense, Maintenance and Operation of the Panama Canal, Including Administration and Government of the Canal Zone -- Hearings before the Committee on Armed Services, (Washington, DC: GPO, 1978), 62-63, 83-84, 139, 164-165, 258-259; Coletta, 260-261; Knapp and Knapp, Red, White, and Blue Paradise, 47; Robert A. Pastor, "The Carter Administration and Latin America: A Test of Principle," Occasional Paper Series, Volume II, Number 3, (Atlanta: The Carter Center of Emory University, 1992), 11-13.

Implemented on 1 October 1979, the Panama Canal Treaty impacted the United States Army forces in Panama through the immediate turnover of some military facilities, the relocation of other facilities, and the undertaking of previous Panama Canal Company responsibilities. Some facilities at Fort Amador were turned over immediately, necessitating the relocation of U.S. Army headquarters to Fort Clayton. Facilities were also shifted from the Albrook Army Airfield to Air Force installations in the former Canal Zone. The Department of Defense became responsible for the education, health care, and postal services previously run by the Panama Canal Company. Since 1979, the turnover of military facilities has continued and will proceed until the expiration of the treaty at 12 noon on 31 December 1999.<sup>80</sup>

#### Fort Sherman

The military reservation was named for the Civil War General William T. Sherman on 24 November 1911. Construction of the gun batteries for Canal defense began several months later. Fort Sherman was designed to be the Atlantic coastal defense base, and was similar in mission and armament to the Pacific bases of Amador and Grant. Five batteries were constructed by 1916 with a total armament of two 14-inch and two 6-inch caliber rifles, and eight 12-inch mortars. Two more 12-inch rifle batteries were constructed between 1916 and 1923.<sup>81</sup>

Major William E. Cole arrived 30 May 1914 to assume command of Fort Sherman. The first troops, the 21st Company of the Coast Artillery Corps, arrived in Panama on 18 September 1914. There were no accommodations for them on post, so they were quartered at Cristobal until April 1917. The troops would be ferried over to Fort Sherman for drill. By October, troops from the 44th and 119th Companies arrived and took up duty at Fort Sherman, presumably in a tent camp.<sup>82</sup>

Utilizing part of the \$1,290,000 FY1914 Congressional appropriation for constructing permanent facilities for housing the Coast Artillery and mobile troops, construction began on a concrete storehouse, and wooden barracks, quarters, and other buildings. Construction was accomplished by the Building Division of the Supply Department, The Panama Canal. Construction was begun

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<sup>80</sup>De Mena, "History of the United States Army in the Panama Canal Area," 13.

<sup>81</sup>Johnson, "An American Legacy in Panama," 50; Dolores De Mena, "Atlantic batteries' skeletons still visible," Tropic Times, 26 June 1992.

<sup>82</sup>Frank L. Miller, "Fort Sherman, Canal Zone--Old and New," Vertical File, Department of Army, Center for Military History Archives; Canal Record, 23 September 1914; Canal Record, 7 October 1914.

by October 1915 and the main compound was completed by April 1916. There were 15 officers, 425 enlisted men, 17 women and 12 children at Fort Sherman as of June 1916.<sup>83</sup>

The Panama Canal built more barracks and quarters for the Army at Fort Sherman during 1916-1917. These buildings consisted of five barracks, a headquarters, five non-commissioned, six captains', one commanding officer's, four field officers', five lieutenants', and one lieutenants' bachelor quarters, one band barracks, and one incinerator. Some of these thirty buildings were completed in 1916, others in 1917. Except for the incinerator, all these structures were frame.<sup>84</sup>

The first military aviation squadron in the Isthmus had its first home at Fort Sherman. The nucleus of an air force arrived on 29 March 1917, and consisted of two officers, 51 enlisted men, and two Curtis R-4 planes. Designated the 7th Observation (or Aero) Squadron, they operated from the Fort Sherman parade ground, as no flying fields were available. In February 1918, the Squadron was moved to the new air facility at France Field.<sup>85</sup>

Fort Sherman was formally established by Executive Order on 25 March 1918. Construction continued with the addition of two captains' quarters, one 2-family lieutenants' quarters, and two 150-man barracks at Fort Sherman in 1918-1919. The boundaries of Fort Sherman were expanded by Executive Order in 1920 to include land on the far side of the Chagres River. This made Fort Sherman one of the largest posts on the Isthmus. All of the added land was undeveloped jungle, and remained as such.<sup>86</sup>

During the 1920s, Fort Sherman was home to the Second Regiment of Coast Artillery, and had 22 officers and 530 enlisted men. Artillery was increase in the early 1920s with the addition of four long-range 12-inch rifles. Troop strength continued to grow and by December 1934, Fort Sherman personnel had reached 22 officers and 767 enlisted men. Increases in force preparatory to World War II resulted in a December 1939 population of 28 officers and 1,137 enlisted men.

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<sup>83</sup>The Panama Canal, Annual Report, 1915, 32; Canal Record, 27 October 1915, 79; Canal Record, 24 November 1915, 122; Canal Record, 12 April 1916, 296; The Panama Canal, Annual Report, 1916, 516.

<sup>84</sup>The Panama Canal, Annual Report, 1917, 8, 74.

<sup>85</sup>T. S. Voss, "The Army Air Service," 417; Johnson, "An American Legacy in Panama," 64.

<sup>86</sup>The Panama Canal, Annual Report of the Governor of The Panama Canal for the Fiscal Year Ended June 30, 1919, (Washington, D.C.: GPO, 1919), 108; Miller, "Fort Sherman, Canal Zone," n.p.; Johnson, "An American Legacy in Panama," 50.

Fort Sherman was headquarters for the harbor defenses of Cristobal, and prior to World War II, armament was enhanced by four 75mm and 15mm anti-aircraft guns along the beach.<sup>87</sup>

After World War II, the heavy guns were dismantled, and the Coast Artillery forces were reassigned.<sup>88</sup> The base was used as housing for troops assigned to the Caribbean side of the Isthmus from 1946 to 1948. Three years later, Fort Sherman found a new role as the site of an intensive jungle training program. Having been tasked by the Department of the Army with developing a program to provide jungle warfare training, the U.S. Army Caribbean set up a Jungle Warfare Training Board to study the techniques in April 1951. A program concentrating on field training, jungle familiarization, physical conditioning, health and hygiene was instituted with the 33rd Infantry Regiment operating the Jungle Warfare Training Center. The program was very successful, and was in full operation when the United States began sending troops to Vietnam. It was later used as the training area for the Army School of the Americas operated at nearby Fort Gulick. By 1975, the Jungle Operations Training Center at Fort Sherman had assumed its current training mission. A USARSO training unit, the re-designated Jungle Operations Training Battalion is one of only two unit-level jungle training centers in the world (there is a British center in Asia). Through a three week Jungle Warfare Course, training is provided to 17 U.S. Army and Marine Corps infantry battalions annually. In 1995, Fort Sherman had 1100 active duty personnel. Fort Sherman will be transferred to the Republic of Panama by 12:00 noon on 31 December 1999.<sup>89</sup>

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<sup>87</sup>Charles J. Sullivan, Army Posts & Towns: The Baedeker of the Army, (Burlington: Free Press Printing Company, 1926), 18; John T. Geary, "The Coast Artillery in Panama," Infantry Journal 26, (April 1925): 396; Charles Morris, Security and Defense of the Panama Canal, 1903-2000, (Balboa Heights, Panama: Panama Canal Commission, 1994), 7-8; Panama Canal Department, vol. 1, Introduction and Historical Background 1903-1939, 50 and vol. 2, Preparation for War 1939-1941, 34; "The Army and Navy: The military and naval activities on the Canal Zone," 95; De Mena, "Atlantic batteries' skeletons still visible."

<sup>88</sup>Armament would later play a small part in the Fort's history when a Pershing ballistic missile system was tested at Fort Sherman in 1963. Army personnel and technicians from the Martin Company arrived at the installation to conduct several months of hot weather tests on the system. This testing was part of a series intended to demonstrate the ability of the Pershing to operate in varied climate and terrain conditions. ("PERSHING Missile System To Be Tested In Tropics," Martin News, Canaveral Edition, 28 June 1963, 1).

<sup>89</sup>De Mena, "Atlantic batteries' skeletons still visible;" Evinger, Directory of U.S. Military Bases Worldwide, 269; Johnson, "An American Legacy in Panama," 51; De Mena, "History of the United States Army in the Panama Canal Area," 10; Office of Public Affairs, U.S. Army South, "Public Information Paper," (Fort Clayton: U.S. Army South), 1989, 5-6.

PART II. ARCHITECTURAL INFORMATION:

A. General Statement:

1. Architectural Character: The architectural character of Fort Sherman is dominated by the ubiquitous Canal construction scheme of red and white, with concrete buildings and Spanish tile roofs. Roofs have wide, over-hanging eaves, and many have mediaguas (lower floor roof projections) to deflect rain from lower story windows. Numerous windows and screened porches were used for ventilation before the advent of air-conditioning.
2. Condition of the fabric: Most buildings at Fort Sherman have been fairly well-maintained, and the general condition of their fabric is fair to good. The general condition of roofing is poor to fair.

B. Site:

1. General Setting: Fort Sherman is located at Toro Point across Limon Bay from the Isthmian Canal Commission town of Cristobal and the Panamanian city of Colon. Limon Bay forms the Atlantic entrance to the Panama Canal (Figure 2). A lagoon extends into the point, and serves as a landing area for watercraft. Construction is primarily confined to the flat, sandy point, although a housing area is located in the interior. The original construction followed the shorelines, with a line of barracks along the bayshore, and other buildings placed along the shore of the lagoon.
2. Landscaping, Enclosures: The terrain is open and flat in the developed area. A grass parade ground is located just inland from the barracks, with a baseball field at the north end. Running roughly parallel to the barracks on the far side of the parade ground is a landing field with a 2400 x 80 foot runway. The Fort Sherman Lagoon is a major landscape feature. The remainder of the base is jungle over a primarily flat terrain with some gentle hills. The inland residential areas are semi-wooded, and mature palm trees line most streets.
3. Buildings: The site contains many types of buildings including administrative, residential, and recreation (including a movie theater, HABS No. CZ-6-A).



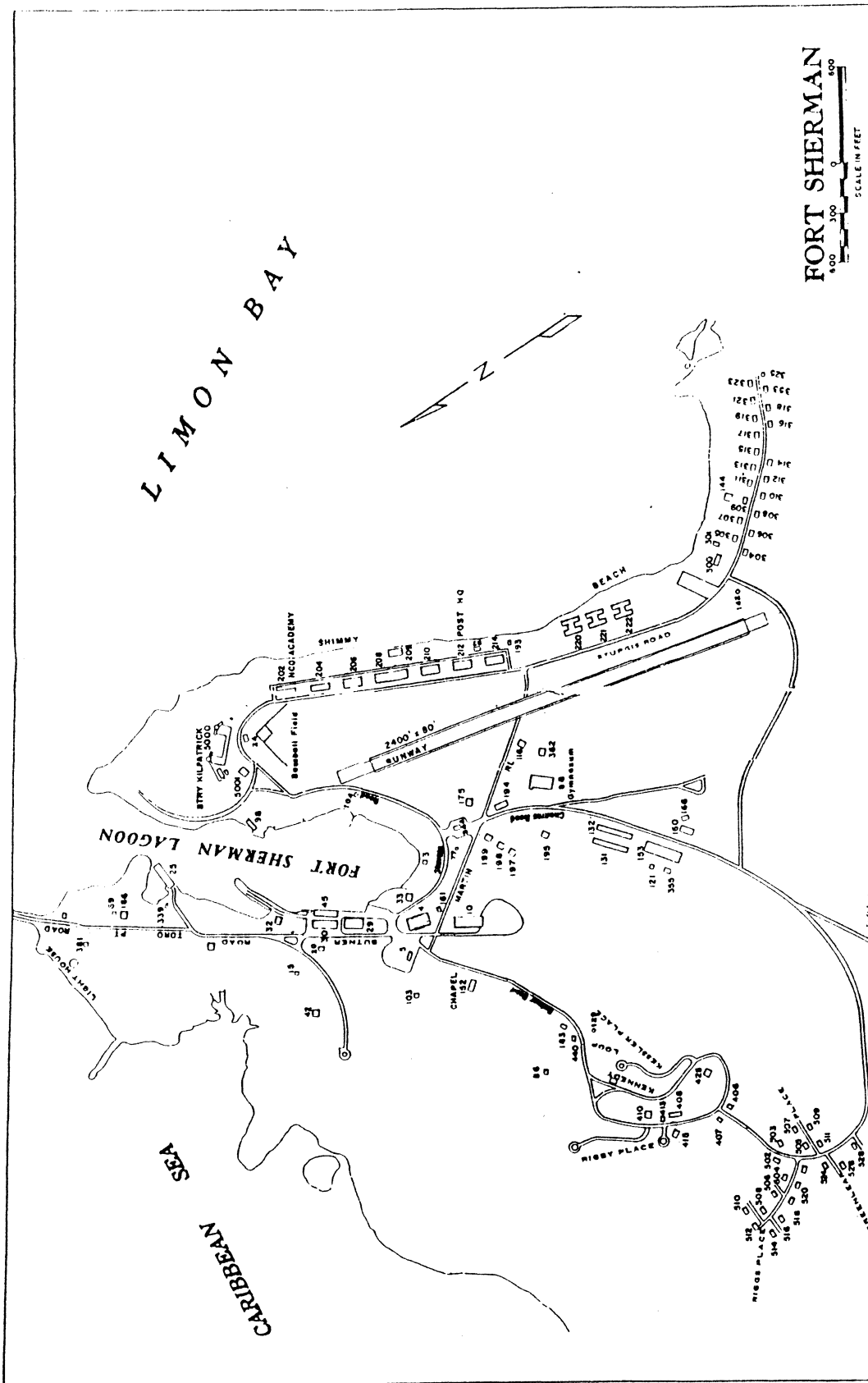


Figure 2. Source: Army Community Service, U.S. Army Garrison-Panama, Corozal, Republic of Panama.

PART III. SOURCES OF INFORMATION

- A. Architectural drawings: The theater was constructed from original pencil drawings, dated October 1937, whose title blocks read "Panama Canal Department, Motion Picture Service, Quarry Heights, C. Z., Theater at Fort Randolph, C. Z. and Fort Sherman, C. Z., Office of the Constructing Quartermaster." They are located at the Directorate of Engineering and Housing (DEH) in Corozal, Panama. The original set contained two architectural drawings, numbers 1 and 2. Drawing 1 shows the ground floor and projection room plans, as well as door types and material/finish schedules. Repairs done in 1977 are recorded in drawing number 50529-1 (originally of a set of three sheets), also on file at the DEH.
- B. Early Views: An early photograph of Fort Sherman was found in the office of the U.S. Army South Historian, Fort Clayton, Republic of Panama.
- C. Interviews: John Hannaman, interview by Susan Enscoe, 8 February 1994, Directorate of Engineering and Housing, Chief, Operations Division, Corozal, Panama.
- D. Bibliography:
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- E. Likely Sources not Yet Investigated: Further research into material at the National Archives would be beneficial.
- F. Supplemental Material: None

#### PART IV. PROJECT INFORMATION

The project was sponsored by the Legacy Resources Management Program (LRMP) established by the United States Department of Defense. The project was headed by Julie L. Webster and Dr. Susan I. Enscore of the United States Army Corps of Engineers Construction Engineering Research Laboratories (USACERL). The project was completed at the USACERL Tri-Services Cultural Resources Research Center. Project historian was Dr. Enscore, with contributions by Samuel Batzli and Robert Chenier (USACERL). Ms. Webster served as project architect and principal investigator. Martin Stupich produced the large format photographs contained in the report. Documentation was coordinated through the Directorate of Engineering and Housing (DEH), Panama, by Suzanne P. Johnson, Engineering Division, DEH, under the direction of LTC Patrick Staffieri, DEH Director.