

The Panama Canal Zone

EARLY CONSTRUCTION



By 1906 the design department of the Isthmian Canal Commission (ICC) had prepared plans for seventeen housing types, all

of which were based upon “the isthmian climate, the material available, [and] the character of the building sites, with the necessary restrictions imposed by the sanitary department, and the official status of the employees.”²¹



Early temporary housing types (intended to last only for the duration of the Canal construction era) mimicked the earlier French prototypes. Structures

were raised above the ground on stone or concrete foundations, which offered some protection from termites and moisture and allowed air to circulate around the structure. Copper-screened verandas offered protection from mosquitoes, the carriers of yellow fever, and created exterior living spaces which captured available breezes.



The wood frame structures typically had steep roofs of corrugated metal and were clad with painted wood siding on both the interior and exterior surfaces.

Many of these early wood frame buildings are still in use today in Panama.



French housing, Ancon



Screened veranda at Quarry Heights



Raised structure with metal flashing serving as termite shield

PERMANENT COMMUNITIES



Residential community at Fort Clayton

The ICC designers soon learned how quickly the harsh conditions in Panama could destroy these early wooden structures, and during the final years of Canal construction the Isthmian Canal Commission turned its attention to designing and building permanent communities.

Funds were appropriated by Congress to the Canal Commission for the construction of barracks, family housing, administration buildings, and support facilities for the U.S. Army and Navy throughout the Isthmus of Panama. A Board of Officers was appointed to determine the types of quarters and other buildings to be erected.

Design guidelines were established for both permanent communities and military installations. Based on the need for durability and economy, as well as sanitary regulations issued by Dr. Gorgas, buildings were to be of reinforced concrete with clay tile roofs. They were to be ‘rat-

proof’ to prevent the possibility of a plague outbreak and ‘mosquito-proof’ to combat the ever present mosquitoes. The resulting uniform building type is easily identifiable throughout the Canal area. These early permanent facili-



Tile hood and ‘Media Agua’

PERMANENT COMMUNITIES

ties continued the history of open-air designs started by the French including: generous screened porches, an abundance of windows, and a classical design influence.



Chief Engineer Goethals was determined that the permanent towns and military installations would be communities

where the residents would be proud to live. When presenting his estimates on the cost of constructing the new town of Balboa to members of Congress in 1913, Goethals justified his request by stating: "I want to make a town there that will be a credit to the United States government."²²



In keeping with this idea, the permanent facilities were more apt to incorporate rich details, such as the bronze and marble entry and lobby

of Building 519, Fort Clayton.

Over the last four decades, many of the early buildings have been radically modified. Porches have been enclosed to increase useable floor area and reflect the introduction of air conditioning.



The modifications, usually easily identifiable, are typically at odds with the open-air environment envisioned in the original designs.



Oversized bronze doors to building #519, Ft. Clayton

To complement the architectural staff, Mr. Otis W. Barrett, a landscape architect, was brought to the Isthmus to supervise the beautification of the new communities. Mr. Barrett pointed out that "no place in the world offers better opportunities for this purpose, as the climate of perennial summer allows plants a continuous development to more and more attractive forms."²³

PERMANENT COMMUNITIES



Panama's tropical climate and abundant rainfall allows for an unusually large variety of tropical and subtropical plants. Exotic species from Africa, Asia, and Europe have been colonized in Panama. Mahogany, Rubber trees, African Tulip trees, Royal Palms, Banana trees, Banyans, Flame trees, Mangoes, and Norfolk Island Pines are just a few of the major plants used for landscaping.

In order to relieve the concrete communities of their "glistering newness"²⁴ and to "conceal [their] angularity,"²⁵ ornamental plants, trees and shrubs were made available to residents free of charge. Decorative incandescent streetlights,



Typical residential street with original lamp post

especially ordered from the United States, provided security lighting as well as a lovely detail along the palm-lined streets.



Landscaping at Fort Amador

LIFE IN THE PANAMA CANAL ZONE



Two 'Cabaret Girls' at the Fort Amador Beach Club

The Panama Canal Zone, as designated by an act of Congress on April 28, 1914, was a strip of land “and land under water”²⁶ five miles wide on either side of the canal. In 1928, President Calvin Coolidge referred to the Panama Canal Zone as “one of our outlying possessions.”²⁷ While inaccurate, the statement was one perceived by citizens of the U.S. to be correct. Those who lived within the Zone lived with the same basic rights as any other U.S. citizen living in the United States. The Canal Zone was not, however, a democracy. There were no elections, and hence, no elected officials. The government within the Canal Zone was administered by the Canal Zone Government, in the form of the Department of Civil Administration.

For ‘Zonians’ (U.S. citizens living within the Canal Zone), the Canal Zone was “a great government reservation,”²⁸ inclusion into which was restricted. Only those connected with the administration, operation, maintenance or defense of the Canal were allowed to live within the Canal Zone. At the highest echelon of the Canal Zone hierarchy were the Commissioners, the commanding officers of the military installations, and their families.

Housing was provided for all persons employed by the U.S. Government, and electricity and other utilities were available either free of charge or at very low rates, rates compatible to “what it cost to produce them. If at the end of the year the balance-sheet show[ed] a profit, the cost of the current [was] reduced.”²⁹

LIFE IN THE PANAMA CANAL ZONE



Boy Scouts of America Local Headquarters

Private ownership of land within the Panama Canal Zone was prohibited, and while housing was provided, square footage was based on one's ranking within the Canal Zone hierarchy. During the early Canal construction era, "white Americans lived in airy wooden structures with screened verandas; unmarried European and black laborers had to be content with unscreened mass quarters; black families could choose between American-built barracks (also unscreened and crowded) or shacks of their own in derelict native villages.

Housing conditions thus became a mirror image of the social order on the Isthmus. As a contemporary observer put it: "Caste lines are as sharply drawn as in India. Every rank and shade of man has a different salary, and exactly in accordance with that salary is he housed, furnished and treated down to the last item."³⁰ While housing conditions for non-white employees improved during Chief Engineer Goethals's administration, segregation remained the order of the day.



LIFE IN THE PANAMA CANAL ZONE

Commissaries provided foodstuffs, with prices usually compatible with, but sometimes lower than, those in the United States. While many items were brought to the Zone from the U.S., plantations and farms within the Zone provided fresh fruits, vegetables, beef, poultry and pork. "The plan of eventually making the Canal Zone independent of outside sources for its food supply [was] developed and arrangements [were] perfected so that [The Panama Canal] would be able to support ourselves in case we should for any reason be cut off from all outside food supplies."³¹

Recreational opportunities were also provided. Gymnasiums, swimming pools, golf greens, tennis and volleyball courts, and baseball fields were located throughout the Zone in various communities. Athletic competitions, such as baseball tournaments and boxing matches, were encouraged.



Deep sea fishing - Pacific Ocean



Baseball teams of the Panama Canal Zone

LIFE IN THE PANAMA CANAL ZONE

Government owned and operated clubhouses, where one had access to “reading rooms, writing rooms, pool and billiard tables, bowling alleys, moving pictures, free telephone service, barber shops, beauty parlors, lunch and soft drink rooms and places for dancing,”³² were also erected in most of the permanent communities. For a special ‘get-away’ weekend, the Hotel Aspinwall, located on the off-shore island of Taboga, was available. Medical facilities, police and fire stations, churches, post offices and schools were also located in nearly all Zone and military communities.



Former Canal Zone Y.M.C.A.



The Annual ‘Ocean to Ocean’ Cayuca Race, sponsored by the Explorer Scouts

Canal Defense



Guns guarding Canal entrance

During the construction phase the question of whether or not the Canal should be fortified was debated by the American public, Congress, and the world at large.

It was decided that the monetary investment, and the ability of military ships to quickly pass from the Pacific to the Atlantic, be defended. To that end, by August 1, 1914, an additional \$12,050,825 had been appropriated and spent on fortifications for the Panama Canal.

The Treaty to Facilitate the Construction of a Ship Canal (more commonly referred to as the Hay-Pauncefote Treaty) established that “the canal shall never be blockaded, nor shall any right of war be exercised nor any act of hostility be committed within it.” Ships of all nations

were to have equal access to the canal, during both war and peacetime, and in order to guarantee equal access, the United States was “at liberty to maintain such military police along the canal as may be necessary to protect it against lawlessness and disorder.”

The end of the Canal Construction Era coincided with the development of political uncertainty in Europe, thereby transforming the role of the military in the Canal Zone from one whose duty it was to maintain law and order to one whose duty it was to defend the Canal against any threat of attack.

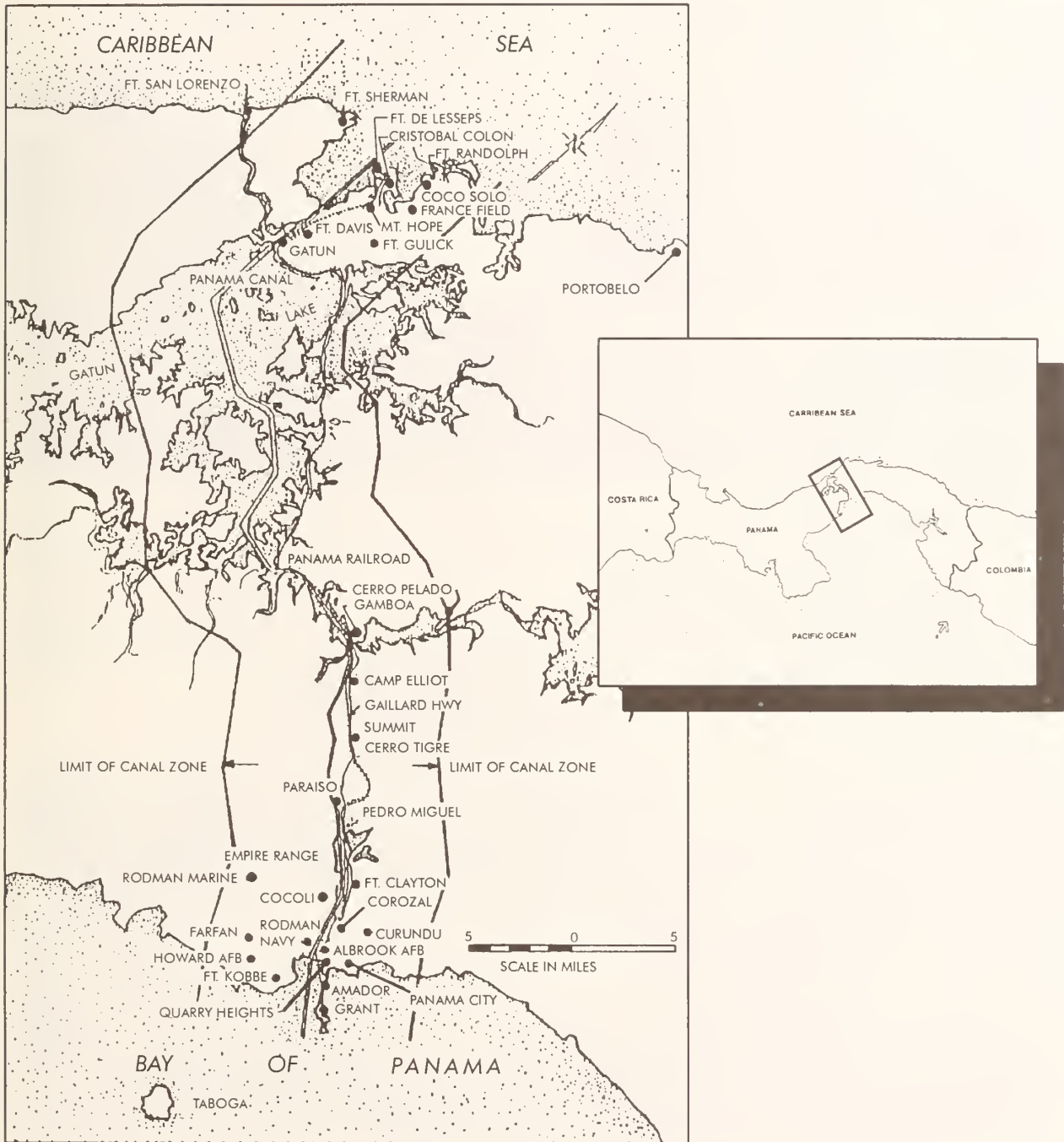
Construction of battery fortifications at Forts Sherman and Randolph at the Atlantic entrance, and Forts Grant and Amador at the Pacific entrance, were begun as early as 1913, under the direction of the Isthmian Canal Commission. Additional batteries were constructed in the late 1920s to aid in coastal defense.

When the Panama Canal opened in 1914, the “Panama Canal Guard Force” (the term used to identify military troops in the Canal Zone) included a Marine Battalion, an Army Infantry Regiment and three companies of Coast Artillery stationed in the Canal Zone. In all they averaged a personnel strength of 797. By June of 1915, that force had been increased by two additional Infantry regiments, a company of Engineers, a company of Signal Corps, an ambulance company, four more companies of Coast Artillery, and a detachment of the Hospital

CANAL DEFENSE



Map of the Panama Canal Zone



CANAL DEFENSE



Battery Morgan, Fort de Lesseps, 1939

Corps, with a total strength of 6,248. Accompanying the troops were their family members, including 373 women and children.

The majority of these troops were located on the west bank of the canal, in the former Isthmian Canal Commission construction towns of Culebra, Empire, and Las Cascadas. Since they were not needed by the ICC, they were turned over to the military.

Naval forces were also stationed on both sides of the Isthmus. On the Atlantic side, the Coeo

Solo Submarine Base was established; on the Pacific side, at the request of the Secretary of the Navy, part of the Fort Grant-Fort Amador Harbor Defense Installation was set aside for naval use.

In 1917, local and stateside military authorities insisted that certain areas be officially set aside by Executive orders as military reservations, under the authority of post commanders. It was determined that during wartime, or if ever it were determined, in the opinion of the President, that war were imminent, the President of the United

CANAL DEFENSE

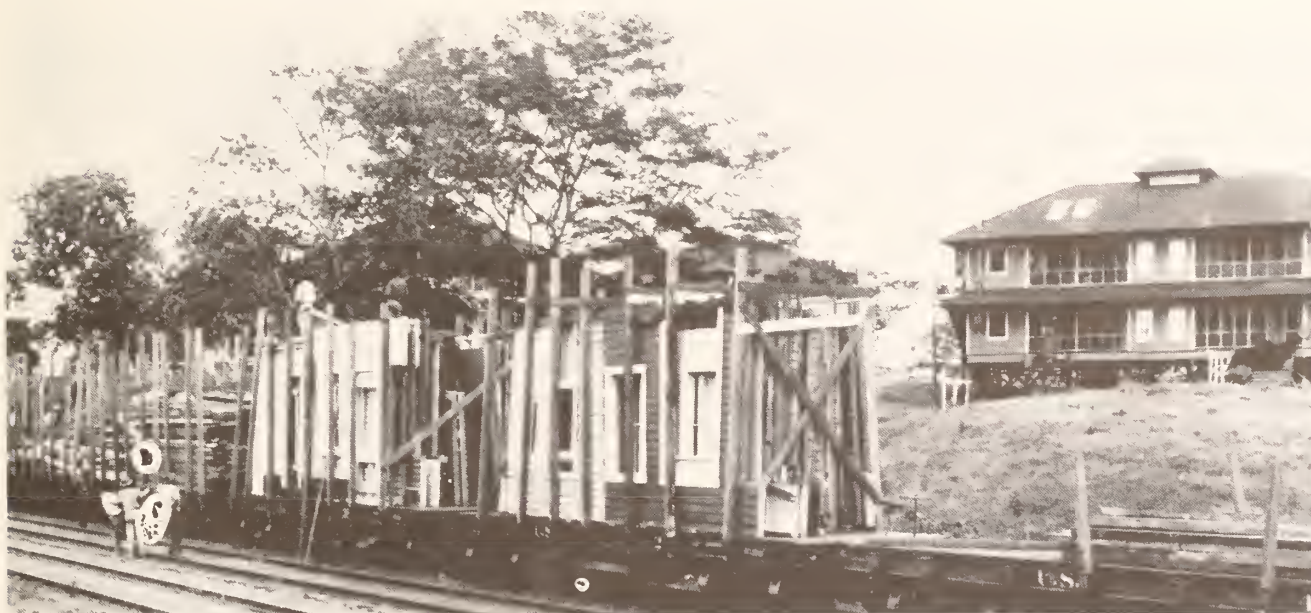
States had the authority to appoint an Army officer to “assume and have exclusive authority and jurisdiction over the operation of the Panama Canal and all its adjuncts, appendants and appurtenances, including the entire control and government of the Panama Canal...”³³ During peacetime, however, the Governor of the Canal Zone had final jurisdiction over the Panama Canal Zone, including U.S. military reservations.

Headquarters for the U.S. Army was initially located in what would eventually become the Panama Canal Company’s District Court Building in Ancon. After a short stay, the Command made plans to move - again temporarily - to a site on Ancon Hill where rock had been quarried during Canal construction. Quarry Heights was not planned as a permanent site, as it was



Newly sited Housing

thought that the area was not large enough for a permanent headquarters. Instead of building permanent facilities, temporary wood structures were relocated from other Canal Construction Era communities.



Moving buildings by Flatcar

1. The first part of the paper discusses the general principles of quantum mechanics, including the wave function and the uncertainty principle.

2. The second part of the paper discusses the application of quantum mechanics to the study of atomic spectra, showing how the discrete energy levels of atoms can be explained by quantum theory.

3. The third part of the paper discusses the application of quantum mechanics to the study of molecular spectra, showing how the discrete energy levels of molecules can be explained by quantum theory.

4. The fourth part of the paper discusses the application of quantum mechanics to the study of solid state physics, showing how the discrete energy levels of solids can be explained by quantum theory.

5. The fifth part of the paper discusses the application of quantum mechanics to the study of nuclear physics, showing how the discrete energy levels of nuclei can be explained by quantum theory.

Pacific Division

EAST BANK INSTALLATIONS

Quarry Heights



The first military troops to arrive on the Isthmus of Panama were the United States Marines, 1,400 of whom “were landed during the insurrections of November 1903. This contingent of troops was detailed to keep the Panama Railroad open to traffic and protect U.S. Government property.”³⁴ A reservation was established on a man-made terrace on the western side of Ancon Hill, adjacent to the Panama Canal Zone capitol city of Balboa, to accommodate the Marines.



Quarry Heights



Wood frame building at Quarry Heights

Plans for the layout of the Quarry Heights Military Reservation were determined by naval authorities, and included several 150-men barracks, officers' quarters, administrative buildings and a parade field.

Following the transfer of the Marine detachment on February 21, 1914, to take part in the uprising in Mexico, Quarry Heights was designated temporary headquarters of the military forces in the Canal Zone. This site was most suitable,



Quarry Heights from Hydrographer's Tower

EAST BANK INSTALLATIONS



Ancon Quarry

it was felt, because of its proximity to the Panama Canal Commission headquarters in Balboa.

Formally established on December 22, 1919, Quarry Heights Reservation took its name from the rock quarry on the side of Ancon Hill, stone from which was used in the construction of the Miraflores and Pedro Miguel Locks.

As the need arose for housing military personnel and their families at Quarry Heights, old Isthmian Canal Commission houses were dismantled and re-erected at Quarry Heights. One of the first such buildings to be moved to Quarry



Residential quarters at Quarry Heights

Heights was Quarters #1, the now official residence of the Commander in Chief.

There were, at one time, nearly two hundred of these 'construction camp' wood houses, which were originally built around 1906. In the mid-1930s, however, all but those at Quarry Heights and the official residence of the Administrator of the Panama Canal Commission (formerly the official residence of the Governor of the Panama Canal Zone) were demolished and replaced with more modern buildings.

One of the most unique DoD facilities in the Canal area is the tunnel located at Quarry Heights. The plan for the construction of the structure was initiated on March 27, 1940, by Lieutenant General Daniel Van Voorhis, Commanding General of the Panama Canal Department at that time. General Van Voorhis justified the need for the bombproof structure, "for use in case of emergency and vital to the security of important data."³⁵ The Command Post facility, completed by January 20, 1942, was constructed "under 200-feet of native porphyry rock and was built of reinforced concrete"³⁶ at a cost of \$400,000.



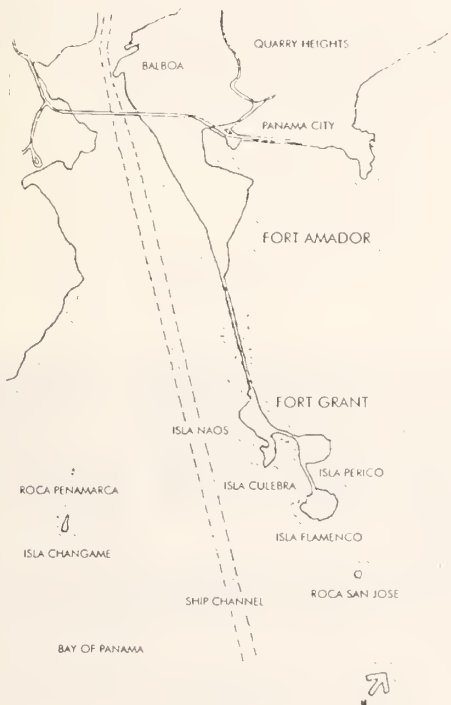
Interior of Officer's Quarters

EAST BANK INSTALLATIONS



Fort Amador/Fort Grant

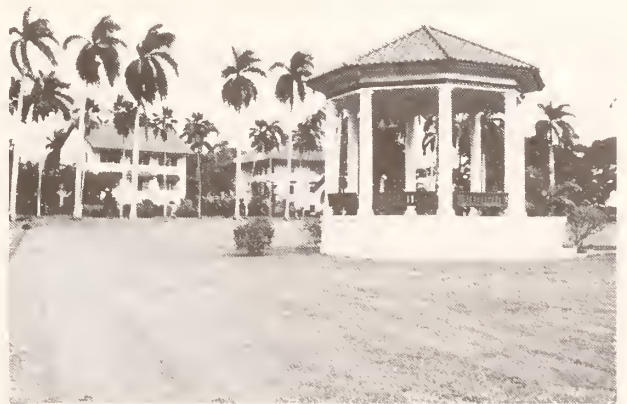
Located on the east bank of the Panama Canal on the Bay of Panama, Fort Amador and Fort Grant were among the first of the permanent Panama Canal fortifications to be planned and constructed. Fort Grant, which was named in honor of General Ulysses S. Grant (United States Army, and President of the United States from 1869 to 1877), consisted of the causeway breakwater, the connected islands of Naos, Culebra, Perico and Flamenco, and the off-shore islands of San Jose, Panamarca, Changarmi, Tortolita, Torola, Covoviceta, Cocovi, Taboga and



Venado in the Bay of Panama. On each of the four connected islands were constructed batteries, whose guns guarded the Pacific entrance to the Panama Canal.

Fort Amador, named in honor of Dr. Manuel Amador Guerrero (President of the Republic of Panama from 1904 to 1908), consisted of housing, administrative facilities and support facilities for the Coast Artillery troops associated with Fort Grant as well as their family members. Over time, the causeway islands ceased being referred to as Fort Grant.

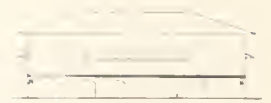
Fort Amador was originally an area of coastal swampland and mangrove stands. In-fill was begun around 1908 using material removed from the Culebra (Gaillard) Cut during its construction. Construction of the breakwater, including the connection of Naos, Culebra, Perico and Flamenco Islands, was completed in September of



Fort Amador/Fort Grant

Palm-lined street of Command Staff Quarters with Band Stand at foreground

EAST BANK INSTALLATIONS



1914. More than 2,141,536 cubic yards of waste were deposited during the breakwater project.

Headquarters for the U.S. Army forces in the Panama Canal area were located at Fort Amador until "Treaty Day," October 1, 1979, when all of the causeway islands and parts of Fort Amador reverted to the Republic of Panama in compliance with the Panama Canal Treaty of 1977. At that time the remainder of Fort Amador, which consisted of family housing and community services activities, became a Military Area of Coordination. Army headquarters moved from Building #1, Fort Amador, to Building #95, Fort Clayton.

U.S. Naval Station - Fort Amador

One of the earliest naval installations set aside in the Canal area was the Balboa Naval Radio Station. Established around 1914, the land for the installation was separated from Fort Amador "for the exclusive use of the Navy."³⁷ The name of the naval station was changed shortly after to the Fifteenth Naval District Headquarters.

In later years, the Fifteenth Naval District Headquarters included the "U.S. Naval Forces Southern Command/Fifteenth Naval District Headquarters, U.S. Naval Communication Station Balboa, a residential area, Enlisted Men Barracks and a branch Navy Exchange situated on a 65.5 acre site."³⁸



Headquarters, U.S. Naval Station Fort Amador



Residential quarters, U.S. Naval Station Fort Amador

EAST BANK INSTALLATIONS



Fort Clayton



Fort Clayton opened in 1922, and was named in honor of Colonel Bertram T. Clayton (Quartermaster Corps, U.S. Army), who was killed in action in Europe on May 30, 1918. Located directly across

from Miraflores Locks, Fort Clayton was constructed to accommodate one regiment of Infantry on in-filled land called the 'Miraflores dumps.'

Funds were allocated on April 23, 1919, to The Panama Canal for the construction of Fort Clayton. Construction of the post, which originally included a headquarters building, battalion barracks buildings and family housing (Quarters #1 through #26 and Quarters #800 and #801), was completed by July 1, 1920.



Residential quarters at Fort Clayton

In 1926, Fort Clayton was 'home' to the Pacific Motor Transport Pool and two Motor Transport companies. The post also sponsored a polo team.

During World War II, Fort Clayton served as the headquarters for the Panama Mobile force and the Security Command. The installation became headquarters for the Army component of the Southern Command on 'Treaty Day.'



Fort Clayton

EAST BANK INSTALLATIONS

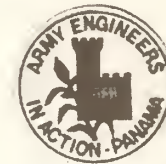
The miniature replica of the Statue of Liberty which welcomes visitors and residents of Fort Clayton to Jarmin Field was a gift to the Panama Canal Zone Boy Scout Council, made on behalf of scouting enthusiast Morris Hoffman in May of 1951. The original Statue of Liberty was presented by Ferdinand de Lesseps to the American ambassador to Paris on May 21, 1884, during the height of the French canal construction effort.

The industrial sub-area of Corozal and the civilian housing area of Curundu became parts of Fort Clayton by amendments to the original orders in 1942, 1954 and 1955.



Corozal and the Panama Canal Town of Los Rios

Corozal



A sub-installation of Fort Clayton, the Post of Corozal was named for the Corozo grove which grew in the area. A Corozo is variety of palm tree which produces a small, oily fruit.

Towards the end of the Canal construction era, the Isthmian Canal Commission abandoned most of the Corozal settlement and turned over the use of its buildings to the Army.

Corozal is divided into West Corozal and East Corozal. West Corozal, located on the west side of Gaillard Highway, includes the original Engineer Depot which served one regiment of engineers and the Quartermaster Depot (currently the Directorate of Engineering and Housing).

This area also supports the 106th Signal Brigade which “evolved from the crude resources of the 3d Platoon, Telegraph Company H, Signal Corps, the first signal unit to serve in the Canal Zone. Upon arrival on March 25, 1915, the 3d Platoon of Company H was initially stationed at Camp Gatun on the Atlantic side of the isthmus.”³⁹ but relocated to its current location shortly after.

