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CDSG Tour of the Defenses of the Panama Canal - Part 1

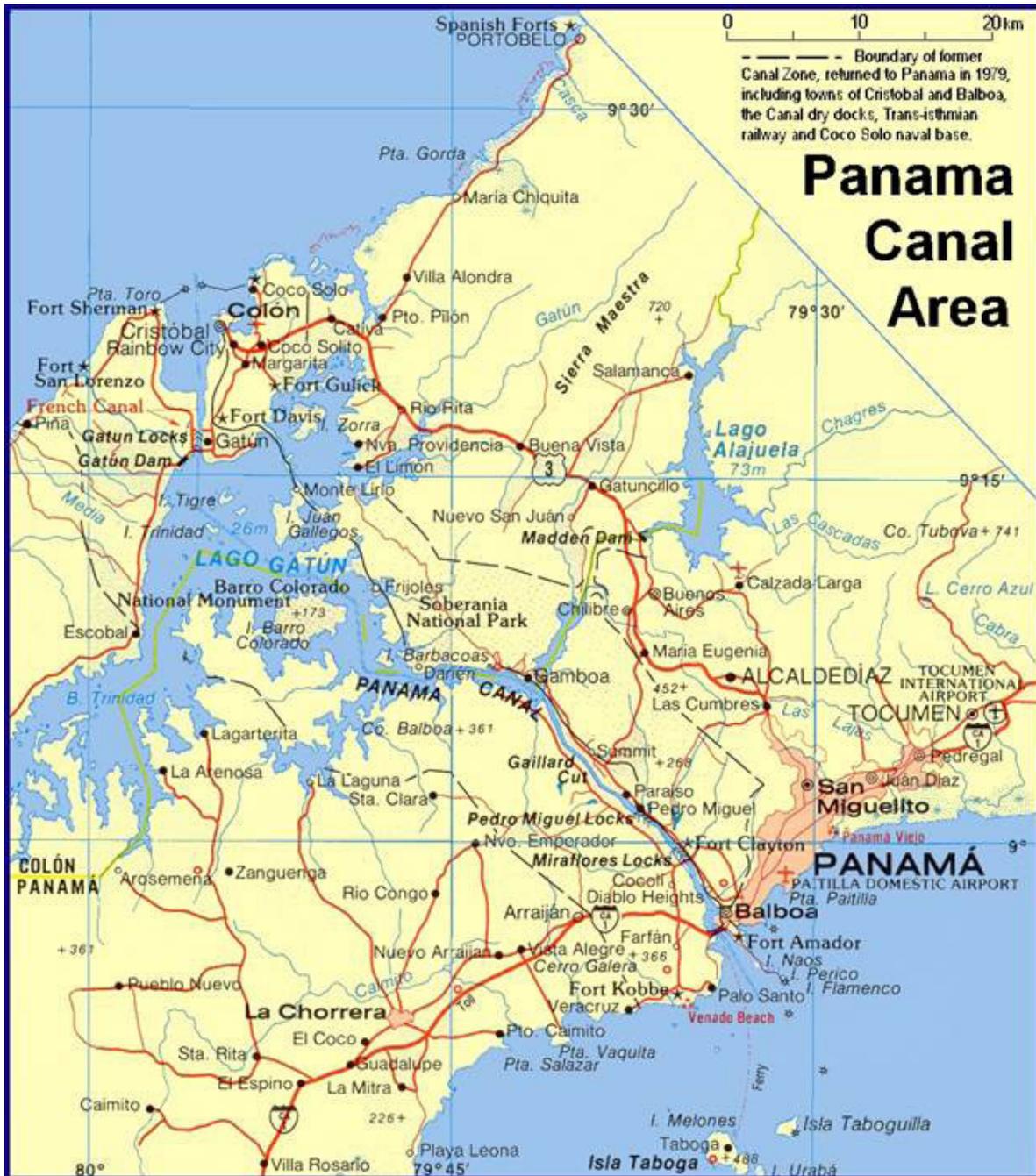
Terrance McGovern

The CDSG tour to the defenses of the Panama Canal took place from February 27th to March 5th, 2016, with 18 tour members. The goal was to visit as many as possible of the American and Spanish defenses in and around the former Canal Zone during our week in Panama. The first and last CDSG tour to Panama was in 1993, so it has been 23 years since the CDSG has toured these defenses. During this time the ownership of these sites has become diffuse and their condition has deteriorated. This is the tenth special tour I have organized for the CDSG and the

challenge this time was the large number of site owners and the general lack of interest in preserving the historical defense sites we visited. Key to the success of the tour was our local member, Paolo Sanfilippo. It was through Paolo's excellent efforts over the last two year that we actually visited every site on our schedule. To make this tour happen, Paolo needed authorization to visit more than 50 sites, to arrange ground transportation and daily meals, and even clear jungle trails and overgrown structures in advance for us. The tour would not have occurred without his efforts and his detailed knowledge about each site we visited.

Historical Background

The Panamá Canal is a 48-mile ship canal in Republic of Panama that connects the Atlantic Ocean (via the Caribbean



Sea) to the Pacific Ocean. The canal cuts across the Isthmus of Panama and is a key conduit for international maritime trade. There are locks at each end to lift ships up to Gatun Lake, an artificial lake created 85 ft. above sea level to reduce the amount of excavation work required for the canal. The current locks are 110 ft. wide and 1,050 ft. long. A third, wider and longer lane (180 ft. x 1,500 ft.) of locks is due to open in June 2016.

France began work on the canal in 1881 but stopped due to engineering problems and high worker mortality. The United States took over the project in 1904 and opened the canal on August 15, 1914. One of the largest and most difficult engineering projects ever undertaken, the Panama Canal shortcut greatly reduced the time for ships to travel between the Atlantic and Pacific Oceans, enabling them to avoid the lengthy, hazardous, route around the southernmost tip of South America.

Colombia, France, and later the United States controlled the territory surrounding the canal during construction. The US continued to control the canal and surrounding Panama Canal Zone until the 1977 Torrijos-Carter Treaties provided for handover to Panama in 1979. After a 20 year period of joint American-Panamanian control, in 1999 the canal was taken over by the Panamanian government, and is now managed and operated by the government-owned Panama Canal Authority.

The military presence in the Panama Canal area dates back to when Spain built fortifications at Portobello and the Chagres River to protect their transit of the isthmus from South America to Spain. During construction of the canal, the U.S. military supplied engineers, labor, and security. The Hay-Buanu-Varilla Treaty gave the United States the right to fortify the zone, but it was not until 1911 that U.S. Congress appropriated funds to begin fortification construction. The plan called for ten 14-inch rifles, twelve 6-inch rifles, one 16-inch rifle, twenty-eight 12-inch mortars, controlled submarine mine defenses, searchlights, and fire control stations, to defend against naval attack. The Panama Fortification Board also called for permanent field works, roads, obstacles, and ground clearing for defenses against land attack. Naval stations and anchorages were recommended at both Balboa (Rodman Naval Station) and Cristobal (Coco Solo Naval Station).

On March 4, 1907, President Theodore Roosevelt appointed Col. George W. Goethals chairman and chief engineer of the Isthmian Canal Commission. He served in that position until completion of canal construction in 1914, following which he served as governor of the Panama Canal until his resignation January 17, 1917. With Sydney Williamson as construction supervisor and army engineer Maj. Eben E. Winslow as the design engineer, construction began in August 1911 on three forts on the Atlantic side and two on the Pacific side. In 1912, the chief of engineers organized a section in his office under Goethal's son, army engineer Lt. George R. Goethals, to oversee fortification construction in the Canal Zone. The first Atlantic fort was operational in 1914 and the first on the Pacific side in 1916. The U.S. military would spend about \$20M over the next five years (about \$320M in today's value) to build these defenses. By the time the United States entered World War I, there were nine operational forts in the canal zone.

Advances in military technology during First World War, especially naval weapons and military aviation, required the defenses of the Canal Zone to be reevaluated. Battleship armament had increased in size and range, allowing bombardment of the canal's locks and dams from beyond the range of the existing batteries, while aircraft carriers would soon allow aircraft to operate within range of the canal. The threat of submarines around the entrances to the canal was also now a concern. New long-range batteries were proposed for both the Pacific and Atlantic entrances. The addition of antiaircraft batteries was recommended, as were new fire control stations and searchlights. Use of surplus WWI mobile 155 mm and 75 mm guns was also proposed, and airfields and submarine defenses were planned.

Funding was provided for two 12-inch long-range barbette batteries at Fort Sherman. Gatun Dam was only 12,000 yards from deep-water, and each of these batteries would have two 12-inch guns with a maximum range of 30,000 yards, keeping warships effectively beyond bombardment range of the dam and locks. Batteries Mackenzie and Pratt were started in 1916 and completed in 1923. Funding for long-range batteries for the Pacific entrance would need to wait until 1924, when two 16-inch barbette batteries were begun at Bruja Point. When completed in 1929, Batteries Murray and Haan each had two 16-inch guns with a maximum range of 45,000 yards.

After the First World War, forty-two 75 mm field guns and forty-six 155 mm GPF guns were sent to the Canal Zone to supplement both the harbor and beach defenses. A special concrete and steel emplacement, known as Panama mounts, was developed to allow 155 mm guns to track naval targets. Fifteen 3-inch antiaircraft batteries were constructed throughout the Canal Zone, supported by mobile searchlights, sound detector units, and machine guns. Airfields were constructed at both ends of the canal. In 1929, two 14-inch railway guns were delivered to the Canal Zone and firing positions were constructed at Fort Grant and Fort Randolph. The guns could travel by rail to respond to threats on either the Atlantic or Pacific.

The coming of a new world war drove improvements the Canal Zone defenses, mainly by increase manpower from 13,500 troops in the late 1930s to 68,000 troops in January 1943. The primary U.S. military efforts were to improve the Canal Zone's antiaircraft defenses, bombproof key facilities, and to protect the canal and its locks from sabotage. The coast artillery's main projects at this time were the "casemating" of Battery Murray and Battery Pratt, sacrificing their all-around fire for protection from aerial and naval bombardment. Controlled mine defenses were doubled in size with the addition of new mine groups and additional mine casemates in the now obsolete mortar batteries on each side of the canal. New fire control stations increased the field of fire for the existing batteries, as well as radar units for targeting. Four new 90 mm batteries for defense against torpedo boats were added at both entrances.

By 1950, almost all of the big guns were scrapped, the harbor defense commands dismantled, and the Coast Artillery Corps abolished. The old coast defense reservations in the Canal Zone were either converted to other uses by the U.S. military or abandoned. The U.S. military's naval, ground, antiaircraft, and aircraft defense of the canal continued until 1999, when the U.S.

military left and all the military facilities were converted to other uses or abandoned.

The 2016 CDSG Tour

A second CDSG tour to the defenses of the Panama Canal Zone has been under discussion by our membership since our last CDSG tour to Panama. The greatest challenge in organizing such tours is having a good local organizer. A small group of CDSG members called upon Paolo in 2013 to organize a tour to the defenses of the Canal Zone and the success of that tour led us to start planning the 2016 CDSG tour. Using both the 1993 CDSG Tour and the private 2013 tour as models, we developed the following schedule:

Pacific Side

- Day 1 February 27 (Saturday)
Arrival in Panamá -Tour starts at 7 pm at hotel
- Day 2 February 28 (Sunday)
Fort Kobbe-Howard/ Rodman Naval/Fort Amador
- Day 3 February 29 (Monday)
Fort Grant (Naos, Culebra, Flamenco & Perico Is,)
- Day 4 March 1 (Tuesday)
Fort Clayton-Albrook / Transfer to Colón

Atlantic Side

- Day 4 (cont.) March 1 (Tuesday)
Portobello Town Defenses / Fort DeLesseps
- Day 5 March 2 (Wednesday)
Galea Island (NSAG) / Fort Randolph /
Colo Solo Naval
- Day 6 March 3 (Thursday)
Fort Sherman (Toro & Shelter Points)
Fort Davis / Fort Gulick / New Gatun Locks
- Day 7 March 4 (Friday)
Fort Sherman (West) / Fort San Lorenzo
- Day 8 March 5 (Saturday)
Transfer to Panamá City

Pacific Side

- Day 8 (cont'd) March 5 (Saturday)
Gaillard Cut & Centennial Bridge /
Miraflores Visitor Center / Panama Canal Admin
Ancón Hill / Quarry Heights /
Group Dinner – Tour ends at 7pm at hotel
- Day 9 March 6 (Sunday)
Departure from Panamá

The tour hotels were the Amador Ocean View Hotel on Perico Island (formerly Fort Grant) on the Pacific side and the Hotel Meliá Panama Canal at the former Fort Gulick on the Atlantic side. Tour members arranged their own breakfasts and dinners, except for the final-night group dinner in Panama City. We traveled in a 30-passenger mini-bus with driver each day (with a lot of bottled water). Paolo guided us, making sure we gained access to sites. We arranged for lunches at various restaurants along our route. We started our daily field trips at 8 am and returned to the hotel around 6 pm each day. While many of the

former military bases and coast defense sites have suffered from economic development and exposure to environment in the last 23 years, we were able to visit all the surviving named coast artillery batteries plus a lot more. Below is a summary of what we saw each day during the tour.



Hotel Meliá Panama Canal Residencial El Espinar – Colón, Panama



Amador Ocean View Hotel Isla Perico Amador, Panama



Panama Canal – Miaflores and San Pedro Locks – large channel is to the new Cocoli Locks

Day 1 – Saturday – 2/27 - Arrival in Panamá

Our tour members gathered at the Amador Ocean View Hotel at 7 pm for a tour meeting to hear about the planned schedule from Terry and Paolo and to receive the tour handout. We discussed health and safety issues, as well as logistics. The 18 members either flew into Panama that day or had already been visiting Panama. The location of the hotel on Perico Island was created by landfill and was a complete transformation from the isolated location we visited in 1993. The causeway is now a major attraction for the residents of Panama City. We were treated to a traffic jam and many busy entertainment venues for most of the night. Tour members found their own dinners and prepared for the start of the tour the next day.

**Day 2 – Sunday – 2/28 - Fort Kobbe-Howard/
Rodman Naval/Fort Amador**

After a hotel breakfast, we embarked on the first of many rides in our mini-bus. Paolo had a supporting team of Luis Puleio and Manuel Rivera. Also joining us was Charlotte Elton, who is active in promoting the military history of Panama and developing tourism. Stopping by to greet the group was Dolores de Mena, who organized our last CDSG tour to Panama in 1993 when she worked for the U.S. Army Southern Command.



Battery Murray – 2 x 16-inch/BC – Fort Kobbe
rail car entrance



Battery Murray – 2 x 16-inch/BC – Fort Kobbe – New bike path around casemate with magazine building to the far left



Battery Murray – 2 x 16-inch/BC – Fort Kobbe
plotting room



Battery Murray – 2 x 16-inch/BC – Fort Kobbe
WW II casemate

Our route to the former Fort Kobbe/Howard Airfield (1918-99) took us back down the causeway to the former Fort Amador (1911-79) and over the Bridge of the Americas to the western side of the canal. We first visited Battery Murray (2 x 16-inch/BC), active 1929-48. These 16-inch guns were originally in open positions, protected by dispersal. This battery received casemated gun houses during World War II to protect each gun from aerial attack. After the war, these gun houses were used as storehouses (still in use as of 1993 during the first CDSG tour), but today they are abandoned. The area around the battery is under redevelopment as the Panama Pacifico, a mixed-use development of office space and residential units. The gun houses should be safe from this development but the other components of the battery, such as the magazines and power houses, are at risk. The group

got its first taste of the heat and jungle when Paolo led us to visit the plotting room for Battery Murray, a protected concrete structure about a one mile away from the gun emplacements. In the side of a hill, this PSR has become lost in the jungle over the last 20 years. We were all very happy to return to the air conditioned mini-bus and bottles of water to travel to Battery Haan (2 x 16-inch/BC) also active 1929-48. Battery Haan did not receive casemated gun houses, so all that remains today is a large open field with an outline of the gun emplacements under the grass. In 1993, this area was in use for radio antennas, but today it appears to be a vehicle junkyard. We were able to visit several magazine buildings that were surrounded by hulks of old Panama City buses. The heat and jungle discouraged us from visiting Battery Hann's plotting/switchboard room and power plant that are now deep in the jungle.



Our mini-bus and driver – CDSG Panama Tour

As part of arrangement to visit these sites, we visited Panama Pacifico's sales office to hear about their plans for mixed-use development of the former Fort Kobbe/Howard Airfield. We were treated to a table of appetizers and drinks, which the group quickly devoured. Our mini-bus toured the many abandoned housing units and drove to the large, closed base hospital for a quick visit. Back on the mini-bus, we traveled to the former U.S. military golf course for our "second" lunch at the Tuscan Grill Panama in the still-active golf course club house. Reenergized by lunch, we traveled to Batele Point for a jungle trek to the World War II 90 mm battery (4 x 90 mm/fixed) and WWII mine fire



Tom picks out a condo to purchase at Fort Kobbe – Panama Pacifico



The CDSG retreats from the jungle – Battery Haan magazine – Fort Kobbe



AMTB emplacement at Batele Point – Fort Kobbe

control station that overlooked the Pacific entrance to the canal. As this site is "lost" in the jungle, the emplacements are in good condition. Back on the mini-bus we travelled to Bruja Point to hike up the hill and out to the point to visit the remains of the 155 mm/75 mm emplacements and the footings for several fire control stations and searchlights positions. Based on our "heat and jungle" experience earlier in the day, the group decided to skip this and move on to our next schedule site.

The mini-bus drove by the former Rodman Naval Station, which has been converted into a commercial port with several business using the facilities and piers. Looping up onto the Bridge of the Americas we returned to the former Fort Amador for a more detailed visit. The fort was originally considered the mainland portion of Fort Grant until 1917. The reservation was split in between U.S. Army and U.S. Navy. Most of the post was turned over to Panama in 1979 and became headquarters of the Panamanian Defense Force until 1989. Coastal defense batteries were Battery Birney (2 x 6-inch/DC) and Battery Smith (2 x 6-inch/DC), which were active 1916-43, but then buried when military housing was constructed on the site in the 1950s. AMTB Battery 7A (4 x 90 mm/mobile) was installed in 1942 and removed in 1948. This site is also buried. Many of the original military buildings have been demolished for new commercial development, such as an entertainment district, biodiversity museum, and a large convention center, so there have been many changes since our 1993 tour. The former naval buildings have been taken over by the Panama Ministry of Public Security. Most of the coast artillery barracks have been removed, along with the former coast artillery administrative headquarters. Leaving our mini-bus behind, we walked through the remains of the military housing and support buildings, including the old railroad maintenance building. We were able to locate concrete portions of the two buried 6-inch/DC batteries and Battery Smith's CRF station. Returning to our mini-bus we continued down the causeway to our hotel and independent dinners.

Day 3 – Monday – 2/29 - Fort Grant and Fortified Islands

After a hotel breakfast, we embarked on our mini-bus that Paolo and his support team arrived in each morning from Panama



Perico and Flamenco Islands – landfill and new construction – Amador Ocean View Hotel with large flat roof at base of Perico Island



Battery Newton – 1 x 16-inch/DC – Fort Grant civil aviation radar



Battery Newton – 1 x 16-inch/DC – Fort Grant rail service entrance



Battery Newton – 1 x 16-inch/DC – Fort Grant - Perico Island

City. Today's schedule had us visiting all our sites within the view of our hotel on the "fortified islands" of Fort Grant (1911-79). The mini-bus took us up the old railroad right of way to the top of Perico Island to visit Battery Newton (1 x 16-inch/DC), active 1917-43. Several large condominium buildings have been constructed next to the long staircase that runs from sea-level to the battery on top of the island. The large battery complex has been surrounded by a block wall since our 1993 tour, leaving some of the supporting fire control stations outside the wall and more difficult to visit. The 16-inch disappearing carriage's counterweight well has been filled in so a large radar tower and radar control building could be constructed. The staff of the air traffic control center greeted us and let us wander about the single gun emplacement. Access to the underground portions of the battery have been walled off from the air traffic control area, so we had to walk around to the railroad service entrance to access the power plant, magazines, offices, storeroom, etc. These spaces were full of used furniture, making passage challenging. The battery overall has not changed very much since our 1993 visit.

A short bus trip took us to Culebra Island to meet our guides from the Smithsonian Institution for tropical marine studies. Also greeting us were several sloths in the trees around the former railway gun firing positions, active 1929-46, known as Battery 8 (2 x 14-inch/RV). After reminding the group that we were in Panama to visit former military sites, not photograph sloths, our guides led us on a tour of the island. The former 14-inch magazines built into the side of the island are now used as offices and display space by the Smithsonian. Following a nature trail we were able to visit the site of Battery V (10B) (2 x 155 mm on Panama mounts), and Battery AW (2 x 75 mm beach defense guns).

Back on the bus we drove a short distance with our Smithsonian guides to Naos Island. They led us through the old torpedo (mine) storehouse to enclosed staircases for Battery Burnside (2 x 14-inch/DC) and Battery Buell (2 x 14-inch/DC), active 1916-48. The 150 steps sapped the energy of the group, but the desire to explore the underground passages of these two batteries soon had us wandering from room to room. The tunnel passageway to the fort's fire control complex was full of chunks of concrete as a 2 million-gallon water tank has been built on top



Naos Island – Fort Grant – remains of Batteries Buell and Burnside – site of Battery Parke under condo building



Battery Buell – 2 x 14-inch/DC – Fort Grant – rear access stairs



Battery Buell – Fort Grant – service tunnel access to fire command



Battery Buell – Fort Grant – access to loading platform

of these stations since our 1993 tour. Both gun emplacements for Battery Burnside have been filled in as well, but the abandoned underground magazines, plotting rooms, and store rooms are still assessable. Traveling down the joint service tunnel we reached the central power plant, where most of the generating equipment has now been scrapped since our last visit. One of Battery Buell's gun emplacements remains open, so the group could both see its features as well as visit the remains of the battery commander stations on the surface. We viewed the site of Battery Parke (2 x 6-inch/DC), active 1915-46, but it has now disappeared under



Battery Buell – 2 x 14-inch/DC – Fort Grant
last open emplacement



Batteries Buell and Burnside – Fort Grant
central power room



Batteries Buell and Burnside – Fort Grant
joint service tunnel



Battery Buell – 2 x 14-inch/DC – Fort Grant
shell table in magazine



Battery Buell – 2 x 14-inch/DC – Fort Grant
rear access portal

a large condominium complex. We are also able to locate one gun emplacement for Battery 23 (3 x 3-inch/AA) near the new water tank. The group returned to Battery Buell's service tunnel to visit the battery's magazines and the blocked tunnels to the battery's other gun emplacement.

Returning up the service tunnel to Battery Burnside's rear staircase we made our way down to the Fort Grant mine complex. While the mine loading room has been replaced with a new Smithsonian lab building, the cable tank building remains. We visited the interior even though work was underway to replace part of the roof. The bridge crane and cable tanks remain. One tank is used as a swimming pool by the staff while the other tanks are used for holding specimens. To access the mine casemate we needed to get clearance from the gate guard for the new condominium complex that now occupies the front of Naos Island (where Battery Parke used to be), even though the casemate itself is controlled by the Smithsonian. After several telephone calls we were let in and we toured the inside of the mine casemate, a two-story building inside the earth-covered protective structure. Back on board our mini-bus we drove the short distance to lunch at restaurant Mi Ranchito on Naos Island. During lunch, we discussed with sadness the plans to build more condominiums on Naos Island, which will cause the complete demise of the wonderful, one-of-a-kind 14-inch disappearing gun complex of Batteries Burnside and Buell.



Fort Grant mine complex – cable tank building

After lunch our next site was Flamenco Island, at the end of the causeway. The island has undergone many changes since our last visit in 1993. Much of the open water between Flamenco and Perico Islands has been filled in for a large marina and entertainment/casino center. Even worse has been the transformation of the combined mortar batteries Prince, Merritt, and Carr (each 4 x 12-inch BLM), all active 1916-43, into a two-story shopping mall. Only Battery Merritt remains untouched, while Batteries Prince and Carr have disappeared under a modern shopping

structure. Parts of two mortar emplacements can still be found within the mall's massive structure, but you need to know what to look for. This destruction is made even sadder by the fact that the shopping mall has gone bankrupt and only a few businesses remain. While the entrance through the underground gallery to the center of the island remains, the large power room as you first enter the tunnel has disappeared. The tunnel itself has



Batteries Carr-Prince-Merritt – 12 x 12-inch/BLM – Fort Grant – mall constructed on top of Batteries Carr & Prince



Battery Prince – 4 x 12-inch/BLM – Fort Grant – new mall on top of battery



Battery Prince & Carr – 12-inch/BLM – Fort Grant – new mall on top of battery



Flamenco Island – Fort Grant – elevator shaft to Battery Warren



Battery Merritt – 4 x 12-inch/BLM – Fort Grant



Battery Warren – 2 x 14-inch/DC – Fort Grant



Flamenco Island – Fort Grant – access tunnel to elevator to Battery Warren



Battery Warren – Fort Grant fire command telephone booths



Battery Warren – 2 x 14-inch/DC – Fort Grant – 25kW motor generators



Battery Warren – 2 x 14-inch/DC – Fort Grant – access to magazines



Flaminco Island – Fort Grant – WW II triple FC stations

not changed since our 1993 tour, but the large elevator (and supporting machinery) that once rose up about 280 feet into Battery Warren (2 x 14-inch/DC), active from 1916-48, has been removed. We returned back down the tunnel for the ride up the steep road to the top of Flamenco Island. We parked the mini-bus in one of Battery Warren's gun emplacements, as they were filled in when the battery was used as a HAWK air defense missile platform (1960-70). Between the two gun emplacements was an impressive collection of fire control stations that served as the harbor defense, fort command, mortar batteries, and battery commander stations for Battery Warren. Unfortunately, since our 1993 tour the topmost of these stations have been destroyed and several steel roofs have disappeared. We searched for several independent fire control stations and for Batteries U (10A) and T (both 2 x 155 mm on Panama mounts), but they too have disappeared. There have been several proposals to build a hotel or condominiums on top of the battery and during one of those ventures the area around Emplacement No. 2 was bulldozed flat, along with several FC stations. The group made their way down the open ramp to the unique multi-level emplacement. The lower magazines were for reserve ammunition, while the upper magazines were for active use, and shell carts could be pushed out the guns. The power room retains two 25 kW GE motor generators, although the copper has been stolen out of the generators since we last visited. Looking down the deep elevator shaft continues to be a highlight of this battery. We worked our way up into the complex of telephone rooms, plotting rooms, offices, etc. that were part of the harbor and fort command. The entire battery is abandoned and the only current use is the Panama Canal control station built on one of Battery Carr's fire control station. The group climbed down to visit the three-level World War II fire control structure for Batteries Murray and Hann in the hillside above the island's lighthouse. Continuing down the hillside we headed back to the Amador Ocean View Hotel and independent dinners.



Paitilla Point, Panama City – Club Union on the water on the right side of photo

Dolores de Mena organized a special presentation at the Panama Union Club in Panama City for us to educate the leadership of Panama about the history of the Panama Canal defenses. It was hoped this hour-long lecture by Terry McGovern would promote to Panamanians that preservation and interpretation

of the historic Canal Zones defenses would be worthwhile. Over 75 folks attend the lecture, including a former President of Panama, government ministers, and several directors of the Panama Canal Authority. The PowerPoint presentation appeared to be well received and generated over a dozen very interesting questions. Dolores hopes the lecture will generate enough interest to help select one battery on each side of the Canal Zone to preserve as possible tourist museums. One point of interest was the location of Union Club on Paitilla Point, which once had a 155 mm battery, a 75 mm battery, fire control stations, and two 60-inch searchlight positions, all now gone.

The second part of the this report will appear in the next issue and cover the visit to the defenses on the Atlantic side of the Panama Canal.

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Visits to Some of Maine's Coastal Forts

Charles H. Bogart

Upon leaving the 2016 CDSG Conference at Portsmouth, NH, Mary Ann and I drove north to visit some of Maine's coast defense forts and the state's three surviving Aroostock War forts. Maine has an abundance of interesting coastal forts, ranging from Colonial times to World War II. Below is an account of our visit to five pre-War of 1812 forts.

An historical disclaimer: I refer to all of the forts in this article as being in Maine; however, at the time they were built, Maine was a county of Massachusetts. Maine did not entered the Union as its own state until 1920, as part of the Missouri Compromise.

Fort Edgecomb, Edgecomb, Maine

Fort Edgecomb is located in the town of Edgecomb, on the Sheepscot River. The fort was built 1808–1809 as part of the United States' second-system coast defense fortification program, to defend the port of Wiscasset, ME, at this time one of the largest shipbuilding sites in the country. The fort is on misnamed Davis Island, which is actually a peninsula. Fort Edgecomb, as built, was a two-story wooden octagonal blockhouse. Each wall of the blockhouse's lower level is 27 ft. long; the upper level is 30 ft. The ground-level walls are pierced with loopholes for muskets and ports for firing swivel guns. The upper level walls have gun ports for cannon.

Fort Edgecomb was built not only for defense but also to prevent ships from breaking President Thomas Jefferson's shipping embargo, whose purpose was to prevent U.S. ships from sailing for overseas ports during the Napoleonic Wars. The Embargo Proclamation was President Jefferson's response to impressment of American sailors by the Royal Navy and attacks by French ships on U.S. merchant vessels. Needless to say, the embargo was not popular with the shipbuilders and merchants of Maine, and they sought to circumvent the embargo. The guns of Fort Edgecomb were thus not used when built to keep ships out of the harbor but to keep them in the harbor.

During the War of 1812, Fort Edgecomb was manned by regular troops backed up by local militia. The port of Wiscasset saw considerable activity throughout the war as a base for privateers. Prisoners brought in on prize ships were held outside the city of

Wiscasset. Fort Edgecomb remained an active U.S. Army base until 1818, when British troops withdrew from Eastport, Maine. With the 1818 withdrawal of British troops from U.S. soil, most seacoast defense forts in Maine were reduced to caretaker status. In 1864, during the Civil War, with Confederate privateers operating off New England, a water battery was built below the blockhouse and manned by local militia.

Starting in 1875, local citizens began to raise funds to care for the blockhouse, which was still owned by the U.S. Army. In 1923, the state of Maine purchased the blockhouse from the army for \$501 and made it part of their park system.



Fort Edgecomb blockhouse



Fort Edgecomb Civil War water battery as seen from the blockhouse



Fort Edgecomb blockhouse from the water battery

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By Terrance McGovern

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Day 4 – Tuesday – 3/1 - Fort Clayton/Albrook Airfield, Portobelo, and Fort Delesseps

After a hotel breakfast and checking out of the Amador Ocean View Hotel, we embarked on our mini-bus (and accompanying van with our luggage) for our transit across the isthmus. Our mini-bus took us on a driving tour of Albrook Field (1927-97), the former US air base, which today is the Albrook / Marcos A. Gelabert International Airport, Panama City's primary domestic airport. Both the airfield and housing area have been converted to civilian use. Our next stop was the Corozal American Cemetery, which is run by the American Battle Monuments Commission and contains the graves of 5,336 American veterans and others. We visited the graves and the memorial. Driving back toward Panama City we visited Fort Clayton (1920-99), the former US Army headquarters in the Canal Zone. We were treated to a reception at what is now the City of Knowledge Visitor's Center. This was originally built in 1933 by the US Army as the residence of the commander of Fort Clayton. The house was a great example of the type of housing built in the Canal Zone to handle the hot and wet weather. After thanking our hosts, we drove the Trans-Isthmian highway toward Colon until we turned off at Sabanitas toward Portobelo. We stopped for lunch at Restaurante Los Cañones (perfectly named!) about one mile before Portobelo. This rambling restaurant had tables among palm trees and Caribbean views with several old cannon mounted on large rocks. We ate in the open-air restaurant, decorated with shells, buoys, driftwood, and a roof, due to the first wave of rain. Back on the mini-bus, we reached Portobelo just in time for a heavy rainstorm that continued for the entire time we were there.



Portobelo – Fuerte de San Geronimo – Avoiding the rain

Portobelo was founded in 1597 by Spanish explorer Francisco Velarde y Mercado. From the 16th to the 18th centuries it was an important silver-exporting port in New Granada on the Spanish Main and one of the ports on the route of the Spanish treasure fleets due to its deep natural harbor. In 1668, Capt. Henry Morgan led a fleet of privateers and 450 men against Portobelo, which he captured in spite of its fortifications and plundered for 14 days, stripping it of nearly all its wealth. On November 21, 1739, the port was again attacked and captured by a British fleet, commanded this time by Adm. Edward Vernon during the War of Jenkins' Ear. Today, Portobelo is a sleepy city with a population of fewer than 3,000. In 1980 the ruins of the port's fortification were declared a UNESCO world heritage site.

Our first stop was Fuerte de Santiago de la Gloria (1600-1739) as we drove into town. The tour of the fort was quick due to the rain. The next stop was Fuerte de San Jerónimo (1758), where again we had an "in and out" visit due to the rain. We ran across the street to the Casa-Museo de la Real Aduana in the old custom house which the group enjoyed because it was out the rain. We drove around the town trying to see the other forts and batteries on the hillsides and across the bay. Having had enough of the rain, we headed for Colón.

Founded in 1850 at the Atlantic (northern) terminus of the original Panama Railroad, the settlement was first called Aspinwall, named for one of the builders of the railway. After completion of the railway in 1855, Colón overshadowed the older Caribbean ports of Panama, and with the first plans for the isthmian canal it took on additional prestige. The dock complex built by the U.S. government in the former Canal Zone at Cristóbal, now essentially a suburb, make Colón one of the most important ports of the Caribbean Sea. Colón also is a major commercial center, tourist destination, and port of call for many cruise ships. However, a large proportion of its inhabitants live in poverty, and crime is rampant.

We needed to drive through Colón to reach Manzanillo Point and Fort DeLesseps (1911-55). This small fort had only one battery, Battery Morgan (2 x 6-inch/BC), which was active 1917-44. The battery's two 6-inch guns were on the rare M1910 mount that was developed as the casemated secondary armament for Fort Drum in Manila Bay. Special rounded shields were built



Battery Morgan – 2 x 6-inch/BC – Fort De Lesseps

just for these two guns. Today, all that remains of the fort is the whitewashed gun emplacements. We were greeted by a caretaker as the battery is used by the Smithsonian Institute as education center. The battery's magazines and store rooms have been converted into a display area and lecture room, while other spaces are used for storage. The empty gun platforms allow a great view of Limon Bay and the many ships waiting to transit the Panama Canal. We could see the Cristobal mole where four 90 mm guns in fixed mounts were installed at an AMTB defenses 1943-48. This battery was built over when the port was expanded.

Back on the mini-bus we passed through the city again and headed for the former US Army post of Fort Gulick (1941 to 1995), now Fuerte Espinar. Fort Gulick was basically a sub-post of Fort Davis as the wartime expansion of US Army troops required more quarters and support services than Fort Davis could handle. Today, the officer and NCO quarters are private



M3 3-inch AA gun – Hotel Melia Panama Canal – Fort Gulick

residences, while most of the larger buildings are abandoned. The post's most famous building is the former hospital that was turned into the School of the Americas after World War Two. This school trained military personal from Central and South American countries. The former school building is now the Hotel Meliá Panama Canal, our accommodation for the next four nights. The group quickly located the former fort's only artillery, a 3-inch M3 anti-aircraft gun, on display next to the hotel's entrance.

Day 5 – Wednesday – 3/2 – Galeta Military Reservation/ Fort Randolph/Coco Solo Naval Station

After a hotel breakfast, we embarked for a 30-minute drive to the former Galeta Military Reservation. The Smithsonian Tropical Research Institute established the Galeta Point Marine Laboratory on the island in 1964. The coast artillery used this location for two 4 x 155 mm Panama mount batteries, two 75 mm fixed guns, and several searchlight and fire control stations related to Fort Randolph's batteries on Margarita Island. Our Smithsonian hosts gave us a tour of their facility and explained their mission. We in turn explained what we knew about the coast artillery role on Galeta Island. We walked to the 155 mm and 75 mm emplacements.



Galeta Military Reservation – 155 mm 270-degree Panama Mount

Our next stop was nearby former Fort Randolph (1911-79) on Margarita Island. The former fort is privately-owned, a proposed site for an industrial park, a container port, a hotel/shopping complex, or a power plant at various times over the past 30 years. None of these ventures have yet occurred but all the military buildings have been destroyed, except for the concrete batteries. Gaining access proved challenging, as the property is fenced and guarded.

We finally gained access to the batteries with the help of the Smithsonian's Marine Lab and several "honorariums" to security personnel. Our first stop was Battery Webb (2 x 14-inch/DC), active 1916-48, which is a massive two-story abandoned emplacement. The bottom level is a reserve magazine for the battery (later used for storing 14-inch ammunition for the railway battery at Fort Randolph), power rooms, plotting rooms, store rooms, and storage rooms. The second level has the loading platforms and magazines for the two 14-inch disappearing guns, as well as

special shell and powder hoists from the lower level. The unique balanced-platform powder hoists that were there in 1993 have disappeared. Above this were the battery commander's stations. This battery is impressive due to its large size and unique design. The only similar battery is Battery Warren on Flamenco Island, which is mostly underground, while Battery Webb is above ground. If destroyed, it would mean a loss of one of the most impressive structures of the Endicott-Taft era. The remains of Battery X (4A) (4 x 155 mm on Panama mounts), active 1940-44, can be seen in front of Battery Webb and Battery Weed. The group then focused on Battery Weed (2 x 6-inch/DC), active 1916-46, which is also abandoned. We were able to visit several remaining fire control stations, including the H Station, which has a large tower structure built on it. Down by the breakwater we were able to find remains of the rail-mounted searchlight and the gun blocks for fixed 75 mm guns.

We drove over to the combined mortar batteries, Battery Tidball (4 x 12-inch/BLM) and Battery Zalinski (4 x 12-inch/BLM), both active 1914-43. The battery has several families living it and part of the magazines, storerooms, and access ways are being used as repair shops for automobiles and other machinery. The batteries appear more occupied than they were in 1993, though the amount of junk throughout the batteries does not appear to be any less. We were only able to visit the parts of batteries that were not occupied. We were able to visit the World War II mine casemate built into Battery Zalinski in 1943 to support



Battery Webb – 2 x 14-inch/DC – Fort Randolph – Shell tables



Battery Weed – 2 x 6-inch/DC – Fort Randolph – Is the tower for military purposes?



Battery Webb – 2 x 14-inch/DC – Fort Randolph – 14-inch railway shell table and overhead rail supports



Battery Webb – 2 x 14-inch/DC – Fort Randolph



Battery Webb – 2 x 14-inch/DC – Fort Randolph – Loading platform

the enlarged controlled mine fields. As the group was making its way to the remains of the two turntables for Battery 1 (2 x 14-inch/RV), active 1930-46, our “security” team decided that it was time for us to leave the property. Paulo said that the gun blocks remain much as they did in 1993.



Batteries Tidball-Zalinski – 8 x 12-inch/BLM – Fort Randolph



Batteries Tidball-Zalinski – 8 x 12-inch/BLM – Fort Randolph

Leaving Margarita Island we drove through the remains of the US Naval Station at Coco Solo, active 1919-79, and France Field, active 1918-79. Little remains of the naval station; a container port and free trade zone have taken its place. France Field is now the Enrique Adolfo Jiménez Airport, Colon’s municipal airport. We stopped at the free trade zone to have a late lunch at McDonald’s. Since we were ahead of the day’s schedule, we headed to Fort Davis (1919-95). This former fort is located on Gatun Lake near the Gatun locks on the Atlantic entrance of the Panama Canal. Fort Davis’ initial construction program began in 1920 and provision were made for quarters for the 14th Infantry Regiment for the defense of the Atlantic locks, similar to the role that Fort Clayton played on the Pacific side of the Canal. We drove around the former post that has been converted to residential housing; the large barracks complex is now the Panama National Police Academy. We proceeded to the huge construction site where the new Gatun locks (Agua Clara) were under construction. The Panama Canal Authority has built a large visitor center overlooking the three new locks. We attended their

film about the Panama Canal and viewed the new locks from the overlook. We had an interesting detour to a former Canal Zone golf course where the current members drive their cars instead of using golf cars and the golf clubhouse burned down. Upon our return to Fort Gulick we drove around the former base to view the remaining buildings. We ended up at the Hotel Meliá Panama Canal for our independent dinners and overnight stay.

Day 6 – Thursday – 3/3 – Gatun Dam and Fort Sherman

After a hotel breakfast, we embarked for a 45-minute drive to Gatun Dam, a large earthen dam across the Chagres River, near the town of Gatun. Constructed 1907-13, it is a crucial element of the Panama Canal as it impounds the artificial Gatun Lake, which in turn carries ships for 21 miles of their transit across the Isthmus of Panama. At the time of completion, the dam was the largest earth dam and Lake Gatun was the largest artificial lake in the world. We crossed over the new Agua Clara locks and then over the Gatun locks (while two cruise ships were passing through the locks) and finally cross over the Gatun spillway. We drove to the site of Battery 8 (3-inch/M3 AA guns) on the right flank of the dam, but before we could locate them the Panama Canal police arrived to chase us away. We headed back across the spillway and by the Gatun locks and then down the road for the 30-minute ride to Fort Sherman.

Fort Sherman (1911-99) is on Toro Point at the Caribbean end of the Panama Canal, on the western side of Limon Bay opposite Colón and Fort Randolph (on the eastern side of the bay). The primary coast artillery post for the Caribbean sector of the canal, the reservation became the U.S. Army’s Jungle Operations Training Center after 1953. A HAWK air defense missile battery was emplaced on the post 1960-68. We drove to what is now the Shelter Bay Marina & Hotel, where we hiked to the disappearing gun batteries. Located on Toro Point are Batteries Mower and Stanley (both 1 x 14-inch/DC), both active 1915-48. The road to the batteries, and the batteries themselves, have become more overgrown since 1993. We visited both abandoned emplacements and the 155 mm Panama mounts located in front of the 14-inch batteries. Turning into the jungle we climbed a small hill to the



Battery Mower – 1 x 14-inch/DC – Fort Sherman



WW II HECP/HDOP – Fort Sherman



Fire control stations and telephone booths – Fort Sherman



Battery Stanley – 1 x 14-inch/DC – Fort Sherman

H station and several FC stations covered with jungle growth. Returning to the road, we climbed up to the large three-level concrete World War II HECP/HDOP with many rooms. Behind this structure are five older FC stations that have been converted into other uses such as power rooms. We hiked back to the Shelter Bay Marina for lunch in the restaurant.

Our next site was the combined Howard and Baird mortar batteries (both 4 x 12-inch/BLM), both active 1915-43. We parked the mini-bus by the former Jungle Training Center zoo and visited the concrete infantry wall that protected the back of the mortar batteries. The wall has firing slits every six feet and is in the same condition it was in 1993. The mortar batteries were used for small arms and training ammunition storage during the 1993 visit, so they were well maintained and lighted. This time the site was abandoned and the vegetation was well on its way to taking over the batteries. The front portions, underground, were empty but home for many birds and bats. Driving back to Shelter Bay we attempted to visit the site of Battery W (4 x 155 mm on Panama mounts) and the site of four mobile 75 mm beach defense guns (Battery AU and Battery AV) that were adjacent to the Toro Point lighthouse and western breakwater, but the road was closed as the breakwater was under repair. Fort Sherman's mine complex (mine storehouse, loading room, cable tank, boat house) at Shelter Bay has disappeared, except parts of the tramway and mine wharf.



Paulo holding indicator wheel in Battery Baird plotting room – Fort Sherman

We drove on to Shelter Point where Battery Kilpatrick (2 x 6-inch/DC) and a mine casemate (with power house added later), all active 1915-46, were located. AMTB Battery 3C (4 x 90 mm mobile), active 1942-48, was in front of Battery Kilpatrick. The nearby large post-WWII barracks buildings are now occupied by El Servicio Nacional Aeronaval (SENAN) de Panamá, the naval air service of Panama. The arrival of our mini-bus and CDSG members walking around Battery Kilpatrick was unexpected by SENAN, so several armed guards asked us to leave before we



Battery Kilpatrick – 2 x 6-inch/DC – Fort Sherman

could finish our tour of the defenses of Shelter Point. We then drove through the many streets of abandoned housing and other support buildings slowly decaying in the tropical environment. Our mini-bus took us back across the two canal locks to the Hotel Meliá Panama Canal for our independent dinners and overnight stay.

Day 7 – Friday – 3/4 – Fort Sherman and Fort San Lorenzo

After a hotel breakfast, we embarked on our mini-bus for a 1-hour drive to Fort Sherman. This time instead of going to Toro Point we turned off on the road to Fort San Lorenzo on the Chagres River. Battery Pratt (2 x 12-inch/BC) and Battery Mackenzie (2 x 12-inch/BC), near Iglesia Point, were both active 1923-48. Battery Pratt is still in use for the trans-Caribbean telecommunication cables. The long-range BC battery was casemated during World War II, a well-protected structure which serves as a key telecommunication center. The battery also served as the alternate command post for Headquarters, U.S. Southern Command, during the Cold War. We had arranged a guided tour of the facility with Pan-American Cable System. Once we signed in we were led through each gun house and the service gallery and magazines. We then visited the outside of the battery, which has not changed since our 1993 tour.



Battery Pratt – 2 x 12-inch/BC – Fort Sherman



Battery Pratt – 2 x 12-inch/BC – Fort Sherman

We next drove to nearby 290-Foot Hill, where we hiked down a dirt road until we reached a trail blazed by Paulo. The trail worked its way up the hill until we reached three tall concrete towers at the summit of the hill, with interior wooden stairs. The site also had a dormitory and operations/plotting room building. The tree canopy now encircled each tower so the visibility from the top of the towers was limited. The CDSG did not visit this site



Battery Pratt – 2 x 12-inch/BC – Fort Sherman



Three FC towers – 290-foot Hill – Fort Sherman



Fire control tower at 290-foot Hill – Fort Sherman



Battery MacKenzie – 2 x 12-inch/BC – Fort Sherman



Fire control tower at 290-foot Hill – Fort Sherman –
Stairs inside tower

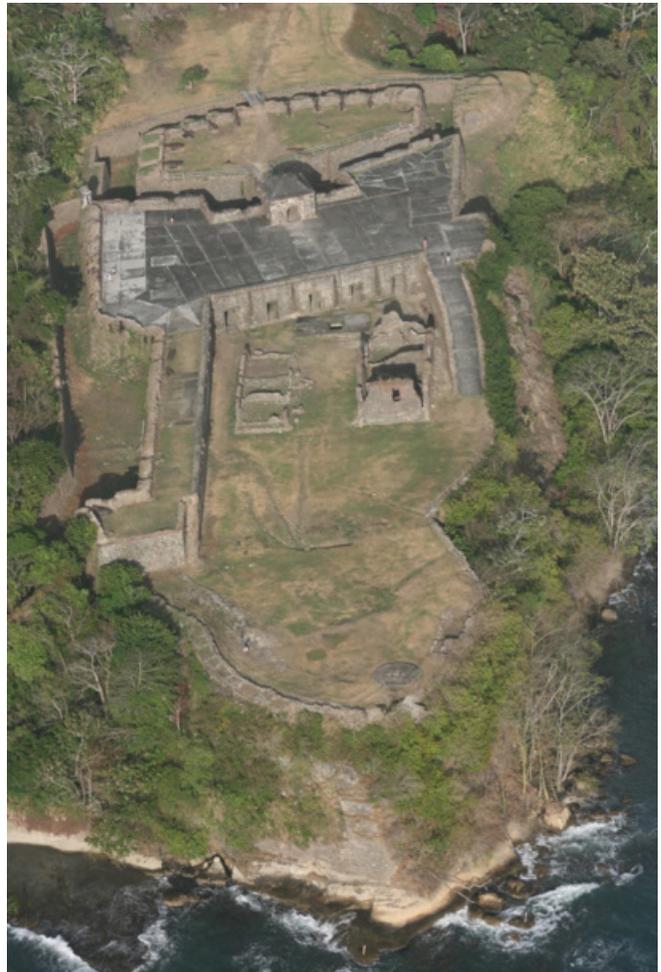
the road and battery, so accessing the battery proved difficult at certain points and visibility of the battery components was limited. The primary areas explored were the protected magazines, plotting rooms, power room, and store rooms. One of the open gun emplacements was visible but the other was overgrown in the tall grass. We returned to our mini-bus to continue to the end of the road at the Chagres River and Fort San Lorenzo.



Battery MacKenzie – 2 x 12-inch/BC – Fort Sherman

during the 1993 tour. For lunch, we drove back to the Shelter Bay Marina & Hotel, the only place to eat in the Fort Sherman area.

Back on the mini-bus, we drove down the main road looking for the road to Battery Mackenzie. Back in 1993, this battery was being used by US Special Forces as a training area; today the battery is abandoned. We almost missed the battery road, as a large tree had fallen across it, so we had to leave the mini-bus behind and hike to the battery. The jungle has reclaimed both



Fort San Lorenzo – Fort Sherman



Fort San Lorenzo – Fort Sherman – Sally Port

Formally known as Castillo de San Lorenzo de Chagres, or Fort San Lorenzo (1595 - 1770), this site was first fortified in 1575. The fortress took 30 years to complete in its original form on a bluff at the mouth of the river, surrounded on all sides with palisades and wooden and earthen ramparts, with four bastions on the landward side, and two bastions facing the sea. Rebuilt in 1761, the site became a Panamanian National Monument in 1908, but fell within the boundary of Fort Sherman in 1911. It was transferred back to Panama in 1979. During World War II an American searchlight position and several 3-inch antiaircraft guns were set up here to defend against possible German U-boat attacks up the Chagres River to Gatun Dam. Battery AQ (2 x 4.7-inch, replaced by two 75 mm in 1919), active 1915-46, was also located here. We fanned out over the land-defense redoubt and then across the ditch to the main fort. The natural strength of the position is very clear, with sheer cliffs on a three sides. Several muzzleloading cannons were around the fort, but one breechloading barrel attracted much interest from the group. Our



Fort San Lorenzo – Fort Sherman – What is this barrel?

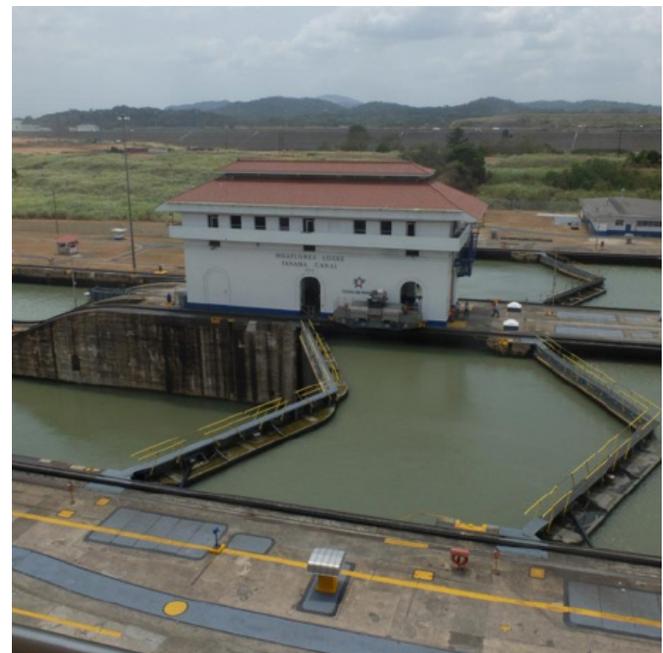
mini-bus took us across Fort Sherman to Limon Bay and then back across the two canal locks and to the Hotel Meliá Panama Canal for our independent dinners and overnight stay.



Happy CDSG Members in Panama Tour mini-bus

Day 8 – Saturday – 3/5 – Culebra Cut, Miafiores Lock, Canal Administration, and Quarry Heights

After a hotel breakfast and checking out, we embarked for the drive across the isthmus to Panama City (our luggage going ahead by van). On the way we crossed the Centennial Bridge, which opened in 2004 to supplement the overcrowded Bridge of the Americas and to replace it as the carrier of the Pan-American Highway. The bridge is at the Culebra Cut, formerly called Gailard Cut, an artificial valley that cuts through the Continental Divide to allow the passage of the Panama Canal. We loop around the western side of the bridge and cross over the Culebra Cut again so we could view one of the great engineering feats of its time. We continued on towards Panama City and the Miraflores Locks Visitor Center.



Miafiores Control House from Vistor Center

Miraflores is one of the three locks that form part of the original Panama Canal, and the name of the small lake that separates these locks from the Pedro Miguel Locks upstream. In the Miraflores locks, vessels are lifted (or lowered) 54 feet in two stages, allowing them to transit to or from the Pacific Ocean port of Balboa in Panama City. The canal's main visitor's center is a multi-level structure that allows tourists to have a full view of the Miraflores locks operation. Viewing a transit operation through the lock can take more than 30 minutes. The visitor center also has a museum, theaters, restaurants, and souvenir shop. The group spent the next two hours at the visitor center viewing the transit of a ship and watching the movie on the canal's history. We traveled to nearby former Fort Clayton to have lunch at La Taberna del Canal. After lunch we headed to our next stop, Quarry Heights and the Panama Canal Authority's administrative center.

Quarry Heights Military Reservation was the headquarters and nerve center for all U.S. military forces in Panama from 1915 through 1997 and for all deployed U.S. military forces in Central and South America 1947-97. The small military post was located on two man-made terraces on a carved-out slope of 654-foot Ancon Hill near the town sites of Ancon and Balboa in the Canal Zone and Panama City, overlooking the Pacific entrance to the Panama Canal. The site, originally the Ancon Rock Quarry during canal construction, was transferred to the U.S. Army in 1914 after five years of rock quarrying activities. We drove through Quarry Heights, where the housing is now private residences, while the Panama government occupies many of the office buildings. Reaching the top part of Quarry Heights we parked the mini-bus and walked up the road to the top of Ancon Hill. It was under U.S. jurisdiction until being returned to Panama in 1977. Largely undeveloped, it is the home of sloths, white-nosed coati, nine-banded armadillos, Geoffroy's tamarins, and deer. Ancon Hill is now a protected nature reserve. The hill includes the highest point in Panama City. Most of our group reached the summit of the hill after a 30-minute hike, and a few tour members were driven up. At the top are two broadcast towers, communication links, memorials, overlooks, picnic areas, and a very large Panamanian flag. Great views were had of Panama City, the Panama Canal, and the Pacific Ocean.



Upper entrance to Quarry Heights Joint Command Post tunnel



Quarry Heights and Panama Canal Administration Building

On the way down the hill, we stopped to view the upper entrance to the Joint Operation Tunnel. One of the most unique military facilities in the Canal Zone was the Joint Operations Tunnel at Quarry Heights. In March 1940, the Panama Canal Department undertook construction of an underground bomb-proof shelter similar to other American overseas commands, such as the Philippines and Hawaii, to protect the headquarters staff from aerial attack. The Joint Command Post facility, completed by January 1942, was constructed under 200 feet of native porphyry rock, with the entrance cut into the solid rock face of the old Ancon Quarry. Built of reinforced concrete at a cost of \$400,000, the structure featured a 269-foot by 52-foot main building and a 302-foot by 7½-foot tunnel leading to an observation post facing the ocean and secondary entrance. The facility was used as a secure intelligence, communications, and joint operations command post center for the Southern Command through 1997. Today, the Panama government uses the facility and our requests to visit the tunnel were turned down based on security concerns, so we were only able to see the entrances. Back on the mini-bus we proceeded to visit the Panama Canal Administrative area in Balboa.

We parked behind the Panama Canal Administration Building, the former seat of the Canal Zone Government and Panama Canal Company. The impressive building is in Balboa Heights and continues to perform its duties as the main administration building for the agency that runs the Panama Canal, now the Panama Canal Authority. Our group was able to visit the public areas of the building, especially its high-domed rotunda, with its dramatic murals painted by William B. Van Ingen depicting the construction of the canal, along with the stately marble columns and floor. Around to the front of the building where a Panamanian flag now flutters, a broad stairway runs down to the Goethals monument, a white megalith with stepped fountains that represent the canal's different locks, erected in honor of George Goethals, chief engineer 1907-14 and first governor of the Canal Zone. Near the monument is Balboa High School and a wide boulevard with canal authority offices, city services, and housing. The mini-bus took us through Fort Amador and down the causeway to stay again at the Amador Ocean View Hotel on Perico Island, the last night in Panama for most of us.

