Puerto Rico and

The Forts of Old San Juan

El Morro
San Cristóbal
San Gerónimo
San Antonio
El Canuelo

Albert Manucy
and
Ricardo Torres-Reyes
The Forts of Old San Juan

Withdrawn

No longer the scope of the
Puerto Rico
and
THE FORTS OF OLD SAN JUAN

Albert Manucy
and
Ricardo Torres-Reyes

THE CHATHAM PRESS, INC.
RIVERSIDE, CONNECTICUT
## Contents

Old Forts in a Modern World ........................................... 7
Building Spanish Strongholds ......................................... 15
Gateway to the Indies .................................................. 23
Winds of Change: Drake ................................................ 33
Cumberland Takes San Juan ............................................ 45
The Dutch Invasion ..................................................... 53
Spanish Gold; Irish Talents ............................................. 63
Crossroads of the Americas ............................................ 73
Appendix .......................................................................... 83
  Glossary ..................................................................... 85
  Bibliography ................................................................ 89
  Index .......................................................................... 91
El Morro dominates the harbor entrance like a mighty battleship. The Castillo, along with other fortifications in the chain, made 18th-century San Juan a “Defense of the First Order.” U.S. Army photo.
Old Forts in a Modern World

The Spanish forts in the city of Old San Juan have evolved in a surprisingly logical way from their sixteenth-century nucleus, remnants of which are still extant. Part of their construction also dates from the seventeenth and first half of the eighteenth centuries, but most of the massive fortifications seen today were built in the period from 1765 to 1800. They represent the best military thought of the time for defense against attack both by land and by sea.

San Juan’s fine harbor lies at the gateway to the Caribbean. In the days when sailing vessels followed the southerly trade winds from Europe to the West Indies, the port was a safe haven from tropical storms. But far more important, it provided a secure naval base from which to control shipping into the Caribbean and the shores of Mexico and South America. The English, and later the French and the Dutch, wanted the port for this very purpose. Consequently, although Puerto Rico was an ocean away, Spain was obliged to hold it firmly or risk the loss of her other territories in the Americas. The fortifications of San Juan cost Spain dearly; but because of them, would-be attackers faced almost insoluble logistical and tactical problems.

Old San Juan is situated on the western end of a small barrier island which lies between the broad San Juan Bay and the open sea. A steep headland overlooks the only navigable entrance to the harbor; the rest of the island’s rocky seacoast is skirted by a treacherous reef over which long Atlantic rollers crash like thunder. At the eastern end of the island is Boquerón Inlet, a passage too rocky and shallow for large vessels of war and thus a natural water barrier against flanking attacks on the island.

In fortifying the old city, Spanish military engineers made maximum use of these natural defensive features and erected fortifications which gave control of both land and sea approaches. Consequently, many of the works had dual functions as coastal and land defenses and also served as operational bases for Spanish military and naval units.
EL MORRO

The full name of this massive fort, Castillo de San Felipe del Morro, means “Fort St. Philip of the Headland.” The present fort, built by eighteenth-century engineers on the site of earlier fortifications, rises 140 feet from sea to crown and was a deadly deterrent to any warships that dared enter San Juan Bay. Harbor defense was El Morro’s main mission, and El Morro formed the nucleus of the San Juan fortifications.

An eighteenth-century man-of-war was a thick-hulled, towering vessel; virtually a floating fortress mounted with cannon in two or more tiers. On the fighting deck were marines ready to board the enemy, repel boarders or take a beachhead. Musketeers who perched in the rigging or crowsnests supported the marines and harassed the enemy with their fire.

Against these formidable ships, El Morro could bring to bear batteries of cannon on four different levels. At sea level beside the entrance channel was the water battery which could break the waterline planking of passing vessels. Recent archaeological digs in this battery have uncovered a grate for preparing “hot shot,” cannon balls which, when heated to a cherry-red glow and fired into a ship’s hull, quickly started fires.

The guns of El Morro’s second level faced directly seaward toward incoming traffic and had the advantages of range and visibility over ships’ cannon. Gunners here would try for hull and deck damage; with luck they might cut a mast or two. Most of their guns and gunners were protected from exploding projectiles in bomb-proof casemates or gunrooms.

Third-level gunners had even more range and visibility; but at close range they aimed at sails and rigging, and cut them to pieces with cannister and chain or bar shot. The main battery on this level, and the largest of all the harbor defenses, was Santa Bárbara, named after the patroness of all good gunners. Like a great prow jutting seaward, the gun tier of Santa Bárbara still gives El Morro the look of a giant battleship.

Fourth-level guns included in their field of fire the entire western and even part of the eastern sector of San Juan, and supported Santa Bárbara Battery.
However, since all four levels were vulnerable from the rear, a fifth tier of guns pointed landward, mounted on a barrier wall called the “hornwork” because its plan roughly resembled the outreaching horns of a bull. Actually it is simply two half-bastions (the horns) joined by a curtain (straight wall). This work closed El Morro on the land side. In front of it was a barrier moat, and beyond that was cleared land called a glacis, smoothed and sloped so there was no shelter from the gunners and musketeers who lined the fort walls. Hidden beneath the smooth slope were subterranean passages known as mining galleries in which explosives could be placed to blow up siege operations if they approached the landward side of the fort.

**EL CAÑUELO**

Across the channel on the west side of the bay entrance is the small fort named *San Juan de la Cruz* or “St. John of the Cross,” but which is generally called El Cañuelo after the tiny island on which it stands.

A basic principle of fortification is to protect vital approaches by means of crossfire from two or more locations, and El Cañuelo was built so that its fire sector would overlap El Morro’s. The little fort also defended the mouth of the Bayamón River which linked San Juan with the back country. Thus, El Cañuelo was far more than a battery. It was a closed redoubt with the magazines, quarters and cisterns to sustain a determined garrison for many days.

**THE CITY WALLS**

Because of prevailing winds and currents, sea attacks were most likely to come from the east. The Spanish engineers therefore provided a defensive line of bastions along the coast all the way from San Cristóbal to El Morro. Guns from these walls could fire directly on passing vessels and deliver three-way crossfire against landing attempts.

Much of the San Juan shoreline was rocky and precipitous, and the builders enhanced this natural defense with a continuous wall that included several salients. These projecting angles were carefully calculated to avoid blind spots, and each salient could give fire support to its neighbors.

The southwestern sector of the wall, overlooking the harbor, contained one element of unusual importance: the Santa Elena Battery. It was just south of El Morro at the point where a small elevation of land momentarily blocked the wind from incoming sails. While captains waited nervously for the breeze to return, they were staring directly into the muzzles of Santa Elena’s cannon. La Fortaleza, originally constructed as a fort but later used as the residence of the governor, lay within the salient called Santa Catalina to the southeast of Santa Elena.

There were several gates in the walls. The harbor gate, near La Fortaleza, was close to the cathedral where officials and seafaring men went to pray before and after their voyages. Another gate in the south wall gave access to the docks. Farther east, next to San Cristóbal, was the land gate to the easterly outposts and the bridge across Boquerón to the mainland. There were two
gates on the Atlantic side, one to La Perla (a low-level shoreline battery) and the other to the slaughterhouse.

**SAN CRISTOBAL**
Here, as at El Morro, the engineers founded their defense on a natural promontory. Castillo de San Cristóbal, or "Fort St. Christopher," rises 150 feet above sea level just northeast of the old city. But while El Morro’s main mission was harbor defense, San Cristóbal was a defense against attack by land. Though some of its outworks have been lost, it remains a spectacular example of the defense-in-depth principle. Its complex plan is further complicated by its shoreline location, which made the construction of additional, coast-defense batteries necessary on the seaward side to defend the fort from naval attacks.

**How to plan a fort**

![Diagram of a fort layout](image)
“Defense in depth” means; simply, that each work is supported by one or more others. If a fort has a single barrier and the enemy bursts through, he has broken its defense. But if he has to breach several barriers, it is a different story. Each barrier is higher than the one in front of it; if the attacker captures a fore-work, he can still be driven out by fire from the defenses behind it.

Thus, the main rampart at San Cristóbal is a hornwork that essentially forms a continuation of the city walls. In front of the hornwork are the San Carlos Ravelin and the Trinidad Counterguard, both surrounded by a dry moat. Beyond the moat is a sizable place of arms or open area leading out to a strong, arrow-shaped structure which the Spanish called El Abanico (The Fan) because of its triangular shape. Seaward from El Abanico are Santa Teresa, a water battery, and La Princesa, whose guns could fire both to sea and land. In front of El Abanico and La Princesa, the glacis or slope was honeycombed with mining galleries.

We have not yet mentioned the cavalier, which is the highest and most prominent feature of San Cristóbal. Basically it is a large gun platform built upon the hornwork, with formidable armament and absolute command of the eastern approaches. The great height of this tier was possible because of a primary rule in fort construction: protect the foundations from direct hits, and the enemy cannot destroy the walls. So the base of the cavalier was protected by the hornwork; the hornwork by the ravelin and counterguard; and they in turn by the place of arms.

Men and equipment could be moved fast via tunnels, ramps, bridges and stairways connecting all parts of the multilevel fortification. Tunnels to the outworks also served as listening posts where sentinels could detect the sound of the enemy’s mining or set charges to blow up a sector that had fallen into enemy hands.

There were great cisterns for water storage and magazines for munitions and provisions. Living quarters for both officers and men were more airy and spacious than at El Morro; so were the dungeons.

THE DEFENSE LINES
From San Cristóbal to Boquerón Inlet was one and a half miles, a corridor about five hundred yards wide between the rocky Atlantic shoreline and the now-filled bayside swamps. Again using the defense-in-depth principle, the Spanish engineers barred this corridor with two defense lines.

The first line was at the inlet, which was not only the “back door” to the harbor, but the easiest route for attackers coming from the mainland. The bridge over the inlet was therefore a drawbridge, guarded by a small masonry fort called San Antonio. Broad highways cross the inlet today, but you can still see a sentry box and a remnant of San Antonio’s wall. At the very mouth of the inlet is another small fort, San Gerónimo, formerly known as Boquerón Battery, preserved today by the Commonwealth of Puerto Rico as a military historical monument. It was designed to repel enemy efforts to enter or cross the inlet.

San Antonio and San Gerónimo were the anchors in a complex of earth-
How to Besiege a Fort

- cut its supply lines
- dismount its guns
- breach the walls

THE SIEGE WORKS
(Repeat on all sides - if you can)

1st PARALLEL

2nd PARALLEL

3rd PARALLEL (if needed)

Soldiers protect sappers
- fascines
- gabions
- Roller protects head of trench

DIG SAPS TO GET CLOSE

High angle fire
- drives the defenders to cover
- dismounts their cannon

Siege guns
- dismount fort cannon
- batter walls

Your guns breach the wall.
Then you lead the assault through the breach.
works raised between 1779 and 1783 to hamper advances toward San Cristóbal. Behind the two forts but within easy musket range of the shorelines, a parapet with salients reached across the corridor, closing it to the enemy. Between the parapet and the shore were a dozen apostaderos, or small entrenchments manned by sentries or skirmishers.

The second line of defense was a hornwork which spanned a narrow part of the corridor about midway between San Cristóbal and the inlet. Its moat, some twelve feet deep by thirty feet wide, yielded enough earth for a formidable breastwork and a glacis. At the foot of the glacis was another barrier ditch. The breastwork was spiked with a row of sharpened stakes called a praise.

Only fifty yards or so behind this breastwork was its support, a smaller breastwork pierced by several openings through which retreating troops could pass in a hurry and then turn again on the enemy. In addition to these works, a masonry parapet with flankers extended about five hundred yards along the Atlantic from the second line toward San Cristóbal. The earthwork lines proved their worth in the 1797 attack by the British. They were replaced by masonry walls after 1800 and vestiges of these are still extant.

But no matter how strong a fort, it must eventually fall to a determined besieger with enough men, weapons, supplies and time. The objectives of siegecraft were: (1) cut the defender’s supply lines; (2) dismount his guns and breach his walls and then, if need be, (3) take the place by assault. How did the attacker destroy fort guns and walls? He started by night to build batteries protected by earthworks. His guns were behind a trench called a “parallel” (it was parallel to one of the fort walls), and their purpose was to “soften up” the fort with mortar and ricochet fire. If the gunners were good, their high-trajectory explosive bombs kept the defenders under cover and out of action while their low-trajectory solid shot bounded along the ramparts and broke the fort’s gun carriages.
From the first parallel, the besiegers pushed forward with other trenches called "saps." These were zigzagged so that the sappers (diggers) were not directly exposed to fire from the fort. The besiegers then began a second parallel and moved their big guns forward into pointblank range. If necessary they dug a third parallel, or even moved the guns to the top of the glacis where they could batter the main wall foundations and collapse the structure. Or, if the terrain permitted, they tunnelled beneath the walls, planted mines and blew up the foundations.

The defenders did not sit quietly for all this. Not only were their own gunners and sharpshooters busy, but well-timed sallies from the fort were one of the reasons a sapper’s pay rose sharply as he dug himself closer to the fort.

Thus Spanish fortifications reached from Boquérón to El Cañuelo. The story of how they grew is a tale which mirrors the history of great world powers and demonstrates man’s drive for domination over land and sea.
Building
Spanish Strongholds

Without three basic elements — men, money and materials — a nation cannot build forts. Consider, first, the engineering mentality that invented prehistory’s thorn fences and palisades; the city walls of ancient days; the disciplined Roman field fortifications; the tall castles of medieval times; the huge citadels of the Age of Enlightenment; the casemated forts of the 1800’s; the Maginot Line; World War II bomb shelters; and countless other admirable constructions — each of which achieved obsolescence because of man’s compulsion to contrive new and “advanced” weapons of war. Today American and Russian nuclear submarines are, in a sense, mobile “forts” posted in all parts of the world.

MEN

Engineers have always been practical men. Even in the earliest days of fortified cities, a good engineer not only had to know all branches of mathematics but also how to put theory into practice. He had to be versed in mechanics and architecture, with a “good notion” (to quote from John Muller, an eighteenth-century expert) of all the building crafts. He had to learn to sketch ideas on paper — Leonardo da Vinci was expert at this — so his vision would seize people in authority as well as the craftsmen who would transform ideas into realities. He should also be well grounded in the “natural philosophy” of the world outside his specialty.

So, if a king wanted to build a fort, he needed a good engineer. Charles V, Emperor of the Holy Roman Empire and King of Spain, hired the best talent the sixteenth-century offered, whether it was Spanish or not; and in his Italian military campaigns he found special talent indeed. By Charles’ time Italy had already begun that exciting Renaissance which inspired all of Europe, and from the designs of a fifteenth-century engineer named Francesco de Marchi grew certain new principles of fortification that later became standard practice throughout the western world.
The main plaza, El Morro. Its architecture reflects the engineering competence and craftsmanship — as well as the cost — that went into a first-class fortification. Albert Manucey.
Until Marchi's day, fortification and siegecraft had changed very little from Archimedes' time. But from the latter years of the fifteenth-century, gunpowder weaponry evolved and the new-fashioned gunners discovered that towered castles made fine targets. The high walls that had blunted countless bolts from crossbows and resisted the slow pounding of catapults tumbled into rubble under fire from heavy siege bombards. So engineers began to lower and thicken their high walls and raise hills of earth around their works to stop or divert cannonballs before they hit the stone. But the changes were wrought very cleverly, for they retained the early barrier moats so that the main walls were still too high for men to climb without scaling ladders.

Besides lowering the fort's profile, there were many other improvements. Simple towers spaced along the wall, a design predating Nebuchadnezzar, gave way to bastions — angular salients which erased the blind spots that had long handicapped the defenders. Vulnerable places such as gates and long walls were strengthened by building other works in front. The result was defense in depth, a complex of palisaded earthworks and moats and wall after wall.

Among the Italians hired by Charles was the military engineer Juan Bautista (d.1588) of the noted Antonelli family. He served the Spanish Crown for more than a generation, not only as a field engineer in Portugal, but by building forts and other works in Spain (Valencia), Africa (Cartagena and Orán), and the Americas (Cuba and Honduras). He also began major river navigation projects in Spain. Another engineer of the Antonelli family was Bautista Antonelli, hired by Charles' successor, Philip II, in 1586. This Bautista is better known for his military works in America, including the design of part of El Morro at San Juan.

Perhaps the most influential of all military engineers, however, was Sebastièn de Vauban, a seventeenth-century Frenchman recognized as a master of siegecraft and defense. He was never in Spanish employ, but aspirants from all over Europe studied his methods and eventually reduced them to formulae that superseded earlier precepts and still have relevance today. In fact, as expertise increased, engineering writers found answers for all defense problems. But the true brilliance of the engineer lay in his quick recognition of natural defenses and ability to apply his art to make these defenses impregnable.

Still, the engineer was (and is) helpless without craftsmen to build his projects. He must have overseers, quarriers, stonecutters, brickmakers, lime-burners, masons, sawyers, carpenters, blacksmiths — and clerks to keep the accounts.

The craftsmen, in turn, needed the labor gangs: men who sweated in the quarries, dug the foundation trenches, kept the materials moving and transported — basket by basket — mountains of earth.

Through the ages construction has grown vastly more complex, and so has recruitment. No longer can a community pitch in and finish a defense project in a day or a month. Often a conquered nation was enslaved for labor on public works. As the Hebrews once toiled under Egyptian masters, so Indian war pris-
How to Build the Walls

In Spanish America worked on fortifications for the Spanish kings. The more docile American natives (unless they lived as peons on land granted to Spanish colonists) were wards of the Crown and could be drafted for government work; but they were given rations and paid wages. A handful of African slaves owned by the Crown were also used on construction, as were convicts if they were not sent to the galleys. But the majority of the construction crews were made up of free men who worked for daily wages. Men who possessed special skills formed crews of technicians that were moved from one project to another as needed.

Reliance on local labor markets was risky. There simply were not enough men. Thus an engineer would recruit as many men for his crew as he could on the way to the job, even plucking artisans away from near-finished projects. Journeymen trained promising apprentices — white, black or red — on the job. Soldiers sometimes worked at construction for extra pay because any supplement to their meager military wage was welcome.

A man's job was fairly secure for the ten, twenty or more years it might take to raise a major fortification. After that, he moved on to the next site where his skill was needed. In the case of the peon, if the new job was far away, he simply went back to farming.

MONEY

Besides men, money to pay salaries and buy materials was a prerequisite. How did Spain get money for San Juan and other Caribbean forts?

In the sixteenth century there was a swelling flood of treasure from Mexico and South America where brave and daring men were fighting their way through jungles and over mountains, beating down resistance until they reached the twin goals of gold and glory. Much of the wealth was funneled into Charles' treasury as a result of astutely worded contracts wherein the Crown authorized each expedition in return for a share of the gains. The contractor paid his own expenses, though sometimes the Crown would lend a ship or two and a few cannon. Essentially, however, the Crown gave only a license and then took twenty to fifty percent of the profits — year after year after year — plus taxes!
The caches of treasure sniffed out by the conquistadors (in Peru, Francisco Pizarro demanded and got a room full of gold as ransom for King Atahualpa), added to the steady production from mines, emerald fields and pearl fisheries, gave the Crown a fantastic income. But while much treasure went to Spain, very little of it stayed there: the King's creditors included most of the great banking houses of Europe. In addition, as it became more and more urgent to protect the vessels carrying the treasure and other valuable produce of the colonies (lumber, hides, tobacco, rice, sugar, cacao, coffee, indigo, dyewoods and so on), much of the precious metal stayed in the Americas where it was minted into coinage to pay for defenses and other public works. Thus on both sides of the Atlantic, the demand for funds far exceeded the supply; and even if a colonial governor might have the Crown's approval of a defense project, unless he could actually collect the cash, he was nowhere.

So Spain had money, but never enough.

MATERIALS

The third ingredient for building forts, materials, included not only wood, earth, sand, stone, lime and metal, but food and facilities for an army of workmen.

Wood was indispensable. The need began with marker pegs for staking out the site, and lumber for temporary work sheds and housing. Then came pole lumber for scaffolding, and planks to give workmen safe footing; poles and boards to build forms for the arches; boards and battens to make forms for
the concrete; screed boards for leveling and grading; and more lumber for structural framing, from foundation plates to rafters. Wood went into doors and windows and chairs and tables; slats or sheathing on the rafters; and sometimes board or shingle roofing.

Lumber was not something that came from the neighborhood supplier. Men went to the nearest forest and felled and trimmed the trees. Ox drivers snaked the logs to the sawyers. A good pair of sawyers, one atop the log to lift the blade and the other below to pull it down, could cut better than 150 linear feet from sunrise to sundown. They then stacked the cuts carefully for drying and curing.

The carpenters took the rough-cut lumber and shaped and assembled it into scaffolding or house frames or whatever was needed. Fine finishing work, such as floors and doors and windows, went to the joiners, who might also turn out a few pieces of furniture. Rugged oak that went into the framing of a building might also go into doors and furniture — but not in Puerto Rico. Here there was pine and mahogany, along with *ausuho*, so close-grained and hard a wood that even the termites backed away.

Rope was also essential. Heavy cordage was imported, but lighter weight hitches for scaffolding or animal harnesses could be braided or twisted from local grasses or leathers.

The stone used for a fort depended upon what kind was near the site. If there
was clay but no stone, it was built with brick. If there was no clay, then wood, earth or whatever else might be available had to do. San Juan had sandstone and limestone, plus good clay for brick and tile. Quarries were opened along the Atlantic shore. Workmen set up kilns where the clay brick and tile were fired, and the limestone was calcined into lime, the "cement" of that day. Sand was also at hand, both for mortar and fill; and brick and tile fragments made clean and colorful aggregate in the concrete of floors and walls.

Iron was the principal metal of fortification. Iron — and steel for the cutting edges — made axes, saws, chisels and other cutting tools; shovels, prybars, try squares, hammers, trowels, drills and files; cramps to lock walling stones together; nails and staples and bolts; hinges, locks and other hardware; and straps for cannon carriages and bars for windows.

Except for special tools such as saws, files and drills, iron came to the building site in bar, strap or sheet form to be cut and shaped in the smithy. There was never an end to the smith's work, for when he was not making a new article, he was repairing an old one. Heavy chain and cast-iron objects, such as cooking utensils, cannon balls and cannon, were of course finished at the foundries before shipment to the building site.

Lead was another useful metal: it was used to anchor iron in masonry, for waterproofing arches, for roof flashing and for piping. Soldiers cast musket balls of lead, and there was no law against slicing a ball and clamping it around a fishing line!

One of the first chores on a construction site was to set up shelters for the provisions and men. Many of the workmen would soon acquire their own huts and families to fill them, so that a nearby village was usually part of the scene.

Each workman did his own cooking, unless he threw in with others or had a woman to cook for him. The rations available make today's dietician wonder how forts ever got built. Staples were flour from grain or local roots, rice and small amounts of salt meat. A man could add fish, game or produce from his garden but, tied to his job for most of the daylight hours, he had little time for other occupations. A willing wife, however, could work wonders with a little plot of ground, a hoe and a few chickens.

To keep the project from breaking down, there had to be a well organized supply system for the collection, transportation and distribution of food and materials. It included everything from drays and freight wagons and ships and barges to the purchase of provisions, building and tool materials, cordage, tools, utensils, weapons, ammunition, fabrics and furnishings, along with hard money for wages, aguardiente (a spirituous liquor) for the troops, and perhaps even a special cask or two of Madeira wine for the tables of the higher-ranking servants of the Crown. Considering the slow transportation and the hazards of ocean crossings, it is a marvel that deliveries arrived as soon and as often as they did. The capture or wreck of a cargo was a catastrophe, not only in time and money lost but in human suffering, for at many isolated sites the loss of rations meant starvation.

So the development of Spain's fortifications was directly tied to the avail-
ability — and lack of — these three ingredients: men, money and materials. But the real beginning at San Juan came at the close of the fifteenth century with one man — Don Juan Ponce de León — a brave adventurer who, it was said, went searching not only for gold but for the illusive fountain of youth.

Some 16th Century Spanish Ordnance Types

Early gunners used three main classes of tubes: (1) the culverin, a heavy and powerful, flat-trajectory gun with a range of about four miles; (2) the cannon, a battering weapon ranging about a mile and generally used against walls or personnel; and (3) the mortar, a large caliber, high-trajectory piece, designed to drop projectiles of great weight upon its target. Mortar range was about a mile.
Gateway to the Indies

When he first saw Puerto Rico, Don Juan Ponce de León was with the Great Admiral, Christopher Columbus, on his second voyage of discovery in 1493. They paused briefly on the island for provisions, then went to Hispaniola (Haiti) where they planted a colony named Isabella in honor of Isabella I of Castile, reigning Queen of Spain. This colony served as the center of Spanish authority in the New World for many years. During Spanish colonial times Hispaniola was commonly called Santo Domingo. Ponce de León remained in the colony as a settler and government official for fifteen years and here he prospered and won a soldier’s reputation by subduing the Indians of the eastern province. Thus when the time came to colonize Puerto Rico, Ponce de León was the man chosen for the job by Nicolás de Ovando, Royal Governor of the lands discovered by Columbus.

There were two reasons for the Spanish to move into Puerto Rico. The first was military: even before Columbus’ time, the Carib Indians of South America had overrun the Lesser Antilles, and now they were pushing into the large, westerly islands inhabited by the Taíno Indians. Puerto Rico was a clashing frontier and a battleground where the Taíno fought desperately to repel the Caribs whose savage raids brought death or slavery. To the Spaniard the Carib threat was intolerable because the fierce raiders, using Puerto Rico as a base, struck even at Hispaniola. Clearly, Puerto Rico had to be made a safe frontier against the Caribs.

In the second place, there was gold in Puerto Rico. Or so said Indians who had the bad luck to be captured as they raided Spanish colonies.

So Ponce de León took the contract for the Puerto Rican project. Surely the golden rewards would outweigh the bloody cost of “pacification!”

CAPARRA
With a little troop of fifty fighting men, Ponce de León reached the island on August 12, 1508. They soon found the excellent harbor we know today as San Juan, and he called it a puerto rico, a fine or excellent port. Strangely enough
The statue of Puerto Rico's colonizer, Juan Ponce de León, at 16th-century San José Church in San Juan. Invariably the cross followed the sword of the conquistador. Albert Manucy.
in later years Puerto Rico (the harbor) and San Juan (as Columbus called the island) exchanged names: the island became Puerto Rico and the port, San Juan. Boriquén, the Indian name for the island, was forgotten.

Ponce de León’s settlement, however, was not on the fine harbor. After some indecision, he settled his people about two miles south of the port at a wooded site surrounded by hills and swamps. The village was named Caparra after an old Roman settlement in Spain. In the early days when the Taino were friendly, this small foothold served well enough. Then, tolerance turned to hatred as more Spaniards came and the Indians were robbed of lands and women and forced to mine gold or till the fields. Only the belief that the Spaniards were immortal kept the Taino from open revolt.

Inevitably a shrewd and courageous old chief put immortality to the test: his warriors drowned a Spaniard named Diego Salcedo, then carefully laid his corpse on the shore where, if he came back to life, suitable apologies could be made. When he did not revive, the Indians organized a rebellion to drive the Spaniards from the island.

Although peaceful by nature, the Taino fought with great courage in the defense of their land. They were armed with bows and arrows, stone axes and wooden swords (macanas) for hand-to-hand combat. It has been estimated by various historians that the Indian population numbered from sixteen to thirty thousand individuals.

Thus the odds against the early Spanish settlers were tremendous, but somehow this determined, small group of men clung to their foothold. Some began to clear lands that one day would become broad plantation fields; others sought the elusive gold. There was much to be done and many setbacks, including a 1513 disaster when the Indians burned Caparra’s church and twenty-nine of its straw-thatched huts. Ponce de León was absent on his voyage of discovery to Florida; but his house survived because it was built with thick, high walls and surrounded by breastworks. This was Caparra’s fort in which all the people of the village could find shelter.

The Spaniards had the advantage, however, of the horse, steel and gunpowder. They also had spike-collared war dogs, more ferocious even than the Caribs. The renowned canine veteran Becerrillo, for example, earned for his master the pay of a man-at-arms. It was said of this dog that an Indian would rather face two soldiers than one Becerrillo. A poisoned arrow took his life as he was defending his master from several attackers near Caparra.

After the Taíno rebellion was crushed by Ponce de León, many of the Indians withdrew to the Lesser Antilles and joined forces with the Caribs to fight a common enemy — the Spaniards. Even with their war dogs, horses and weaponry, a generation would pass before the Spanish of Puerto Rico were free of Indian troubles.

**THE FOUNDING OF SAN JUAN**

Although Caparra was the place where Ponce de León had established his military base, church and seat of government, it was, as the colonists com-
plained, an unhealthful and inconvenient location, surrounded by swamps, hard to defend and far from the sea. Their proposal to move, despite Ponce de León’s opposition, was approved by the Spanish Crown. The transfer started in 1519 and was completed in 1521, the year Ponce de León left to settle and colonize Florida. He never returned to Caparra; in Florida a Seminole Indian’s arrow wounded him and he retreated to Hispaniola where he died. His body was later returned to San Juan and is interred in the Cathedral de San Juan Bautista.

For the new settlement, the colonists chose the islet of San Juan, “the best and most beautiful site in the world.” The little island was only three and one half miles long and about a mile wide at its western end. It lay just at the harbor entrance and was fully open to cooling winds from the Atlantic. The terrain was naturally defensible: jagged reefs lined the Atlantic escarpment, and the shores on the harbor side near the village were craggy and steep. Before they moved, the people built a causeway across the narrow channel that separated the eastern end of the island from the mainland. Its foundations were made of ballast stones dumped by incoming vessels.

Except on the eastern end, the land on the islet was high and fairly level, and there were several groves of mature trees near the northwestern headland. In the southwest was a sloping plain. The settlers looked at the fruiting plants of the plain, fingered the rich soil rooted up by the pigs, and here they planted the town of San Juan. No matter if they had no springs of fresh water; two nearby rivers emptied their clear waters into the harbor, and almost daily the rains came.

With such a fine harbor, trade would surely come to make the population prosper. But would it? This was a superior location, already recognized as “the gateway to the Indies;” yet the tiny settlement lay on an island with few natural resources, and far from the fabulous wealth that men were discovering on the new-found continents. Tales of Cortés in Mexico and the Pizarro brothers in Peru echoed in every ear. Settlers on the island came down with gold fever and there was only one cure for it. Why endure harassment from hurricanes, Indians, corsairs and moneylenders when wealth beyond your dreams waited in Peru? May God take me to Peru! was the prayer on everybody’s lips, and certainly one needed God’s help to escape Puerto Rico; floggings and even cutting off the feet were penalties for departure without permission.

The gold that had drawn the Spaniards to Puerto Rico petered out after 1540. Agriculture flourished, although there were never enough slaves to make farming really productive. Besides, the plantations were vulnerable to Carib attacks from the Lesser Antilles. In fact, the Indian raids became promiscuous, wholesale slaughters with many of the victims butchered for Carib consumption. One October midnight in 1529 the cannibals even struck at San Juan itself. The next year when five hundred of them plundered farms in eastern Puerto Rico and carried off many prisoners, the wave of fear reached San Juan again. The colonists constantly guarded all city approaches and each night sent their families to sleep in the cathedral and the convent for Providential protection.
Casa Blanca And San Juan Cathedral in 1820 (from a sketch by Charles A. Lesuer). National Park Service.

CASABLANCA

In those days there was no fort. There was Casa Blanca, however, the new property of the Ponce de León family. Shortly after the colony moved from Caparra, the Crown recompensed the heirs of Ponce de León with land at the new site and about 1523 the family raised a twenty-four-foot square frame building. A few years later they reconstructed the building, making walls of tamped earth and stone — the first recorded construction of its kind in San Juan. This, expanded through the years, is the house called Casa Blanca today. Originally it was a substantial structure, licensed by Royal Order to be used as a fortress and an arsenal for weapons and government funds; but as a fortification it was only a small refuge from the Indians. Much more was needed. For by 1530 it was clear that the Caribs were only a small part of the defense problem.

What troubled the King's men was the coming of the corsairs. Animosity between Spain and France kept the two nations almost continually at war from 1520 to 1556. After 1522, when a French corsair first showed his ambitious King, Francis I, American treasure taken from a Spanish vessel on the high seas, French mariners searched avidly for Spain's American commerce. Many French corsairs left their customary hunting grounds off the Spanish coast and
sailed west to the Indies where the chances for plunder, both at sea and ashore, were vastly greater. The Spanish settlers had no protection except locally improvised militia.

In 1528 the French sacked and burned the San Germán settlement on the Puerto Rican west coast, and for many years thereafter used island waters almost at will. Among the most notorious of the raiders was François le Clerc, called “Peg Leg” (Pie de Palo), who knew the coasts of Puerto Rico and Hispaniola like the palm of his hand. Jacques Sores was another. With but a single vessel and a hundred archers, he sacked at least five Caribbean towns. It was rumored that his patrons included Queen Elizabeth of England.

The coming of European enemies to the Caribbean put a new face on Spain’s defense problems. Corsairs off the coasts of Spain had been a hazard for generations — a challenge to be run, a cruel and deadly school of experience for young Spaniards starting naval careers in Charles V’s service. But Spanish ports were strongly fortified, the guarda costa (Spain’s Coast Guard) was active, and important shipments were invariably protected by convoys.

In the Caribbean, however, there were no strong forts and no guarda costa. Even if the Caribbean islands had no great wealth, they served well as bases from which corsairs could cruise against Spanish shipping, or as depots for commerce or smuggling. It should be said that these adventurers were not always unwelcome: they combined trade with their piratical profession, and the barter was often profitable to both colonist and corsair.

THE TREASURE FLEETS
As shipping losses in the Caribbean mounted, Spain’s first effective countermove was to use that ancient naval device, the convoy. In 1537 Blasco Núñez de Vela left Spain with an armada of eleven vessels to fetch the annual shipment of American products and, specifically, to protect the Crown’s share of gold and silver in the cargo. By 1562, largely through the genius of Captain General Pedro Menéndez de Avilés, this naval defense took the form it would retain for two hundred years.

The system required two fleets. One, called the flota, left Spain in the spring for the Gulf of Mexico, dropping off merchantmen at Puerto Rico, Hispaniola and Cuba, and making port at Veracruz. The second fleet, the galeones, left Spain in midsummer for the Isthmus of Panama and northern South America. The two fleets met at Havana and sailed together back to Spain. In this fashion, the convoys brought supplies and merchandise from Spain and took back the annual cargoes of treasure and raw commodities from the colonies.

Núñez de Vela, with a sailor’s faith, had told King Charles that the navy would handle the corsairs, so no forts would be needed except minor defenses against the Indians. Spain declared the Caribbean a mare clausum — a closed sea. All shipping had to be in Spanish bottoms and foreign vessels were subject to seizure. But this decree assumed that Spain controlled the seas, when in truth such control was impossible. Thus for practical reasons the Crown’s advisers urged him to fortify the key ports of the Caribbean, including the islands.
In the case of Puerto Rico, the strategists pointed out often and loudly that it was "the entrance and key to all the Indies ... the first to meet the French and English corsairs ... Your Majesty should order a fort built ... or the island will be deserted."

**LA FORTALEZA**

At last on May 30, 1529, the Crown authorized a permanent fort at San Juan. By 1531 the plans were drawn and sent to Spain for approval. Then in March of 1533, word came to start construction, with five hundred pesos — four hundred of which were appropriated from the Royal coffer, the "Chest of Three Keys;" the town of San Juan was instructed to raise the rest.

Unfortunately, Indian affairs at this time were even more pressing than the need for a fort, so the fort money went into arming a pair of brigantines for a strike against Carib centers on Dominica Island, located east of Puerto Rico. This expedition, plus others to Guadaloupe and Trinidad, broke down Carib resistance and enslaved hundreds of Indians. The fort fund, however, was drained drastically and actual construction on La Fortaleza did not begin until 1537.

With its twin towers, La Fortaleza still wears the aspect of a 16th-century fortification. Since the early 1570's it has been the official residence of the governors of Puerto Rico. National Park Service.
Finding stone for it was easy: the islet itself was potentially a vast quarry. There was good timber at hand, and clay for brick and tile. Iron and lead came from Spain, and for common labor there were a few black slaves in the King’s service, as well as the captured Indians. The big problem was finding skilled workmen. Most of them (and at best they were few) had to come from Spain.

The site chosen for La Fortaleza was near the rocky shore of the bay, not far from Casa Blanca. Though it had no command of the harbor entrance, it did overlook the anchorage; and since it lay at the southwest corner of the town, it controlled access from harbor to town.

By European standards it was not a very strong fort, but of course it was intended mainly as a defense against a Stone Age people — the Caribs. In fact, it was not really a fort. On the land side it looked like just another flat-roofed house. But its walls were seven feet thick and in a pinch could shelter a couple of hundred people.

The main gate faced the town and was protected by a small semilune (a crescent-shaped barrier in front of the gate). On the water side, an area between the house and the shore was enclosed by a wall six and one half feet high and embrasured for cannon; the wall and the guns were a defensive gesture against enemies schooled in European warfare. The court enclosed by the wall was surfaced with packed earth and paving stones and had cisterns for water storage.

At one angle of the wall was a tower. This was not only a vantage point for the defenders but also the “place of homage” where the governor or warden took his oath of loyalty to the Crown. Later a second tower was built. Each had a strong, vaulted room, one used for the powder magazine and the other for a prison.

Construction was almost completed by 1540. Some eight thousand pesos went into the job between 1537 and 1546, but without guns or garrison (there was no money for soldiers), the new building was almost useless. Actually the San Juan officials had asked for very little: only six men, including two gunners, two guards, a man to keep the weapons in condition and a porter. They wanted a half dozen eight-pounders, twenty arquebuses, twenty crossbows and forty pikes. Some of this materiel was on hand by 1542 when the first warden took office; but the long-range guns, so badly needed for harbor control, were interminably delayed. Not until 1555 did eight bronze pieces arrive, to be divided between La Fortaleza and El Morro.

From the beginning, many observers had bitterly complained that the location of La Fortaleza was a mistake. Its sentries were uncomfortably exposed to fire from Casa Blanca above them (although that edifice was no longer used as a fort). Gonzalo Fernández de Oviedo, noted historian who saw La Fortaleza during its 1537 beginnings, wrote back to Spain that “only blind men could have chosen such a site for a fort.” Since one could not even see it until he was inside the harbor, enemies would naturally think the town was unprotected.

The fort should have been built, said Oviedo, as lofty as a watchtower and on el morro — the headland — at the port entrance. A year later a French corsair tried
to force the harbor: the city fathers remembered Oviedo's words and called for the fortification of El Morro.

So even before it was finished, La Fortaleza was destined to take a secondary position in the defenses. Nonetheless, it had important functions. About 1570 it became — and still is — residence for the governors. Other Royal officials lived here too, and it was the repository for treasury documents and the Chest of Three Keys. It also acquired an elegant new name: El Palacio de Santa Catalina.

**EL MORRO**

Meanwhile on April 18, 1539, the Crown approved a credit of four hundred pesos to begin work at El Morro, where all agreed that a few cannon could lock the harbor against any kind of naval craft.

Information on El Morro during the early years is scanty; it was, after all, intended only as a supplement to La Fortaleza! The records show that the head-

---

**THE 16TH CENTURY FORTS**
land sloped precipitously down more than one hundred feet to the sea. Over the rocks at the foot of the slope, and right at the narrowest part of the port entrance, the builders laid a semicircular platform for three cannon. Smartly handled, these low-level guns could sink incoming vessels with waterline shots.

From this water battery, a stairway led up the slope to a masonry tower built against the cliff, a vaulted structure with three cannon inside as at the first tower of La Fortaleza. These cannon, when fired through embrasures, filled the tower with smoke which blinded and choked the gunners; so the guns were moved outside. Other improvements were made in 1566 when the threat of a great French armada brought Menéndez de Avilés himself on a flying visit to San Juan and other Caribbean ports. Menéndez also sent a hundred arquebusiers, along with four cannon and twenty hundredweight of gunpowder. An inventory in 1580 showed nine pieces of ordnance, five hundred cannon balls and twelve hundredweight of powder.

In the years from 1521 to 1580 the natural defensibility of San Juan had been bolstered, first with Casa Blanca (1523), then La Fortaleza citadel (1537), and finally the tower and battery at El Morro (1539). Whether these were, as some said, badly designed and too small, seems unimportant today. Certainly they were big enough to hold all the men available to defend them at the time.
Winds of Change: Drake

In 1582 Captain Diego Menéndez de Valdés came to Puerto Rico to govern the island on behalf of Philip II who had ascended to the throne of Spain on the abdication of his father, Charles V, in 1556. The new Governor was a veteran of the Florida campaigns and no stranger to the West Indies, nor to frontline posts. Within twelve months his no-nonsense report on this Caribbean gateway had reached the high councils of the Crown. And while others before him had cried “Wolf!” none did so with such persuasive clarity and practicality. The gentlemen in Spain were impressed.

In all the Indies, said the Captain, this harbor at San Juan was the best place to fortify, and the easiest. And if it ever got into the hands of the enemy, it would be impossible to recover. His recommendations (forts at key harbors and a strong coast guard) were neither new nor extraordinary. But this time the report came to the right people at the right time. And because its impact went beyond Puerto Rico into all the Caribbean (for what good would it do to caulk only one seam of a leaky boat?), the King’s councilors decided to act: they formed another committee.

But this one was no ordinary committee. At first called the “Board of Puerto Rico” and later the War Council, it became the powerful and permanent arm of the Crown which handled all matters concerning defense of the West Indies.

Captain Diego Menéndez de Valdés was in San Juan because Philip II had decided to stabilize this colony. Henceforth San Juan would be a presidio with the fifty soldiers of the Captain’s company as its first garrison. Under the presidio system, Menéndez de Valdés became the first Governor with the title of Captain General of Puerto Rico. From this time on, military affairs became the driving force behind San Juan’s development.

While he waited for official action on his report, Menéndez de Valdés worked out an interim plan and began to carry it out. At vulnerable landing spots around the islet he put up palisaded earthworks, but perhaps his most important move was to build the four-gun battery called Santa Elena at a high point along the shore between El Morro and La Fortaleza. This location, near a
promontory called Hangman’s Hill (Cerro de los Ahorcados), was within a musket shot of the harbor channel and had been marked for harbor defense by Pedro Menéndez de Avilés in 1566. It was to prove its worth during Drake’s attack; eventually it became the strong Bastion of Santa Elena that stands today.

Alone, Puerto Rico did not have the resources to carry out its military mission. The same was true of many other struggling settlements in strategic locations, all the way from San Juan to Florida. But King Philip said the Caribbean must be fortified, and decreed that the viceroyalty of New Spain (Colonial Mexico) would pay the bill.

From the Crown’s viewpoint, this was sound logic. Administratively, the boundaries of the territory of New Spain extended from Central America and the Antilles to Canada. Today’s Mexico was its heart — a heart of silver from the fabulous mines. Each of the proposed new defenses was protection for New Spain and its shipping, so let New Spain pay for this protection! Philip’s policy meant that each defense community on his list was eligible for annual funds to guarantee its maintenance. These subsidies (situados) served as the fiscal foundation for San Juan and many other Caribbean military towns until the end of the eighteenth century.

**ENGLISH SEA DOGS**

Although the arrival of Menéndez de Valdés and his men in 1582 gave San Juan a garrison of professional soldiers, their presence did not mean that Puerto
Rico was now a safe place to live. San Juan, with only 170 poverty-stricken families, actually had less people than at its founding six decades earlier. The rest of Puerto Rico was but thinly settled and its people had urgent defense problems of their own. For forty years they had seen corsairs use their ports almost at will, jeering at puny local militia and plundering as they chose. The puertorriqueños, always realists, knew that a determined enemy could sweep them off the island.

Sir Francis Drake was such an enemy. His was a name to frighten children — if you were Spanish. And if you were English, Sir Francis was a hero, a sailor without equal, a redhead with a nose for gold and a flair for deeds — one who, in his own phrase, could singe the beard of the King of Spain! It is a paradox that because of his dashing genius, Drake was the very instrument that tightened Philip’s grasp on the Americas.

In 1567 Drake was a young Captain in the fleet of his cousin, John Hawkins, a slave trader and merchant. All through the Caribbean, business was good and both English traders and their customers cheerfully disregarded the Spanish ban on trade with foreigners.

On the way home from this trip with a cargo of sugar, ginger, hides and some pearls, Hawkins’ fleet was disabled by a storm. He raised Spanish colors and put in to Veracruz for repairs. Once inside the harbor, he seized the shore batteries and the port was his.

But before he was ready to leave, a fleet from Spain arrived off the port; the viceroy was aboard its flagship. Hawkins fired a warning from his borrowed batteries, whereupon the viceroy readily agreed that the English could leave peaceably whenever they chose. Hawkins, well pleased, let the Spanish armada come in. Soon afterward, while he was enjoying a cup of ale in his cabin, he heard Spanish soldiers scrambling aboard his ships.

Drake, on the little Judith, slipped his moorings and was gone. Hawkins lost his flagship, but managed to board the Minion and get away to sea. Unfortunately, many comrades as well as his profits were left behind.

Thus did the viceroy top Hawkins’ trickery; and young Drake cursed Spanish “duplicity” and spent the rest of his life paying Spain back. Perhaps his anger would have cooled sooner had not the vendetta proved so profitable, both to himself and to England. Few men knew Caribbean waters, ports and people as well as this human symbol of England’s emerging seapower. Whether you call him pirate or knight, Sir Francis Drake was the English brother to the Spanish conquistador: both had the skill, courage and leadership that drove them to incredible deeds.

There were ample signs that England wanted land in the Caribbean. Sir Walter Raleigh sent Philip Amadas and Arthur Barlowe on a western reconnaissance in 1584, and their pilot brought them to the south coast of Puerto Rico before going on to the Carolina Banks. The Richard Grenville expedition of 1585 rendezvoused at the mouth of Puerto Rico’s Río Guayanilla and thoroughly alarmed the Spaniards by building a fort “as though they had purposed to remain there ten years.” Before they left Puerto Rican waters, they captured
several Spanish vessels. And after dropping his settlers on the Carolina coast, Grenville encountered a fine Spanish merchant ship which he captured, took to England and sold, along with other prizes, for £50,000 — a neat return of five hundred percent for his backers.

Both the unresisted landings and spoilings in the Caribbean and the easy capture of Spanish ships showed Spain's vulnerability in America. It was not strange that English interest, in earlier times focused on exploration and trade, should now fix upon the fantastic profits to be had from raids on Spanish towns and shipping in the New World. Religious differences were also increasing between the two nations and injecting a terrible flaming zeal into the conflicts. Queen Elizabeth sent Drake west again in 1585. His depredations, she intended, would pay Spain back for injuries done to England and Drake would divert Philip's attention from the Netherlands, where Protestant rebels with English aid were slowly achieving independence from Catholic Spain.

Drake bypassed Puerto Rico; but at Santo Domingo, after burning a third of the town, he gained a ransom of 520,000 ducats. At Cartagena he collected only 110,000, but his men took "full pleasure ... in the uttermost sacking and spoiling of all their household goods and merchandise" and ruined a great part of the city with fire. On the way home he sacked and burned the town of Saint Augustine in Florida.

So Drake's voyage was very good business; the gold and silver fetched in his Golden Hind founded the Bank of England.

A MASTER PLAN FOR THE CARIBBEAN

As Elizabeth had hoped, Philip was indeed annoyed by Drake's work. He reacted by sending two experts to plan the defenses needed for his overseas domain. Fieldmaster Juan de Tejeda, a military veteran bearing the scars of nine wounds from pike and arquebus, was in charge. These wounds, as he was wont to say, were honorable decorations achieved not in a tavern, but in the King's service.

Tejeda's engineer was Bautista Antonelli, a talented Italian. Just before the Caribbean assignment Antonelli had been badly shaken by the near-loss of his life during an expedition to fortify the Strait of Magellan and had decided to don the habit of a monk. Fortunately for Spain, his friends talked him out of the monastery.

Tejeda and Antonelli reached the Caribbean in 1586 and inspected the major ports. Back in Spain by September, 1587, they worked with Tiburcio Hispano-qui, Philip's chief engineer, on a master plan for shore defenses. They decided to fortify ten key sites from the Antilles to the Spanish Main, including Florida. The new forts would be at San Juan (Puerto Rico) and Santo Domingo (Hispaniola); at Santa Marta and Cartagena (Colombia); Nombre de Dios, Porto-belo, the Chagres River and Panama (the Isthmus); Havana (Cuba) and St. Augustine (Florida). In November, 1588, Philip commissioned Tejeda and Antonelli to forge this great chain of bastions. Tejeda would reside in Cuba as general supervisor (at eight hundred ducats a month), with Antonelli roving as
field engineer (at one hundred ducats a month plus travel expenses). Their wages would come from the Crown’s American treasuries, of course.

The plan, long overdue, had matured at a most critical time. The year of 1588 marked England’s victory over Philip’s “Invincible Armada.” Elizabeth’s sea dogs had certified that England was mistress of the seas, and Spain’s task of keeping the overseas lifeline open became harder and harder.

Tejeda and Antonelli left Cadiz in February, 1589, taking along a cadre of skilled artisans, including a dozen stoncutters, eighteen masons, a couple of smiths, a cooper, a metal founder and an overseer. All were on salary and had signed contracts for the duration of the project. Labor gangs would be picked up at San Juan, Hispaniola, Cartagena and Cuba. Each place was to supply one hundred and fifty slaves to be sent by Tejeda to whatever jobs needed them.

The expedition also included a levy of 320 soldiers, 120 of them for Puerto Rico. (Since nobody ever wanted to go to Puerto Rico, Philip had told his captains to enlist the men for Chile, which was next door to the gold of Peru. No matter if the recruits never saw Chile; they were needed in Puerto Rico, Havana and Cartagena.)
THE HORNWORK AT EL MORRO

Tejeda and Antonelli reached San Juan after the middle of March, 1589. Philip’s Council of the Indies had approved three projects: a fort at El Morro; a sea-to-sea wall from La Fortaleza to the rocky Atlantic shore; and the sinking of a hulk to block the channel at Boquerón Inlet, the narrow “back door” to the harbor. The two experts worked closely with Governor Menéndez de Valdés to get the first project started. The other two were tabled for the moment.

Antonelli went to El Morro and laid out the new work, siting it so that it would shelter three thousand people. Tejeda dubbed it “the Citadel.” Actually, the new construction would be a single wall in the form of a hornwork. It was to cross the islet at the narrow headland, and would protect the land side of the tower and batteries already built at the harbor mouth.

Tejeda debarked eight artisans and some of the Crown’s slaves, unloaded iron and tools, then left with his partner on April 9 for Santo Domingo. They had the bad luck to be blown back onto the Puerto Rican coast and lose vital supplies and equipment. The mishap brought them back to San Juan until April 20, but salvaging gear and fitting out another vessel left little time for doing anything more at San Juan.

Menéndez de Valdés, once again on his own, combined Tejeda’s workmen with island labor and began work on El Morro. He soon reported with enthusiasm that “the fort, when completed, will be the strongest that His Majesty has in all the Indies. And now the people of the country sleep in security.” Perhaps part of his optimism was due to the arrival of another two hundred soldiers. In the fortnightly muster of the island military, he now had almost fifteen hundred fighting men and eighty horses.

The Governor also had to come up with the money for the El Morro project. True, the Royal Warrant authorized funds for it; but this bit of paper meant nothing unless he could separate the cash from reluctant officials in Mexico City.

Meanwhile, a firebrand named Pedro de Salazar, in the garrison at the Castle of Lisbon, had received Royal orders to sail for San Juan and take over construction of El Morro. Captain Salazar forthwith embarked his troop in three small transports. Weather made it a long crossing of forty days, and in the Cape Verde latitudes a twelve-gun French ship fired at them and demanded their surrender. Salazar must have laughed with glee. The hapless Frenchmen, unaware that they had bumped into a hornets’ nest, found themselves boarded and taken. In desperation they tried to blow up their ship, but succeeded only in charring the vessel and ten of Salazar’s men, two fatally.

Salazar reached San Juan at last on May 29, 1591. It was two years after the arrival of Tejeda and Antonelli, and the high morale that had once elated Governor Valdés had evaporated. In fact, many townspeople had bundled themselves off to the hills after sighting eight corsair craft off the coast. Naturally, after Salazar landed his 190 men, the people came back and joy was unconfined — the soldiers were thankful for solid ground after forty days at sea, and the people were glad their King had not forgotten his little outpost.
If ever there was a determined man, it was Captain Pedro de Salazar. A collision course with the Governor, a very positive character himself, was inevitable and the first area of conflict was money. "I am losing my mind," Salazar wrote secretly to Philip. The Royal treasury was empty except for a few thousand ducats held by the Governor and friends. "I tell them to give it back, and they say it's none of my business," Salazar complained.

"I warn Your Majesty," he wrote, "that I have received no letters from abroad, nor do any leave here that the Governor does not censor. . . . The Royal Officials here know positively that the letters they write never leave. . . . This may sound like prejudice," he added, "but I have none."

Yet so complete was Salazar's distrust of the Governor that at one time he asked Philip to write him in code if there was something really important to be said.

The friction between Salazar and Valdés was in great part due to their personalities, professional jealousies, excessive Royal zeal and lack of tact. The Governor had an excellent grasp of defense concepts, but according to Salazar, he was no expert when it came to construction. Worse, he had rejected the good advice of his own captains who supposedly were experts. Salazar, a pro-
fessional tempered by tough campaigns in Flanders and Italy, claimed that the defenses built by the Governor were good for nothing except staving off Indian raids. "We don't fight Indians here," he said. "We're up against the English and French." In spite of their differences, however, the two men got on with the job. The town council gave Salazar four hundred men and the work moved ahead.

In the new hornwork, a half-bastion overlooked the bay and commanded both the harbor and the land approach. It became the dominant position and was named "Austria" in honor of the reigning dynasty of Spain. The half bastion on the Atlantic side was called "Tejeda." A straight wall (curtain) connected these bastions while a narrow moat in front gave added height to the walls and thus strengthened them against assault. Beneath the massive walls seen today archaeologists have found quite clear evidence of the 1589 construction.

After roughly leveling the foundation site, Salazar's workmen laid a footing five or six inches thick — a "floor" of sandstone spalls (chips) and clay soil, mixed with lime for adhesion. On this foundation they raised a wall of mamposterta (a concrete of lime mortar mixed with stone or brick spalls). For this kind of work, the builders set up wooden forms into which they poured the concrete and tamped it thoroughly. After the material had hardened, they took off the form boards. Concrete workers today use much the same methods.

The bastions were faced with kiln-baked bricks — the longish, flat bricks of the Roman tradition. This Roman-Spanish brick is a little less than two inches thick, about five inches wide and eleven inches long.

The wall connecting the bastions, though also of mamposterta, looked like stone. The masons had lined the forms with stones dressed on the outer face to about six by twelve inches. When they stripped off the form boards, these stones were exposed and would fool almost any attacker into thinking he faced a strong stone wall. The hornwork walls had a slight batter or backward slope of about one inch per vertical foot. This was customary practice at the time. The engineers said it stabilized the wall and minimized the impact and ricochet of cannon balls.

The gate in the center of the curtain was shielded by a small ravelin, embra-sured so that its cannon swept the central approach. Behind the hornwork, Salazar leveled off sites for a pair of batteries, one to range out over the sea and the other over the harbor.

Since the hornwork was simply a parapet with no shelter from the weather, Salazar also built a guardhouse just inside the gate. And, of course, there were the magazines for munitions — a large one to serve the Austria Bastion and adjacent guns, and the other for the Tejeda Bastion area. He mounted the cannon as soon as he could and reassigned troops for the best defensive posture. Then he sent Philip a completion report and a sketch of the new El Morro.

He had thought of everything: "I put 25 men at El Morro and can put 25 more if I need them, and 50 good men from Puerto Rico. With Captain Gómez's company of 120 and the rest of my men and others, I can go wherever there is need. I have a man in charge of ammunition at the citadel, and have put Your Maj-
esty's officials in charge with full authority (heretofore they've had none). At places in the countryside where the enemy might strike, I have persons of trust who will notify me at once."

Now, continued Salazar, there is no longer town talk of running to the hills when corsairs come. In fact, because corsair sightings had increased, puerto-riqueños from the hills crowded the streets of San Juan, seeking protection in the new citadel. Salazar was both pleased and perturbed. "When I came here," he wrote, "I couldn't find a man in the town; now I am troubled to see so many here. Their resolve to serve Your Majesty is so strong that I do not really care what the enemy does. Last night some Englishmen landed nearby in small boats and talked with the people. I am not worried. I let them know I am here. They already know me. And I know them."

So spoke Salazar, with plausible immodesty, brushing aside the names of Menéndez de Valdés, Tejeda, Antonelli and scores of nameless ones whose hard work had built this defense project. What remained was to discover how good it was.

**DRAKE'S ATTACK**

In 1595, Queen Elizabeth gave Drake and Hawkins — the one daring, the other prudent — joint command of a new project: they were to take Puerto Rico and Panama. The prime target was Panama because it was the great depot for trans-shipment of American gold and silver. But Puerto Rico, which they intended to make a permanent English base, became doubly attractive when the partners learned that a crippled Spanish treasure galleon was in San Juan harbor. Her great store of wealth had been ferried ashore and put into La Fortaleza.
At first Elizabeth had been reluctant to send Drake to the Caribbean again. But she believed Philip was readying another invasion of England, and if this Caribbean foray did not distract him, it would at least pay him back for the bothersome raids that Spanish corsairs were making on the Cornwall coast. Drake and Hawkins left England on August 28, 1595, with twenty-seven sail and more than twenty-five hundred men. Spanish agents in England had previously ferreted out details of the plan and sent them to Spain. From Spain, word went out to the colonies.

The raiders struck first at the Canary Islands, but despite their strength they were not successful. On September 28, Drake set the course for Puerto Rico and Canary Islands officials sent a fast dispatch boat to warn San Juan.

Meanwhile, Admiral Pedro Tello de Guzmán had left Spain with five frigates to fetch the San Juan treasure. Near the Canaries he found a couple of English stragglers. Tello de Guzmán captured one, the Francis, and chased the other to within sight of Drake’s armada. Then, having persuaded the crew of the Francis to explain Drake’s mission, the Admiral made full sail for San Juan. His speedy frigates easily beat Drake across the Atlantic, and his first-hand report gave desperate urgency to the defense moves at San Juan.

Pedro Suárez Coronel had replaced Valdés as Governor of Puerto Rico and, with the commander of the crippled galleon, General Sancho Pardo, was sweating over the treasure in his care. They had already planned the best way to meet attack: build fieldworks at places where the English might try to land. Then, when Drake was sighted, General Pardo would move the damaged galleon to the harbor entrance and scuttle her to block the channel.

Now the galleon was sunk as planned, with another vessel as well. The Admiral’s five convoy frigates were moored just south of El Morro. There were fifteen hundred men under arms: eight hundred from the frigates, the galleon and the garrison, and the rest local militia. Women, children and other noncombatants took shelter in the mainland woods.

Coastal lookouts saw the English sails at dawn on November 22, 1595. With the boldness so typical of Drake, he anchored the great fleet within range of San Juan’s easterly batteries at Boquerón.

But his bravado was costly. Spanish cannon spoke twenty-eight times. One of the balls crashed into Drake’s cabin, splintered the stool from under him as he sat at supper, and killed both Sir Nicholas Clifford and a young officer named...
Brute Browne whom Drake loved as a son. He had also lost Hawkins to fever before they reached Puerto Rico. But still, Drake would not be distracted from his goals.

By the next morning, the 23rd, Drake had moved his ships beyond El Morro and anchored off Cabras Island. During a good part of this day his seamen took soundings of the nearby waters, bringing the work boats even as close as El Cañuelo Island opposite El Morro. But they did not go ashore; the Spanish had a stockade and a small troop in this area.

That night Drake sent fifteen hundred of his men to the attack, an even match for Spanish manpower. Armed with "fireworks and small shot" and crowded into shallow-draft pinnaces and other small craft, they forced the port entrance with little regard for either the sunken hulks or El Morro's cannon. In fact, they came so close inshore that they were under the guns of El Morro and the Spanish gunners could not aim their pieces low enough to hit them.

Swarming onto the frigates and using their fireworks, the English set some of them afire. But that was a mistake. For as the blaze lit the battle scene, the defenders could see their targets. Musketry from El Morro and fire from Santa Elena Battery and the Spanish frigates cut down the attackers. With muskets and stones, the Spaniards drove Drake's men from the burning frigates into the water.

For an hour the fighting was fierce. Both sides lost heavily. At the end, as the English drew back to their fleet, four of the frigates were still fighting-fit, and the treasure yet lay safe in La Fortaleza. The new defenses, manned by determined men, had withstood even Drake's methodical audacity.

In spite of their losses, the defenders of San Juan were jubilant. As for Drake, he had failed to capture the treasure and had lost Clifford, Brute Browne and many other brave men. But he promised his people fatter and easier fortunes elsewhere and sailed for Panama, the main target.

There he failed, too, when he faced more of Antonelli's fortifications; and as his troops marched across the Isthmus, a rainstorm soaked their gunpowder and they fled before the Spanish army that came out to meet them. Drake contracted a fever and shut himself in his cabin, to die on January 28, 1596. His men buried him in the blue sea off Portobello, near the scrap of land they still call Drake's Island.

With his death, the expedition died. The survivors suffered another disaster when the Spanish navy hit them off Havana and the homeward voyage was a mournful one indeed.

In Spanish lands, Drake's passing was joyful news and even inspired a long poem, La Dragontea (The Dragon), by the great Lope de Vega. Drake is remembered: but a brilliant career such as his may blind us to the fact that, compared with the tremendous bulk of Spanish trade, he and others like him were but little fleas on a very large dog. Spanish seapower was a very strong defense system long before and after the loss of the "Invincible Armada" in 1588. Neither Drake nor anyone else had yet been able to wrest away and hold any important Spanish site, either in the Indies or on the American continents.
The sea was the highway binding the colonies to the mother country, and reef-bordered shorelines were natural defenses — unless the enemy had skillful and daring pilots.  
*Albert Manucy.*
Cumberland Takes San Juan

So Drake did not get the treasure at San Juan and General Pardo conveyed the precious cargo to Spain. San Juan was left with a garrison of two hundred men plus some one hundred and fifty volunteers, instead of the fifteen-hundred-man force that had resisted Drake. King Philip knew of Puerto Rico’s vulnerability, and to strengthen the isolated island he authorized a sizable credit against the Board of Trade at Seville, which was responsible for supervision of overseas commerce. He also granted another large credit against the treasury of New Spain. The first would provide for artillery and other weapons, while the money from Mexico would improve El Morro’s defenses.

Unfortunately the well-intentioned moves were cancelled by reality. Captain Antonio de Mosquera, the new Governor who came to the island in June of 1597, found conditions deplorable. The garrison had shrunk to one hundred and seventy-six men. Dysentery had swept away many of the civilians and in San Juan alone only one hundred and eighty were left. With no labor for the fields, the entire island was on the verge of famine. Cassava bread and plantains were the only foods to be had. “Even the rich,” it was said, “could find only plantains to eat.”

But starvation and disease were only part of the picture. The regular subsidy had been held up at Havana, and the men serving in Puerto Rico had not been paid for months. To survive, they sold their souls to the usurers — or became thieves. And so grim was the struggle for life among these poor, sick and starving soldiers that their leaders were hard put to keep them from fighting each other. The discipline, training and morale that defeated Drake had vanished.

The credits granted by Philip were meaningless. Governor Mosquera had no money to work on El Morro and no harbor defense vessels. His garrison was reduced to shambles by hunger and disease, and the island population was gaunt from hardship and depleted by death.

At this point, word came from the Canary Islands that another great English fleet was crossing the Atlantic. Mosquera could do little to make ready. His
Cumberland in San Juan, 1598. His heavy armor almost drowned him when he fell into the water during the assault on San Antonio Bridge. In the background the artist has shown the English marching into San Juan. National Park Service.
men, physically weakened, untrained, surly and hard to handle, had no stomach for building emergency defenses and even less for standing up to an enemy.

THE SECRET TARGET
This time the enemy leader was another of Queen Elizabeth’s favorites, forty-year-old Sir George Clifford, the third Earl of Cumberland, noted mathematician and navigator. He had commanded the Bonaventure in the defeat of the Spanish Armada a decade earlier, and was a veteran of numerous voyages of exploration and plunder to the West Indies. His fleet of twenty-one vessels left England early in March of 1598, and Cumberland was aboard the Scourge of Malice, the most powerful warship of her day. Their destination was a secret; Cumberland did not reveal it to his men until they had made their rendezvous at the Virgin Islands. Then came the word: take Puerto Rico!

Again Elizabeth had decided that Puerto Rico must become an English military station where her ships could intercept Spanish lines of communication and seize treasure galleons. San Juan, termed by the English “a secure and defensible port,” was of course the target.

Cumberland did not intend to repeat Drake’s mistake of attacking the well-fortified harbor. On June 16, 1598, he anchored his fleet east of San Juan islet and put troops on the mainland beach through the quiet summer surf, a feat that posed no great challenge to his experienced boatmen. With a beachhead established and a Black guide to show the way, Cumberland led his men toward San Antonio Bridge, the only access to San Juan by land. This maneuver, he hoped, would bypass the main harbor defenses and march him right into town.

The east end of the islet had two important defenses, however. San Antonio Bridge spanned the narrow but unfordable Boquérón Inlet, so the Spanish defenders destroyed part of it and locked its heavy fortified gate. Then, not far from the bridge was Boquérón Battery with five guns, so situated that they commanded both the bridge and the inlet.

Cumberland struck at dawn on the 17th. His seventeen-hundred-man army vastly outnumbered the little band of defenders at the bridge. But with the help of the guns from the Boquérón Battery, Spanish pikemen held this critical point through two hours of violent combat. Cumberland himself sank beneath the bloodied waters and would have drowned (for he was in heavy armor) had not his men speedily fished him out. The English then had to withdraw.

Cursing the cannon that devastated his flank, Cumberland ordered the Boquérón Battery to be silenced. A warship anchored within range and an hour’s cannonading did the job.

Then the English won their second beachhead, this time almost at the foot of the now silent battery. There was no fighting; the defenders of both bridge and battery, outflanked and hopelessly outnumbered, had pulled back into the nearby woods.

Before dawn on the 18th, the English began the march on San Juan. Moving cautiously in single file for fear of ambush, they were in the town by daybreak.
Only a few Spaniards were there to greet them: wounded men who could not be moved, a few women and old people. The rest had fled to the mainland or to El Morro. Cumberland demanded the surrender of El Morro, but in accordance with the military code of the period, Governor Mosquera refused.

Inside El Morro, however, the situation was already desperate. Mosquera harangued his troops, hoping to rekindle their courage. But nothing could restore the morale of these sullen, undisciplined — and hungry — men. The officers had been able to rally only about eighty men for defense of the fort and both water and food were in critically short supply. There was brave talk about a heroic stand, or perhaps even a daring sally to drive the English out of the city. But all knew this was just talk.

Meanwhile, comfortably ensconced in the town, Cumberland planned his next move. Deserters informed him of the situation of the tiny garrison at El Morro; they explained how to stop supplies from reaching El Morro from the mainland; they even suggested sites from which siege guns could breach the land wall of the fort. Cumberland decided not to risk lives on an assault. While his men saw to it that no supplies reached the beleaguered fort, he set up siege batteries on high ground with a good command of El Morro's hornwork. In fact, so well chosen were his two positions that the Spanish guns could not reach them. His fire battered the hornwork, forced the defenders from their parapets and dismounted their guns. After enduring the shattering bombardment for several days, Mosquera and his war council gave up hope. The white flag was lifted over the crumbling walls and the English and Spanish officers met to talk terms.

On July 1 the Spanish garrison marched out of El Morro with flags flying, but armed only with their swords and daggers. All were escorted to La Fortaleza where they would stay until they left Puerto Rico. Two companies of English-
men moved into El Morro. Over its walls they unfurled the English standard, the cross of St. George on a white field. Cumberland's armada sailed into the harbor. He was on the verge of making Drake's dream of a naval base at San Juan come true.

THE ENGLISH OCCUPATION

To the eyes of the Reverend Doctor Layfield, Chaplain of the English fleet, San Juan was an attractive town warmed by sunshine and caressed by ocean breezes. "The houses," he wrote, are built "after the Spanish manner, of two stories height only, but very strongly, and the rooms are goodly and large, with great doors instead of windows for receipt of air. The town in circuit is not so big as Oxford but very much bigger than all Portsmouth within the fortifications, and in sight much fairer.

"The Cathedral is not so goodly as any of the Cathedral Churches in England, and yet is fair and handsome. . . . On the north side [it has] a fair pair of organs. This Church is sacred to Saint John the Baptist, as is all the island. Besides his image there were many others in particular shrines, which the soldiers could not be held from defacing. . . .

"There is also a fair Friary standing on the north side of the town. It is built of Brick, in a good large square with a Church and Hall. The Convent was all fled, saving one old Friar who, in the little broken Latin that he had, told me they were of the Dominican Order. . . ."

The good Chaplain also remarked that not only did the tropical climate soften the glue in Spanish bookbindings but it liquified even the candied fruit from England!

One of Cumberland's first chores was to rid the island of the Spanish Governor and his soldiers. He decided to send them to Cartagena, but eventually they were set ashore in Jamaica.

Another important task was to inventory the island resources. Although Cumberland failed to wring ransom money out of the destitute population, he sent men throughout Puerto Rico in a quick survey of its topography, natural resources and products, and of course to sniff out any signs of gold and pick up whatever plunder they could lay their hands on. Surprisingly, they missed the Chest of Three Keys with the subsidy money from Mexico. Mosquera, certain of his own capture, had sent these funds to a secret cache on the mainland. Nevertheless, the English collected a considerable amount of booty in ginger, hides, sugar and slaves, and this they did despite ambuscades and even open hostility from the island people. Much of the resistance was organized by the former Governor, Suárez Coronel, who still lived in Puerto Rico.

And now came midsummer's heat and food contamination to wreck Cumberland's plans completely. Dysentery sickened four hundred of his men and killed another four hundred, leaving him without enough for a garrison. Reluctantly he decided to leave Puerto Rico. The troops pillaged the town and burned much of it; the handsome organ in the Cathedral was ripped out and taken away, as were paintings, altar ornaments and bells from all the churches. The cannon
from the forts and even copper kettles out of the kitchens were carted off and stowed aboard the departing vessels.

Most of the fleet left on August 27, 1598, but a few ships stayed with Vice Commander Sir John Berkeley, who was too sick to travel. Recovered at last by early September, he made ready to sail, but first ordered his men not to destroy any more of San Juan’s houses. Some day, he hoped, Englishmen would come back to Puerto Rico and use them.

REBUILDING EL MORRO
Word of the English capture of San Juan reached Philip only three days before his death, and he died in the bitter belief that England had at last won their coveted foothold in the Indies. The War Council ordered the recovery of Puerto Rico, and an expedition of six thousand men was readied for the project. Later, when the news came that dysentery had turned Cumberland’s victory into defeat, the orders were changed: send only a garrison, along with supplies and materiel for restoration of the defenses. And, of course, since the English had taken Governor Mosquera, a new Governor was named. He was Captain Alonso de Mercado, another Flanders veteran.

Seven months after the English had gone, four vessels under the command of General Francisco de Coloma brought Governor Mercado to San Juan, along with four hundred soldiers and forty-six cannon to replace the garrison and guns carried off by Cumberland. The scars of the siege were still raw. Most of the houses were charred and desolate, the walls of El Morro lay in ruins, and many citizens were still missing, either kidnapped by the English or hiding in the mountains — yet a number of people were already back in the city, cheerfully patching up their homes and livelihoods.

General Coloma learned that El Morro had been seriously weakened even before Cumberland’s arrival by sending men and supplies at the Crown’s order to reinforce Cartagena, Cumberland’s presumed target. Nor had the local pilots considered it possible for an enemy to land on the main island closer than twenty miles from San Juan. This false sense of security was forever shattered when the English came ashore almost within culverin range of El Morro, and even made a beachhead on the islet of San Juan itself!

Governor Mercado’s first priority was to apply the lessons learned in 1598: the defenses must be strengthened and expanded. The English had hardly left before the Crown ordered New Spain to send eight thousand ducats for El Morro. The work started in 1599 and between 1601 and 1609, a major reconstruction took place as the hornwork was rebuilt with much stronger foundations than before, to support the high and massive walls that still stand today.

Antonelli’s mamposteria parapet, so badly damaged by the English, had its gaps filled in by the labor gang so that it became part of the subfoundation for the new wall. Quarrymen dug out their quotas of sandstone and the stonecutters sized the rough stone into the eleven-inch-thick blocks needed for the new foundation. (Eleven inches, one third of a vara, was the Spanish foot.) The masons laid the big stones like paving blocks, covering the foundation area:
then they strung their lines and began the walling courses that rose higher day by day. Soon the new masonry dominated the headland with a silhouette visible far out to sea; and with this new height, the hornwork commanded all the surrounding terrain for the first time.

As long as it was exposed, the old mampostería wall was an Achilles’ heel. Erosion would destroy it no less surely than enemy cannonballs. So the slaves brought thousands of baskets of earth to fill the old moat and raise the ground level above the new stone foundations. Antonelli’s old wall would lie hidden until inquisitive archaeologists unearthed it almost four hundred years later.

This simplified recital of the construction does not mean that all the work went swiftly and smoothly. Governor Mercado had plenty of problems, some of which stemmed from impetuous ventures into a field where, to paraphrase the King’s engineers, “his knowledge was not equal to his desire to intervene.”

Mercado wanted a number of improvements for El Morro, including a new cavalier to elevate some of the cannon, a new traverse wall at Austria Bastion, and the cistern moved to a higher location. Back in Spain the suggestions were reviewed — and rejected — by Chief Engineer Spanoqui. In the first place, Spanoqui pointed out, the Governor’s plans lacked data on elevations and failed to show old work, so they were confusing. Secondly, the Mercado proposals were badly designed and would actually make the fort dangerously vulnerable. As for that cistern, let it stay where it was. Water runs downhill, so the cistern had to be downhill. Spanoqui seemingly bent over backward to be fair: he wanted Tejeda and Antonelli, who were familiar with the site, to look at Mercado’s ideas. But the Governor’s pet projects were, in the end, not approved.

In 1598, most of the action had been at the east end of San Juan islet, where despite the brave efforts of the Spanish pikemen at the bridge, Cumberland had been able to silence the Boquerón Battery and outflank the defenders. During the 1601-1609 construction, workmen also repaired and expanded these easterly defenses. And at the west, directly across the channel from El Morro, they built a little wooden fort on El Cañuelo Island. Its firepower would help the guns of El Morro to control the harbor entrance.

Thus, after its capture by Cumberland, San Juan grew even stronger, with expanded defenses to the east and to the west, and at El Morro a hornwork rebuilt in the massive construction that still stands today.
City walls along the harbor. San Juan became a walled town after the Dutch sacked and burned it in 1625. Albert Manucy.
Now a hundred years had gone by since the Spanish conquest of Puerto Rico. In the Americas the 1600's were a new era. Conquistadors gave place to administrators; the dynamism of the conquest subsided into the monotony of plantation or village life as the Spaniards moved away from the coasts to use the vast resources of the land. But in the Caribbean, the corsairs remained.

Yet they, too, had changed. Take, for example, the manner and motives whereby the Dutch chose to attack Puerto Rico in 1625.

The Netherlands had come under Spanish rule in 1519 when the nineteen-year-old King of Spain was elected ruler of the Holy Roman Empire as Charles V. From the beginning, Holland was an unhappy inheritance for Charles. Spain was separated from its unwilling satellite by an unfriendly France on the one hand and an often hostile England on the other; and to make matters worse, the Netherlands stubbornly refused allegiance to a foreign Crown. Spanish attempts to put down rebellions and purge the land of its "heretics" (for Holland was a stronghold of Protestantism) consumed much of the treasure that came from Spanish America. Perhaps it was fitting that these campaigns also tempered many a Spaniard for the less civilized kind of fighting he would find later in the Americas.

Adversity also toughened the Netherlands. The Dutch burghers eventually built a strong, liberal republic which won independence from Spain. And meanwhile, their ships were sailing the seas of the world to fetch products so coveted in Europe that Amsterdam became a major port.

The Dutch organized the West India Company in 1621 as a trading enterprise, but more importantly it meant a trade war in the Caribbean against Spain. Dutch traders sold slaves, knives, mirrors, cloth and flour to Spain's colonies and brought tobacco, sugar, dyewoods and hides back to the Amsterdam warehouses. They sailed Spain's sea from Trinidad to Veracruz and they prospered mightily, since the colonists needed their goods and conveniently forgot the regulations against trade with foreigners. Smuggling became respectable.
But the Dutch were not satisfied with these small successes. In 1624 they seized Bahía, the capital of Brazil, for use as their American base. They could not hold it; a Spanish counterattack drove them out and Dutch reinforcements, led by Bowdoin Hendrik, the burgomaster of Edam, came too late.

Finding Bahía too strong for him, General Hendrik turned to Drake’s old dream: Puerto Rico. He stopped in the Virgin Islands long enough to refit some of his seventeen vessels and on the morning of September 25, 1625, was within sight of San Juan.

**THE DUTCH SIEGE**

The Spanish had been warned of a possible Dutch strike, but the sudden appearance of this armada was nevertheless a surprise. The call to arms sounded throughout the city. Governor Don Juan de Haro, an old soldier well experienced on the battlefronts of the Netherlands as well as the Caribbean, took the routine steps. Patrols went out, scouting the environs, collecting supplies and recruiting militiamen. Noncombatants were sent to the safety of the countryside. And with much fanfare the troops were marched from the town square to their posts in full view of the enemy, so that he — whoever he was — might be impressed with their numbers.

Governor Haro, nonetheless, was not optimistic. He was short on powder, fuzes, weapons and food. “There is no fortress in the world,” grumbled this old veteran, “which can be defended without victuals.”

Before a strong favoring breeze, Hendrik’s fleet formed into battle line at one in the afternoon and sailed boldly for the port entrance. They saw El Morro on the headland, but they gambled that its guns, even if manned by experts, could not keep all of them out. Hendrik’s flagship led the line. To confuse the Spaniards, the Dutch ships flew the ensigns of many nations, but El Morro’s gunners were not confused and they opened fire on Hendrik as soon as he came within range. Hendrik returned the fire and his ship was soon inside the harbor with the rest of the fleet. Haro later confessed that his gunners were “tailors, cobblers and other artisans,” few in numbers and without battle experience, and they simply could not cope — especially since their cannon, when fired, tended to shatter their ancient carriages.

The other side claimed that Haro’s tailors and cobblers put up such a fierce defense that the harbor was won only by a most heroic display of Dutch fearlessness! In any case, Hendrik’s personal courage excited even his more cautious officers and brought the Dutchmen into San Juan Bay with the loss of only four men and a few wounded aboard the flagship.

By the time the fleet had passed El Morro, the afternoon was well along; and since there was a shoal between the ships and the landing area south of the town, the methodical Hollanders would not risk running aground in their haste to get ashore. Landing was postponed until the next morning.

That afternoon and all through the night the townspeople scurried about, packing their best belongings and, with a prayer cast heavenward to their patron, they fled over San Antonio Bridge to the mainland and out of the en-
1625: the Dutch Attack

Enemy's reach. To the mainland also sped a commission to call men to arms and to bring in food supplies for the garrison. At sunset the Governor marched the entire garrison into El Morro. There were only 330 men and he could not afford to lose any. That night the fort was stocked with all available provisions: cassava, maize, olive oil, hardtack, cheese, flour, wine, fifty head of cattle, twenty horses and some chickens.

The 26th dawned, and with cannon pointed toward the town, the Dutch fleet opened fire. Small boats filled with attack troops headed shoreward under the protection of the barrage. General Hendrik was the first to leap ashore. Eight hundred men were soon with him, and he marched them in close order into San Juan as far as the market place at the center of town. It was a dead city. There was no resistance: all the people were gone.

Hendrik chose La Fortaleza for his headquarters and the banner of the Prince of Orange was raised over its ramparts. At the sight of this hated symbol, Haro must have set his jaw in rage! As for Hendrik's soldiers, they marched from the market place to the cathedral, where they toppled the statues and trampled the furnishings, while not failing to carry off anything they thought of value. After this bit of recreation, they lodged themselves in the best houses of the city. Their leader, incidentally, imposed heavy penalties on drunkenness; many of the wines liberated from Spanish larders were poured out by Hendrik's orders and never reached the thirsty palates of his men-at-arms.

It took three days for General Hendrik to prepare to besiege El Morro. He blocked the eastern approach from the mainland by placing troops at San Antonio Bridge and took El Cañuelo Island to the west. Since the fort on El Cañuelo controlled the mouth of the Bayamón River, which was El Morro's
Fort San Juan de la Cruz on El Cañuelo Island lies opposite El Morro at the harbor entrance and supported El Morro's fire. The present fort dates from the 1660's. Albert Manucy.

main line of communication with the mainland, this was a devastating loss to the Spanish. It meant that El Morro was cut off almost entirely from mainland support and supplies.

With El Cañuelo and San Antonio in hand, Hendrik began the siege trenches for his sappers to use in approaching the hornwork. On the 30th a Dutch trumpeter summoned El Morro and delivered Hendrik's ultimatum: Surrender the fort or I will take it and put all to the sword, even to the women and children. Haro refused: the Dutch trenches inched closer. The ponderous Dutch siege guns were man-handled into place, and the thunder of their fire and the thud of the projectiles as they hit the walls carried even across the bay to the ears of those waiting in the forests. Dutch cannon fired more than four thousand balls, and as their guns moved ever closer, El Morro's massive hornwork was heavily damaged even though protected to some degree by the earth of the glacis in front of it.

Behind the hornwork, the tailors, cobblers and others who manned the guns learned quickly, for they were engaged in a duel with the Dutch that went on for twenty-one days. A spy taken by the Spanish told them their cannonading was effective; many of the Dutch had been killed or wounded.
While Hendrik applied the pressure at El Morro, Haro’s people released it elsewhere. At San Antonio Bridge militiamen kept the Dutch garrison under harassment and finally drove them out. Captain Andrés Botello and his guerrillas regained control of the Bayamón River then braved the cannon at El Cañuelo, took the Dutch garrison in a hot two-hour fight, and burned the fort. Again the way was open to reach El Morro with supplies.

But Hendrik pushed the siege trenches relentlessly toward the hornwork. They reached the glacis before the wall, and it was only a matter of time before his cannon could be moved within a few yards of the wall to make the breach. Then assault troops would swarm into the fort and overpower Haro’s three hundred.

Perhaps the successes of the Puerto Rican militia inspired the Governor and his garrison to greater effort. One of his gunners proved to be a sharpshooter, blasting one target after another with his cannon. Companies from the garrison made several sallies from the fort, and one under Captain Juan de Amézquita drove the besiegers out of their trenches.

On October 21 in a last effort to win El Morro, Hendrik sent the Governor a letter with another ultimatum: Surrender, or we burn the town.
“We have enough courage and wood and stone to build again,” replied Haro.

That day the invaders went through the town, street by street and house by house. When they were through, nothing of value was left. All the spoils worth taking — and doubtless much that was not — went aboard the ships: sugar, ginger, tobacco, skins, clocks, brassware, coins, guns, provisions, slaves; and from the churches a crucifix and altar ornaments, and of course the bronze bells. And on the 22nd they put the torches to the buildings.

As the smoke from the city boiled into the sky, Haro loosed a desperate two-pronged attack on the Dutch troops. Captain Amézquita headed the force from El Morro; from San Antonio Bridge Captain Botello led his puertorriqueños. Together they routed the Dutchmen from their positions and killed or captured many of them. The rest withdrew to the ships. Then, from the bay shore, Spanish gunners (no longer mere tailors and cobblers!) aimed their pieces at the enemy fleet. They claimed thirteen hits on the flagship alone, and heavy damage to other vessels, before the Hollanders were able to move out of range.

For the rest of the month Hendrik kept his ships at a distance in the inner harbor, making repairs and waiting for favorable sailing weather.

Meanwhile, Haro planned to bottle up the enemy by stretching a heavy chain of logs across the port entrance. And to destroy the fleet as it tried to leave the harbor, he realigned the guns at El Morro, putting cannon on platforms facing the passage at four different levels.

On November 2 the weather was right, and the Dutch tried for the sea. Unluckily, Haro’s chain was not yet finished. Hendrik and his captains swept past El Morro and out into the Atlantic. They did not go scotfree; the guns of El Morro and Santa Elena left many a scar. And scarred, too, was Haro. Thanks to an enemy hit on an artillery rammer, he plucked twenty-four wooden splinters out of his skin.

So Hendrik was gone, but San Juan was in ashes. The Dutch arsonists had done their work well. Ninety-six buildings were burned and, of La Fortaleza, only the master walls remained. Civil and church archives were irretrievably lost. The handsome house of the bishop, with its priceless library, was gone and most of the Dominican convent was blackened debris.

**BUCCANEERS**

The Dutch attack had shown that an aggressive enemy could still pass El Morro and take the town and its outlying defenses. True, determined defenders could win them back — but at a very high cost indeed. These lessons learned in 1625 strongly affected future development in Puerto Rico. It was clear that there had to be even more defenses — and soldiers to man them — if San Juan and Puerto Rico were to be saved for Spain.

The hazard of attack from European invaders had always been present, and the danger intensified as foreign settlement in the Caribbean and elsewhere began to succeed. New colonies which flew a national flag were, at least in their own view, legitimate. They simply refused to acknowledge Spain’s right to exclusive ownership of the Americas or to a monopoly on trade with her colo-
cies. The newcomers were prepared to exploit the resources of the lands they occupied and to look for trade wherever they could. Some of them were not averse to practicing a bit of piracy as well.

Although the Dutch failed in Brazil and Puerto Rico, an armada under Piet Hein, admiral of the West India Company, bagged the entire Spanish silver fleet off the coast of Cuba in 1628. Sale of the booty yielded twelve million florins and the company declared a seventy-five percent dividend! In 1634 the Hollanders occupied St. Eustatius, then Curaçao, Bonaire and Aruba in 1634-1635, Saba in 1640, and St. Martin in 1648. They lost New Amsterdam (New York) to the English by treaty in 1667, but as a sop they got another Caribbean territory: Surinam (Dutch Guiana).

About this time the French planted their flag on certain islands in the Lesser Antilles. The Danes colonized Saint Thomas in 1671 and in the same year the pirate Henry Morgan sailed out of English-held Jamaica bound for Panama. In earlier years he had pillaged several Spanish-American towns, including strongly fortified Portobello. This time he crossed the Isthmus and took Panama, one of the largest cities of the New World. His was a bitter victory, however, for when he finally gained the city he found it only a pile of ashes.

Morgan was knighted for his exploits in the Caribbean. But many of his brothers in the trade achieved only the title of buccaneer. They were men of many nations with allegiance to none; they made their own settlements, elected their own captains, and raided Spanish towns and shipping as they pleased. The respected Dutch doctor Hendrik Barentgoon Smeeks, alias John Esquemeling, has written the best account of the buccaneers, and with good reason: in his youth he was one of them.

Every enemy base, whether under a national flag or the black flag of piracy, was a thorn in Spain’s side. To some degree, each one flanked not only the treasure route but also Puerto Rico, Hispaniola and Cuba, as well as the mainland of South America. “Intrusive” French and English settlements in North America also disturbed Spain, especially as they moved southward toward the Spanish-held Florida peninsula — which lay beside the Bahama channel used by the fleets on their return to Spain.

Though she had strength far beyond her size, in truth Spain was dangerously overextended, short on manpower and shipping, and unable to stop intruders from preemiting lands in the vastness of the Americas. And this lack of manpower and shipping opened her colonies to foreign traders — the contrabandistas. If Spanish vessels could not meet colonial needs, who could turn the smuggler away? Especially when his goods were needed and the prices were right! Thus, when a strange sail appeared at a Puerto Rican port (or any other), either it was received discreetly or fired on as a raider, depending upon the moment’s circumstance.

Puerto Rico had few large plantations. Each farmer scratched out existence on his own soil, held in fief from the Crown. He was ignored by Spain and scorned by the townspeople, who sweated less to make their living. Yet the farmer’s cattle, hides and plant produce were in great demand if he could get
them to market. Since Spanish shipping did not move his yield, the Puerto Rican farmer and his counterparts throughout the Caribbean welcomed the enterprising non-Spanish trader and nobody bothered about legalities. As the years went on, the San Juan military was ordered to stop contraband trade, but this was an impossible assignment as long as the island people greeted the contrabandistas with open arms.

Contrary to official fears, contacts with foreigners did not "corrupt" the puertorriqueños. They showed fierce loyalty to Spain in the 1625 attack, and from 1635 to 1655 they manned no less than six expeditions against English, French and Dutch colonies, all the way from Tortola to Jamaica. By the last quarter of the seventeenth century Spaniards had begun to practice some of the lessons taught them by the buccaneers and smugglers. Puerto Rico had become a leading center of Spanish privateering operations against foreign shipping in the Caribbean and brought in many prizes.

BUILDING THE CITY WALLS

After the 1625 attack there was, as might be expected, an outburst of construction at San Juan. It was greatly stimulated by changes in the political map as other Europeans planted their flags in the Indies. The Spanish Crown reaffirmed Puerto Rico's strategic function in 1645: "It is," said Philip IV, "the front and vanguard of all my West Indies, and consequently the most important of them all — and the most coveted by my enemies."

The foundations of San Juan's defense were its forts. Not only were they intended to hold the harbor, but they were the basis for safeguarding the people and property of all Puerto Rico.

The first of these functions — holding the port of San Juan — had been accomplished fairly well. El Morro, of course, had to be repaired and strengthened. The project went slowly, since rebuilding La Fortaleza, the people's houses and other work had to be done at the same time; and as usual there was neither enough money nor manpower. By the 1650's, however, El Morro took on the look it would have for the next hundred years. On the land side loomed the hornwork, now restored with moat, drawbridge and ravelin. Encircling the headland and following its contours was a barrier wall. Inside the enclosure were the several batteries and a clutter of small structures used variously for quarters, magazines, kitchen, hospital, chapel, cisterns and such.

The new city, built upon the ashes of the old, numbered about two hundred and fifty houses, many of tabby (a lime concrete) instead of wood. To protect the new San Juan, the Spanish planned a wall — a great wall to surround the town (except where natural battlements already existed on the Atlantic side). There would be a fort to stop another Cumberland's coming by land from the east. This fort, named for the rocky hill on which it stood and the precursor of the great Castillo de San Cristóbal, was sited at the northeast end of the city wall, on the very spot recommended long ago by Menéndez de Valdés.

The big project got under way on July 26, 1634. Crown money started it, but the Town Council had to raise most of the funds and did so by levying high
taxes on ginger, tobacco and wine — an action which, according to angry citizens, almost bankrupted the townsfolk. The citizenry also had to furnish labor. This was a slim crew at times, for recurring epidemics decimated both the city and total island population.

Still, the project was essentially finished by 1650. Masonry walls closed in the town on the east, south and west and included San Cristóbal overlooking the eastern approaches. This fort was hardly more than a semicircular platform for cannon, nestled between two salients of the town wall. The sea-level salient, now romantically dubbed the "Devil's Sentry Box," may be a remnant of even earlier (and unrecorded) construction.

The city wall itself had three gates. The gate of San Juan was next to La Fortaleza, near the anchorage. On the arrival of new governors, bishops or other notables, this gate was the backdrop for colorful ceremonies. The second gate, San Justo, opened on the southern area where vessels unloaded and took on their cargoes, and where the shipwrights made repairs. Then, on the east just below San Cristobal was the gate of Santiago, the only entrance to the city by land. Above this gate was a small chapel with a figure of Saint James (Santiago) in his medieval role as Spain's supernatural leader against the Moors. Other decorations were the Royal Seal, flanked by the sculptured arms of the Governor, and a Latin inscription saying If God does not protect the city, the warder...
watches in vain. Similar chapels were at the other gates, to be used on the saints days and other special occasions.

There was no wall along the rocky Atlantic coast, and to protect this area the defenders built a small fort between El Morro and San Cristóbal. They called it La Perla (The Pearl), borrowing the name from the nearby sandstone quarry where the old cemetery is now.

At the far eastern end of the islet, the fortification at Boquerón Inlet was rebuilt in 1646 by master workman Domingo Fernández Cortinas. Later it became San Gerónimo. About 1681 the fort at San Antonio Bridge was reconstructed, and the bridge itself reinforced with a new drawbridge. San Antonio and San Gerónimo were isolated by wet moats as protection against land attack.

On the tiny island of El Cañuelo opposite El Morro, Governor Pérez de Guzmán in the early 1660's erected a small, permanent fort. It was a fifty-foot-square masonry battery built on rocks bulkheaded by timbers.

So during the 1600's the defenses grew, with a wall around three sides of the town, improved defenses at El Morro and the easterly approaches, and a new fort at El Cañuelo. San Juan was now one of the better fortified places in the Indies. But was it really strong? Many a realist knew the stone walls could not stand without determined men behind them.

The carriage plan for this gun, designed by an artillery officer in San Juan, was found in Spanish archives.
Spanish Gold; Irish Talents

At the beginning of the eighteenth century there was a major change in the alignment of the European powers and the grandson of France's Louis XIV came to the Spanish throne as Philip V. The case of Jean Du Casse, a notorious buccaneer, illustrates the sudden turnabout in Spanish-French relations when Philip became the Spanish monarch. Du Casse had helped the French capture and plunder Spanish Cartagena in 1697. Louis XIV rewarded him with knighthood and promotion to admiral in the French navy, then later offered Admiral Du Casse's services to Spain!

Philip gladly accepted the favor and assigned Du Casse to lead the treasure convoys from America. Obviously, no living man had better qualifications than he!

However, the new French-Spanish friendship also drew Spain into a long series of French wars against England. Much of the fighting was at sea, and Puerto Rico, being geographically and historically in the very path of clashing imperial interests, was forever open to attack. Alarms, rumors of raids, and the presence of enemy fleets in nearby waters kept the people of Puerto Rico permanently on the alert. There was little time and few resources for major defensive projects during the first half of the 1700's, but the fortifications were maintained and some works even strengthened.

Through these trying years the San Juan garrison remained small, even though defense responsibilities grew. Indeed, official neglect of the men-at-arms had permitted many of them to develop more interest in the trades, farming and stock-raising than in soldiering. The island militiamen stepped into the breach left by the regular soldiers. They beat off raids on several coastal towns and three times helped the garrison stop British attempts to settle and fortify the neighboring island of Vieques.

Since all appeals to Spain for more protection were fruitless, the Spanish governors of the American provinces licensed local sea captains as privateers or guarda costas to protect the coastal towns and to cope with illegal (by Spanish decree) shipping and alien settlement. These privateer captains brought dozens
of foreign prizes into Spanish ports to be condemned and sold. Puerto Rico, thanks to its location, became a major privateering base. Unhappy British officials in the Caribbean several times proposed campaigns to wipe out this “nest of pirates” and then use the island for the protection of Britain’s commerce, a step which would have put the shoe on the other foot, so to speak. In any event, so aggressive and effective was the guarda costa that London merchants howled loudly enough to pressure Parliament into a declaration of war against Spain in 1739. This conflict was briefly called the War of Jenkins’ Ear, in memory of Captain Jenkins’ loss, which he claimed was sliced from his person by Captain Fandino of the guarda costa off Florida; but it quickly merged into the War of Austrian Succession (1740-1748), which is perhaps a less ridiculous title.

Although the activity of the Puerto Rican guarda costa made retaliation probable, there were no large-scale operations against the island. The fight over Jenkins’ ear bypassed Puerto Rico in favor of strikes at Cuba and the Spanish American mainland, none of which was decisive. Later came the Seven Years’ War (1756-1763), in which the major overseas theater was North America; Britain won Canada from France and Florida from Spain and increased her holdings in the Caribbean. Spain, however, hoped to regain her losses, as did France, and Spain’s Charles III, a hardworking monarch who came to the
throne in 1759, made innovations that reached deeply into administration, economics and the military throughout his domains.

Charles fully realized that the overseas empire had to carry its share of the defense load before Spain could reclaim any losses; for a weakly defended Spanish America made Spain also vulnerable. As a first line of defense, Charles decided that the fortifications at Caribbean ports had to be strengthened and modernized. But the English captures of Havana and Manila in 1762 had shown that relying only upon fixed defenses was folly, so the new idea was to organize colonial armies to bolster naval and harbor defenses. The brave record of the militiamen in Puerto Rico and elsewhere must have influenced this decision. The nuclei of the new armies would be units rotating from Spain, or else professional troops raised and stationed permanently in the colonies. Built around these professional soldiers would be an enlarged and well-trained militia.

THE COMING OF THE IRISH

To carry out such radical changes in the face of entrenched officialdom, Charles relied on intelligent and energetic — and sometimes ruthless — executives such as Alexander O'Reilly.

O'Reilly was a Dublin-born Irishman blessed with an affinity that sometimes exists between Celtic and Iberian peoples. He joined the Spanish Army as a lad and fought the Austrians in Italy. Afterward he served in both Austria and France, then returned to Spain for the war with Portugal. Charles recognized his ability and put it to use by making him Governor of Madrid during civil disturbances there in 1765, and in 1769 sent him to Louisiana on a similar mission. In the latter case, the New Orleans citizenry had refused to renounce allegiance to France and had driven out the Spanish Governor, Ulloa, who was a noted scientist but ill-equipped to deal with French hotheads.

When Governor O'Reilly appeared at New Orleans with troops, the citizens greeted him with speeches and hailed Charles III as their King, but O'Reilly did not smile. After an investigation, he had six of the rebel ringleaders shot, including the one who made the welcoming speech.
In 1763, between other trouble-shooting assignments, O'Reilly had come to the Caribbean to reform defenses and choose a port to be fortified as a base for the Caribbean fleet. His title was Inspector General of Cuba, and his first chore was to rebuild and modernize the Havana defenses, dismantled by the English during the Seven Years' War. This he did, and also completely reorganized Cuba's armed forces.

In April of 1765 Field Marshall O'Reilly arrived at San Juan. When he stepped ashore, one of the first to greet him was the chief engineer of the presidio who, like O'Reilly, was an Irishman. His name was Colonel Thomas O'Daly and, like O'Reilly, he had enlisted as a boy in the Spanish Army, Corps of Engineers. As has been mentioned, many illustrious engineers had served the Spanish Crown, but not until 1711 was engineering formally organized into a corps responsible for all major government construction. O'Daly began as a lowly apprentice and had risen to field engineer and built various defenses in Spain. In 1765, at thirty-seven years of age, he was appointed Chief of Engineers at San Juan.

Alexander O'Reilly remained in Puerto Rico only forty-five days. During that short stay, together with the Governor, O'Daly and his aides, he gathered data for remarkably perceptive reports dealing with economic, social and defense problems, and even set forth the reforms he felt were needed to put the island on a self-sustaining basis.
He found graft and corruption among garrison officers. Discipline was lax and the main interest of the soldiers, burdened with their large families, was in scratching out a living rather than fighting for their King. They had no military quarters, but lived on their own in poverty. Many were sick or invalid.

O'Reilly's remedies were drastic. Unfits were discharged: married soldiers were replaced with single men. The best soldiers were mustered into a new battalion which replaced the old garrison and was given the same position as a unit from Spain. In fourteen key towns of Puerto Rico, O'Reilly's plan organized infantry and cavalry militia totaling more than two thousand men. Their mission was twofold: to guard the island coasts, and to reinforce the San Juan garrison in the event of an invasion.

The two Irishmen also prepared a project for strengthening the San Juan fortifications. O'Reilly reported to the Crown that Puerto Rico was the crossroads of America, not only for Spain but for her enemies, too. Its windward position made it the best place for a base from which to aid (or invade) Spanish America. Charles was so impressed with O'Reilly's analysis that on September 26, 1765, he declared San Juan a “Defense of the First Order.” The next day he approved the O'Reilly-O'Daly project to make it so.

The Royal decree spelled out San Juan's functions: it must, of course, protect Puerto Rico, and as in the past, it would be a port of entry and place of acclimatization for people and plants coming from Spain. It must also be a base depot and naval station to support and secure Spain's commerce. It must be the bastion of the Antilles and an outpost of the Mexican Gulf. And, Charles added, challenging the imagination of his planners, San Juan as a defense of the first

The San Cristóbal project as Colonel Thomas O'Daly designed it in 1765. Later it was modified to provide stronger defense-in-depth. Archivo General de Indias.
These sketches found in Spanish archives show uniforms designed for the militia of Puerto Rico in 1765. **TOP ROW:** The Artillery and Infantry. **BELOW:** The Cavalry and the Black Troops. *Archivo General de Indias.*
order must stimulate progress in industry, agriculture and the arts, which are "the basis of a nation's real wealth."

Thus did O'Reilly's forty-five-day stopover in Puerto Rico stimulate a long-lasting building and economic boom in San Juan. Its strategic importance now fully recognized, this island city would become one of the strongest — if not the strongest — fortified places in the Americas. Indeed the pair of Irishmen, along with the King's money, brought the golden age of architecture to San Juan, for in combination with spectacular fortifications rose other structures — military, ecclesiastical and secular — designed by talented men whose signatures verify the meticulously drawn construction plans.

O'Reilly's critique of the old fortifications had pointed out that the only defense for the town was the wall built after the 1625 attack. Once it was breached, the town was lost. So for twenty-five years and more the engineers and countless laborers under the direction of Thomas O'Daly and his successors, worked to give San Juan and its priceless harbor a defense-in-depth system that, given a good garrison, could repel any invader. Basically their work centered on coastal and harbor batteries emplaced in El Morro, San Cristóbal, certain salients of the city wall, San Gerónimo and El Cañuelo; and land defenses which included the works in the Boquerón sector, the line east of San Cristóbal and completion of the city wall on the north from San Cristóbal to El Morro.

TWENTY-FIVE YEARS OF CONSTRUCTION

Despite unprecedented amounts of men, money and materials, it was not until the early 1790's that the fortifications were completed essentially as they remain today. San Cristóbal and El Morro alone took better than twenty years to build. O'Daly never saw his project finished. In 1781 he died at the age of 53 after a lingering illness and was buried in the Cathedral of San Juan. His friend and collaborator since 1766, Juan Francisco Mestre, completed the work.

The project began at San Cristóbal, the most exposed sector of the old fortifications, on January 1, 1766. San Cristóbal, even more than spectacular El Morro, is a monument to the technical skill of O'Daly, Mestre and their aides. For in contrast to El Morro where the builders could take advantage of the steep terrain to erect the vertical defense needed at the port entrance, the San Cristóbal topography had to be greatly modified in many places before the defense-in-depth principle could be achieved. In other words, at San Cristóbal the terrain had to be adapted to the fortification — and this in the days before dynamite and bulldozers!

To appreciate the magnitude of the task, one need only look at the magnificent Atlantic seawall of the Santa Teresa Battery. Here, due to tremendous irregularities in the shoreline, the walling was laboriously built up from the very base of the cliff. But in other areas where the ground was low and foundations must rest upon weak sandstone strata, O'Daly solved the problem by driving piles to support the massive stone piers and arches which give the walls stability.
The work moved along, and the people of San Juan must have marveled as the great walls loomed ever higher. Even the landscape was changed. East of San Cristóbal, ground was cleared and graded so the fort guns could reach everywhere. Hollows and hedgerows, ditches and trees all disappeared in the leveling operation. On the bay side south of the fort, some of the swamps were filled in while others were left as natural barriers.

This kind of work, in the eighteenth century, took a lot of manpower. At San Cristóbal, for example, there were more than four hundred men a day on the roster during the peak of construction. By the King’s order the labor gang included not only local day laborers but convicts (thieves, killers, rapists and the like from the jails of Havana and Mexico) as well as soldiers from the Toledo Regiment serving at that time in San Juan. Slave labor was used mainly in stone quarries that were opened near the construction sites. There were hun-
dreds of civilians employed in supplying building materials such as timber, lime, brick, sand, water and the like to the different sites.

There were also great changes at El Morro. Although improvements following the Dutch attack of 1625 had made this a strong multi-level defense, the work of O'Daly and Mestre now converted it into a superfort. From the ancient battery at the foot of the headland to the massive hornwork above, it was modernized and expanded. The old patchwork look, with buildings spotted here and there almost haphazardly, gave way to a new unity.

The core of the new work was its main battery, called Santa Bárbara. Even yet it dominates the harbor entrance like a mighty battleship. This battery evolved in two major steps from the little cliff tower of the 1500's: in the seventeenth century the original tower was enclosed in the masonry of a U-shaped battery; and one hundred years later this in turn was enlarged into Santa Bárbara. Thus the potential on this level grew from the three cannon of the first tower to eleven in the 1600's and then in the 1780's to thirty-seven or more, not including the casemated guns on the Atlantic side at a slightly lower level. The Santa Bárbara work, in effect, was solid foundation for the towering walls of the upper levels.

Behind the Santa Bárbara Battery a huge wall swept upward almost vertically from bedrock to the topmost level of the hornwork. This tremendous scarp not only shielded the rear of the hornwork, the living quarters, magazines and cisterns, but it contained casemates for cannon at a higher level than Santa Bárbara. This kind of great wall, with its grim and impregnable aspect, obviously discouraged attack: it also gave visual unity to a beautiful example of the engineering art.

The hornwork was changed. Redesigning the flanks by filling in the orillons or "ears" preferred by earlier engineers made more room in the bastions. Old parapets were replaced by thicker ones pierced by twenty-six embrasures for cannon — almost twice as many as before. Bomb-proof rooms built against the hornwork supported a wide terreplein (fighting deck).

The town wall of the 1600's enclosed only the southwest and the southern periphery of the city; on the north, San Juan was open to the Atlantic, with the rocky shoreline almost the only barrier. The new project strengthened the southern wall, redesigned that of the southwest, and built a northern one so that San Juan was completely enclosed.

Nor was this all. The planning of O'Daly and Mestre reached all the way to Boquerón Inlet. They modernized the works of San Antonio and San Gerónimo and built the Escambrón Battery. These made a First Line of Defense. And they built a Second Defense Line across the island midway between Boquerón and San Cristóbal.

The military installations occupied more than two hundred and fifty acres. Within the city walls, military boundaries left only sixty-two acres for public or private construction, and even this was strictly regulated to prevent interference with military operations. Beyond the walls, the military preempted all terrain. Clashes with civilian interests were inevitable.
Nevertheless, San Juan was enjoying the progress and prosperity brought by Charles’ reformers. This was a garrison town with more than three thousand soldiers, most of them quartered and fed by townsfolk who derived a steady income from them. There were scores of tradespeople and a long-lasting boom in housing construction and repair. By 1776, the population had swelled to six thousand.

The building years were also years of tension. In the Caribbean, Britain was a troublesome neighbor who considered Puerto Rico a stumbling block to her trade and colonial ambitions. Rumors of impending war with the English spiced the atmosphere of San Juan, for it was known that the Anglos were more than ever determined to have Puerto Rico, either through war or diplomacy.

There was talk that Britain would exchange Gibraltar for Puerto Rico. While this possibility was debated with heat in diplomatic circles, Spain at the time would no more have relinquished this Caribbean gateway than Great Britain would have let go of Gibraltar, the door to the Mediterranean. Yet the idea of this exchange lingered on for years, even after the rumored war actually came and went.

It began as the American Revolution, a struggle between England and the Thirteen Colonies of North America. France joined the Americans, and Spain was pulled more or less willingly into the conflict as an ally of France. Spanish forces began the Great Siege of Gibraltar (1779-1783), which had been in English hands since 1704, and planned campaigns to recover Florida. The Spaniards rather handily took Pensacola, the capital of West Florida; the American-French force won at Yorktown; and when peace was signed in 1783, the Americans had their independence and Spain had regained Florida (which she held until 1821). But Gibraltar remained English.
Crossroads of the Americas

In 1789 the French Revolution erupted into violence. Louis XVI and his Queen tried to slip out of the country, but were discovered and imprisoned for treason. Louis' relative on the Spanish throne, Charles IV, tied to Louis by the alliance known as the Family Compact, tried to save him by bribery. When this failed (Louis went to the guillotine on January 21, 1793), Spain joined Austria, Prussia and Great Britain in the war against Revolutionary France.

For indeed, the French Assembly had shaken all the thrones of Europe by proclaiming some dangerous new principles: a people have the right of self-determination . . . a nation has the right to "natural" boundaries. No wonder France found herself confronted by determined proponents of the status quo!

But by 1796 the populous and purposeful French nation was victorious from the Baltic to the Mediterranean. For Spain, Charles IV bought peace with the Treaty of Basel, which gave France the island of Santo Domingo in the Caribbean. Then, bound ever tighter to French interests, Spain found herself aligned with France and Holland against Great Britain. Despite the loss of her former allies, Britain was almost continually at war with France from 1793 to 1815 for very high stakes: a restoration of the balance of power in Europe which would affirm British control of the seas, extend Britain's colonies and win commercial predominance for her throughout the world.

Her ambitious objectives were gravely threatened by the 1796 alliance of France, Spain and Holland because these allies had a combined naval power far superior to Britain's. The English not only worried about invasion of the home islands; they also knew there were enough enemy warships available to destroy British commerce in all the seven seas.

Britain's navy rose to the challenge, however, and in 1797-1798 won three resounding victories: against the Spanish off Cape St. Vincent; against the Dutch at Camperdown; and the French in the Battle of the Nile. On the other side of the Atlantic, the British had occupied since 1793 the ports of Spanish Santo Domingo, and French Guadalupe, St. Lucia, Marie-Galante and Port-au-Prince.
1797 THE ENGLISH ATTACK

1ST STAGE
(Apr 17 - 21)

- Frigates blockade harbor
- English search for a 2nd place to land
- Apr 20 - English open a new supply route

2ND STAGE
(Apr 21 - May 1)

- Apr 23 - Fleet moves offshore due to weather
- May 1 - English troops embark
- Apr 24 - Spanish raid takes prisoners
- Apr 25 - English begin batteries here
- Apr 27-28 - Spanish build counter-batteries
- Apr 29-30 - Spanish counterattacks force the English back to the ships
- Apr 30 - Spanish retake the supply route bridge
After Spain’s switch to the French side, Britain lost no time in moving against the Caribbean colonies of both Spain and France. Admiral Sir Henry Harvey’s fleet sailed to Barbados, where an army came aboard under the command of Sir Ralph Abercromby, a sixty-two-year-old Scot and veteran of the Seven Years’ War. Together they plucked Trinidad from the hands of a demoralized Spanish garrison. Emboldened by this easy success, they made ready to take the main bastion of the Antilles — San Juan.

ABERCROMBY’S ATTACK
On April 17, 1797, the English armada appeared off the coast east of San Juan island and anchored near Cangrejos Point. There were sixty-eight vessels with an armament of about six hundred guns and manpower of about seven thousand, including crewmen, regulars, German auxiliaries and French emigrés. Two of the frigates took blockading positions in front of San Juan.

Although San Juan was far from Europe, life’s tempo in the tropical city was nonetheless affected by the European turbulence. For several months the British action had been anticipated. Defense plans had long since been updated to take fullest advantage of the great fortifications and island patriotism. Defense forces had been mobilized all over the island to aid the regular garrison. Governor Don Ramón de Castro was an able and energetic soldier who had won recognition under the brilliant Bernardo de Galvez in the capture of Pensacola from the English in 1781. And if his Spanish troops at San Juan were a motley army composed mainly of militiamen and local recruits, armed peasantry, garrison prisoners and French privateers, at least they almost equalled the attackers in number. They had strong fortifications that mounted 376 cannon. And they were fighting for their homeland.

They did not succeed, however, in preventing Abercromby from landing three thousand men on the beach on April 18. His plan was to move on San Juan by land, as Cumberland had managed in 1598. His men quickly took over the Cangrejos area, thus blocking San Juan’s communication by land with the interior. There was a polite exchange of notes, wherein Castro courteously refused Abercromby’s demand that he surrender at once and thus spare the lives of many brave men.

While Abercromby was setting up the bivouac ashore (consideration for his troops was one of his well known virtues), Admiral Harvey, with one eye on the guns of El Morro, cautiously reconnoitered the coast west of San Juan on April 20 in search of a second landing place. Castro’s men, in the meantime, had withdrawn from Cangrejos and were now improving their position at Escambrón, a strongpoint of the First Line of Defense. Since the English had cut the supply route to the mainland interior, canoes crossed the bay from the Cataño shore and Bayamón River to bring supplies and reinforcements to San Juan.

Abercromby’s next task was to silence the batteries of San Geronimo and San Antonio at Boquerón Inlet. Only then could he cross the inlet, take the Second Defense Line in front of San Cristóbal, and reach the major fortifica-
tions around the city. On April 21 he set up siege batteries and began a seven-day artillery duel with San Gerónimo and San Antonio forts — a duel that ended in destruction of the English lines and batteries by relentless fire, not only from the two small forts and the two lines of defense, but from San Cristóbal itself.

Nor could Abercromby enlarge his beachhead. His landing had brought all of Puerto Rico to arms. The people rallied by the thousands. And as the armed puertorriqueños closed in, the English position was increasingly precarious. Even as Abercromby was emplacing the siege guns, the Spanish recaptured Martín Peña Bridge, an essential gate to the interior. And on the 24th militia Sergeant Francisco Díaz raided English-held territory and brought back a number of prisoners. The English tried moving cannon onto Miraflores, a small harbor island between San Juan and the mainland, but Spanish guns quickly checkmated them.

On the 29th and again on the 30th the Spanish counterattacked, crossing Boquerón Inlet and forcing Abercromby’s men to pull back. On May 1, as the Governor was readying another attack, he learned that the enemy had gone, leaving a quantity of arms and munitions.

So the great forts, challenged by powerful land and naval forces, easily passed the test and Castro’s effective leadership won him promotion to Field Marshall.

Both sides suffered considerable losses in men and materiel. Abercromby’s guns had badly damaged San Gerónimo and San Antonio; but he later wrote that the San Juan defenses were “both by Nature and Art, very strong,” and could have withstood ten times more firepower than he had. And though he failed at San Juan, Abercromby had furthered England’s cause with other successes, notably by seizure of the French sugar islands.

This old sketch shows the sally port of Santiago Ravelin which was demolished in 1897. National Park Service.
A CENTURY OF PEACE

Revolutionary changes that began with the Declaration of Independence at Philadelphia in 1776 did not end at Waterloo in 1814. The warfare in Europe so involved Spain that her American colonies, one after another, broke away. By 1830 Puerto Rico and Cuba were all that remained loyal to the mother country. France, too, except for a few small Caribbean possessions, was gone from the Americas, leaving in the area only the Danes, Dutch and English to exploit agriculture and trade in the Antilles.

With the collapse of the Spanish-American empire, San Juan was no longer important as a gateway bastion. And since the foreigners had now achieved their goal of open ports and free trade, they no longer coveted Puerto Rico as a base of operations. The course of history thus downgraded the great forts of San Juan to local defenses.

Except for a few pirate raids on coastal towns in the early nineteenth century, Puerto Rico grew in peace for a hundred years after 1797. The big forts were not only maintained, but improved. After Abercromby left, battle-scarred San Gerónimo and San Antonio were rebuilt. The Second Defense Line, an earthwork, was redesigned and constructed in masonry. Later there were numerous additions and refinements to other works, such as construction of barracks and updating of armament. Since the revolution in Mexico ended the subsidies that had supported the island economy for more than two hundred years, Puerto Rico paid the costs of the new work after 1810.

But while the fortifications were kept in good condition, the city was not. The population had swelled far out of proportion to the space available within the walls and the area outside was kept clear for military reasons. By 1876 there were twenty-four thousand people living in a city that had room for only 926 buildings. Most of the houses were only one story. With no space for new
housing or public buildings or even facilities for expanding manufacture and trade, crowding was intolerable. Gradually the people focused the blame for the situation upon the military, for it was the soldier who upheld the arbitrary authority of the governor; and the great forts that once symbolized peace and security now seemed transformed into grim prison walls.

These were years of peace in Puerto Rico, but the yeast of political freedom was also working. The people’s spokesmen won a few concessions, but at certain periods the governor used terrorist tactics to keep the peace, and imprisoned several patriots in El Morro. No wonder the people grew to hate the high walls of their prison!

Finally in 1897, after a forty-year haggle, the citizenry gathered at Santiago Gate, which opened to the clear area east of the city. In a spectacular blast, the authorities demolished the gate, and the bursting population spilled over into former military zones amid great rejoicing and enthusiasm for the future. Eventually the entire southeastern sector of the wall was razed.

THE WAR OF 1898

No shot had been fired in anger from the great forts since 1797. And though the winds of war were blowing from Cuba, Spain’s military leaders did not seem unduly concerned about Puerto Rico. In 1896 eighteenth-century cannon could still be seen on the ramparts. Soon afterward, a few batteries received modern guns and thicker parapets; but the work was done with a sense of futility, for there was little point in arming eighteenth-century fortifications against the rifled guns of an armored fleet.

In support of the Cuban struggle for independence, the United States declared war on Spain in April, 1898, and prepared to prevent Spanish troops and supplies from reaching Cuba. Inevitably Puerto Rico was in the theater of action. Available for its defense were about eight thousand regulars, and volunteers and guerilla groups numbering about six thousand. Preparing to resist any invasion, the volunteers marched through the streets to their posts in the defense line almost every evening, after which they would march home again. As for gunnery practice, there was little either before or after war started. Several evenings a week, the citizenry gathered in the main plaza for concerts, as was their custom.

At 5 A.M. on May 12, 1898, San Juan was jolted awake by the thunder of big guns. The troops hurried to their posts as shells burst against the fortifications and city walls. From the ramparts on this spring morning they could see warships about a mile offshore. It was a United States fleet commanded by Admiral William T. Sampson. As the shelling continued, people streamed out of the city to the safety of the open countryside.

Admiral Sampson was looking for the squadron under Admiral Pascual Cervera y Topete, known to be enroute from Spain with its destination presumably San Juan. Sampson, if he did not find Cervera, intended to take San Juan and return to Havana. He had nine warships and two smaller craft. Four warships circled northwest of El Morro, each firing a broadside as it came within
Gunners man their battery at San Cristóbal during the Spanish-American War. El Morro is in the far background. National Park Service.

sixteen-hundred-yard range. The remaining warships engaged San Cristóbal and the eastern guns of El Morro. Some came so close inshore that San Cristóbal’s nearest guns could not depress far enough to aim at them, but fire from other batteries and from infantrymen lining the northern shore let them know they were unwelcome.

The Spanish artillery performed well. The gunners, never before in action, got off 441 rounds and scored a number of hits. Only one gun, at San Cristóbal, was put out of action. But of the forty-three pieces mounted, only twenty-eight could shoot, and these were medium caliber pieces that were not much of a threat to armored battleships.

Sampson’s medium- and large-bore guns fired about a thousand rounds and pockmarked the fortification walls. Big shells tore out six-foot chunks of masonry. The top of the lighthouse at El Morro was blown off; and one shell (which still can be seen) pierced the masonry of the Santa Bárbara Battery and lodged in the dome of the sixteenth-century tower. In the city, the barracks, jail, hospital and a number of homes were damaged. Many shells went over the city and into the waters of the bay.

Admiral Sampson decided against a landing attempt. After two and a half hours he stopped the bombardment and headed west to Santiago, Cuba. There, on July 3, he found and destroyed Cervera’s fleet, and the sea war in the Caribbean was almost over.
The arcade in the Officers' Quarters at San Cristóbal as restored by the National Park Service. Albert Manucy.
The invasion Puerto Rico expected came on July 25, but not at San Juan. General Nelson A. Miles landed troops on the southern coast at Guánica, where the opposition was only a skirmish group of eleven civilians, while other U.S. forces landed elsewhere on the coast. The plan was to rendezvous at San Juan and, with support from the blockading fleet, surround the city. However, negotiations with Spain brought a cease-fire on August 13.

The prizes of peace were Cuban sovereignty and the cession of Puerto Rico to the United States. Thus Spain lost the remnants of the great American empire born in 1492.

Spanish soldiers took down the bronze seal with the coat of arms that had adorned the entrance of El Morro since the eighteenth century. This symbol of Spain’s greatness would go with the Spanish officials back to the mother country. On October 18, 1898, the banners of Spain came down from the ramparts, and the flag of the United States rose over the great forts and the land they were built to defend.

THE NEW MISSION
The people of the United States had shown sympathetic interest in the independence movements of Latin American countries from their beginnings in the early nineteenth century. Many United States citizens had given aid to the patriots and even fought beside them under revolutionary flags. Henry Clay became the advocate of the revolutionaries and successfully urged Congress to recognize the independence of these emerging states. In 1823, as the freedom of the new nations was threatened by powerful European intervention, President James Monroe proclaimed that the United States would not permit “any interposition for the purpose of oppressing them, or controlling in any other manner their destiny, by any European power. . . .” This paternalism protected the fledgling states at a critical period, and in later years enabled Cuba and Puerto Rico to break their colonial ties. Cuba emerged as an independent nation: Puerto Rico has thus far chosen status as a Commonwealth under the American flag.

The strategic importance of Puerto Rico was enhanced by the change of flags in 1898. Once again defense of the island took on international significance, but with a basic change in concept: the viewpoint was no longer that of the Old World peering across the sea toward subject colonies. It was now the wary look eastward from the independent Americas toward the intrigues and disputes of Europe.

Militarily, the outbreak of World War I showed the potential of Puerto Rico as an outpost for detecting and controlling naval belligerence aimed at the Panama Canal or elsewhere in the Caribbean. As a result, many of the eighteenth-century defense structures were adapted to twentieth-century use. El Morro became part of the large complex of administrative, housing and hospital units known as Fort Brooke. During the long years of World War II, coast defense observation posts and hidden command and communications centers were built within San Cristóbal and El Morro.
In the present pan-American movement toward cooperation among all Western Hemisphere states, Puerto Rico has unique potential: its history makes it a natural link between Latin America and the United States. In this field it has special value for North Americans, since along with the irresistible lure of sunshine and tropic beaches, Puerto Rico possesses both living hispanicism and impressive structures that testify to Spain’s part in the flowering of the Americas.

Today the old defenses that were landmarks in the channel of history are major elements in the historical heritage of the island; and looking toward their preservation, the Secretary of the Interior of the United States established San Juan National Historic Site on February 14, 1949. Military use of the buildings has been phased out, and the United States Department of the Interior, National Park Service, is now the federal agency responsible for protecting the fortifications of San Juan National Historic Site and interpreting them to more than a million visitors each year. Interpretation at the great forts deals mainly with military history, but a more diversified educational program is provided at other San Juan sites by the Institute of Puerto Rican Culture. The Institute has restored Castillo de San Gerónimo and many historic houses, published numerous monographs, and is creating a series of museums which treat Puerto Rican history and anthropology. Thus is clarified the role of Puerto Rico in the unfolding of the Americas, and San Juan once more becomes the historical gateway to the fabulous Spanish Main.

The great forts today have a new mission: they are cherished tools for interpreting history. Albert Manucy.
Appendix
round shot  chain shot  bar shot
grape shot  shot pile  halberd
bombs  pikes
carpenter's crosscut saw
carpenter's hammer
carpenter's hatchet
wheelwright's hatchet
mason's trowel
plasterer's float

This two-man saw with 'raven's beak' points was used to cut logs into boards.
The following terms are defined in their military sense, and as they are used in reference to this book. For illustrations of the parts of a fort, see especially pages 10, 12, 13 and 18. Types of cannon are illustrated on pages 22 and 62.

*arquebus* — an early type of portable gun, fired by a matchlock and trigger.

*arrow* — a detached and moated work of two faces, making a salient angle. It is usually located at a salient of the glacis and has communication with rearward positions.

*bar shot* — see *shot*.

*bastion* — a five-sided projection joined by its gorge (entrance) to the body of a fortification. It has two flanks from which defensive fire can scour adjacent curtains, and two faces which form a salient toward the enemy. A half-bastion has only one face and one flank.

*batter* — the backward slope of a wall.

*battery* — a grouping of guns; a place where artillery is located to fire on the enemy.

*bomb* — a hollow, cast-iron cannonball filled with gunpowder and fuzed to explode on or near the target; a shell. (Compare *shot*.)

*breach* — a gap or fissure. Here, to open a gap in a fort wall by artillery fire or by exploding a mine.

*breastwork* — a parapet.

*cannister* — a projectile composed of a case or can, usually made of metal and filled with scrap, musket balls or slugs.

*cannon* — a weapon for firing projectiles. Here, a battering weapon generally used to demolish walls or ships' hulls and against enemy personnel.

*casemate* — a gunroom in a fortification; a vaulted chamber embrasured for cannon.

*cavalier* — a work raised above the body of a fortification so as to command all adjacent works and terrain.

*chain shot* — see *shot*.

*counterguard* — a detached, narrow rampart placed in front of an important wall to prevent enemy fire from breaching it.

*culverin* — a powerful, heavy cannon with a range of up to four miles.

*curtain* — the main wall of a fortification.
demilune — a small fortification given half-moon shape in order to secure a wide field of fire, often placed before the gate of an important wall to protect it.

earthwork — a defense consisting of a ditch and an earth wall. The ditch excavation provides the earth for making the wall, which is usually stabilized with fascines (bundles of saplings) or logs, gabions or cylindrical baskets to confine the earth, and sod. At San Juan, the clay-like soil was itself quite stable.

embrasure — a gun port or opening for cannon in a wall or parapet.

flank — a side; the extreme left or right of an armed force. In fortification, a part of the work, such as the flank of a bastion, from which to protect another part with defensive fire.

flanker — here, the short zag in a zigzag wall; the angle or setback from which to rake a length of wall with defensive fire.

fraise — a row of pointed stakes in the wall of an earthwork facing the enemy.

fusilier — a soldier armed with a fusil (a light firelock).

fuze — (also fuse); a timing tube filled with combustible material, by which a bomb is ignited and exploded. Until about 1800, bomb fuzes were usually conical wooden tubes filled with sulphur, saltpeter and gunpowder. The fuze was cut to the desired burning length before being driven into the fuze hole of the bomb. When the cannon fired, the hot gases of the discharge ignited the fuze.

garrison — a body of soldiers stationed in a presidio (or in a fortification) for defense.

 glacis — a smooth earth slope from the fortification down to the natural grade, so formed as to continuously expose attackers to fire from the ramparts.

gunroom — see casemate.

hornwork — two half-bastions connected by a curtain.

hot shot — see shot.

magazine — a strong room or building for quantity storage of munitions, arms, food or other supplies.

mamposteria — in general, masonry; here, a sixteenth-century concrete of lime and sand with an aggregate of sandstone rubble, or with partly squared stones so placed and exposed as to resemble stonemasonry.

merlon — the wall in a parapet between embrasures.

mine — a subterranean gallery from which to blow up the enemy works with gunpowder.

moat — a defensive barrier ditch at the foot of a wall.

mortar — a large caliber, short-barreled cannon designed to lob heavy or exploding projectiles over walls or enemy troops.

orillon — an elongation of the bastion face beyond its flank, as additional protection for the flank.

outwork — a defensive position built outside the main body of the fortification.

palisade — a strong, pointed wooden stake; a close row of such stakes, fixed deeply in the ground as a defensive barrier, usually at least nine feet high.

parallel — a siege trench parallel to the face of the fortification being attacked, and serving as a way of communication in the siegeworks.
parapet — a wall of earth or masonry, usually about six feet high, to protect defending troops from enemy fire. By mounting a step, men could fire over the parapet.

place of arms — an open space for troops to assemble.

presidio — a fortified and garrisoned settlement; a military post.

ramparts — the main body of a fortification, especially the terreplein where the gunners are in action.

ravelin — a detached work of two faces making a salient angle intended to cover the curtain and gate, as well as to defend the approach.

redoubt — a detached rectangular work standing alone without flanking defense.

richochet firing — a technique by which the projectile is made to skip or bound along a surface.

salient — an angle with its apex toward the enemy.

sap — a trench dug to enable besiegers to approach a fortification without danger from its fire. The word probably comes from the Italian zappa, a spade or mattock.

sapper — a man who digs saps and who also mines, builds and repairs fortifications.

scarp — the wall of a fortification below the parapet.

sentry box — a shelter for the sentry at his post; the small sentry tower at the apex of a salient (bartizan).

shot — a cannonball; a solid, round, cast-iron or stone projectile generally used for battering. (Compare bomb.) Bar shot is two cast-iron hemispheres or discs solidly connected by a short bar. Chain shot is two cast-iron cannonballs connected by a long link or a short chain. Hot shot is a cannonball heated to a red glow over a grate or furnace to serve as an incendiary device.

terreplein — the level space behind a parapet where guns are mounted.

traverse — a barrier of earth or stone thrown across the enemy approach or his line of fire.

tube — the barrel of any gun, cannon or other firing piece.
Our narrative is drawn mostly from Spanish archival manuscripts which are, due to language, paleography and other factors, unavailable or undecipherable to the general reader for whom this volume is intended. We therefore have not attempted a listing of all documentary sources. Let us say only that numerous papers in the General Archives of the Indies at Seville, the military records at Segovia and Madrid, the city archive at Amsterdam, the naval records at Greenwich, the Public Record Office and British Museum in London, the Library of Congress, the National Archives, and other repositories, through the courtesy of the respective governments and officials, are to be found in photocopy or transcript at the library of San Juan National Historic Site. Research accomplished at the area since about 1950 is capsuled in technical reports typed for the National Park Service files. These are, of course, primarily for staff guidance in preservation and interpretation of the Historic Site features, but with the Superintendent's permission, the archival records and reports are available for use at the park by accredited scholars.

As to printed sources, we list the few relating to our subject and add some other books that are rich in background and worthy of reading for additional information.


Casas, Bartolomé de las. *Account of the First Voyages and Discoveries Made by the Spaniards in America.* London: Darby, 1599.


Zapatero, Juan Manuel. La Guerra del Caribe en el Siglo XVIII. San Juan: Instituto de Cultura Puertorriqueña, 1964. Illustrations.
Index

Abercromby, Sir Ralph, 75-76, 77
Africa, 17-18
Age of Enlightenment, 15
aguardiente, 21
Amadas, Philip, 35
American
colonies, 77
forces, 80
forts, 15
Revolution, 72
Amezquita, Captain Juan de, 57-58
Amsterdam, 53
Antilles, the, 34, 36, 67, 75, 77
Antonelli, Bautista, 17, 36-41, 43, 50, 51
Antonelli family, 17
apostaderos, 13
Aruba, 59
Atahualpa, King, 19
Austria, 73
Austria Bastion, 40, 51
ausubo, 20
Bahama channel, 59
Bahia (Brazil), 54
Baltic Sea, 73
Bank of England, 36
Barbados, 75
Barlowe, Arthur, 35
bastion, 9, 17, 36, 40, 71
Battle of the Nile, 73
Bautista, Juan, 17
Bayamón River, 9, 55-57, 75
Becerrillo, 25
Berkeley, Vice Commander Sir John, 50
Board of Trade, 45
Bonaventure, 47
Boquerón Battery, 14, 42, 47, 51, 71
construction on, 62
description of, 47
today, 11
Boquerón Inlet, 7, 10, 11, 38, 62, 69, 75
Boriquén, 25
Bonaire, 59
Botello, Captain Andrés, 57-58
Brazil, 54, 59
Browne, Brute, 42-43
buccaneers, 58-59
Cabras Island, 43
Cadiz (Spain), 37
Camperdown, 73
Canada, 34, 64
Canary Islands, 42, 45
Cangrejos Point, 75
Caparra, 23-26, 27
Cape St. Vincent, 73
Cape Verde, 38
Carib Indians, 23-25, 26, 27, 29-30
Carolina Banks, 35-36
Cartagena (Africa), 17
Cartagena (Columbia), 36, 37, 49, 50, 63
Casa Blanca, 27-28, 30, 32
Castillo de San Cristóbal, see San Cristóbal
Castillo de San Felipe del Morro, see El Morro
Castillo de San Gerónimo, see San Gerónimo
Castle of Lisbon, 38
Castro, Governor Don Ramón de, 75-76
Cataño, 75
Cathedral of San Juan Bautista, 26
Cathedral of San Juan, 9, 69
Central America, 34
Cerro de los Ahorcados, see Hangman's Hill
Cervera y Topete, Admiral Pascual, 78
Chagres River, 36
Charles III, 64-67, 70, 72
Charles IV, 73
Charles V, 15, 17, 18, 28, 30, 33, 53
Chest of Three Keys, 29, 31, 49
Chile, 37
Citadel, the, 38
see also El Morro
city walls, 69, 71, 77, 78
description of, 60-62
description of, 9-10
Clay, Henry, 81
Clifford, Sir George, see Cumberland, Earl of
Clifford, Sir Nicholas, 42-43
Coloma, General Francisco de, 50
Columbus, Christopher, 23-25
Commonwealth of Puerto Rico, 11
contrabandistas, 59-60
Cornwall (England), 42
Coronel, Governor Pedro Suárez, 42, 49
corsairs, 27-31, 35, 38, 42, 53
Cortés, 26
Cortinas, Domingo Fernández, 62
Council of the Indies, 38
Cuba, 17, 28, 36, 37, 59, 64, 66, 77, 81
Cumberland, Earl of, 47-50, 51, 60, 75
Curaçao, 59

Danes, 59, 77
Declaration of Independence, 77
defense-in-depth principle, 10-11, 17, 69
defense lines, 11-14
de Vauban, Sebastián, 17
da Vinci, Leonardo, 15
Devil's Sentry Box, 61
Díaz, Francisco, 76
Dominica Island, 29
Drake, Sir Francis, 34, 35-36, 41-43, 45, 47, 48, 54
Drake's Island, 43
Dublin (Ireland), 65
DuCasse, Admiral Jean, 63
Dutch, the, 7, 73, 77
invasion, 53-56
Dutch Guiana, 59

Edam (Holland), 54
Egyptians, 17
El Atahocio, 11
El Cañuelo, 14, 51, 55-56
construction on, 62, 69
description of, 62
Island, 43, 51, 55-56
today, 9
Elizabeth I, Queen of England, 28, 36, 37, 41-42, 47
El Palacio de Santa Catalina, 31
El Morro, 10, 11, 17, 30, 33, 42, 75, 78
construction of, 31-32, 38-41, 45
Dutch siege of, 54-58
in battle, 42-43, 78-79
rebuilding of, 50-51, 60-62, 69-71
today, 8-9, 81
troops in, 48-49
England, 35-37, 42, 47, 49, 53, 63-64, 72, 73-76
English, the, 7, 35-36, 39, 41, 43, 49, 50, 59, 60, 65, 77
commerce, 35, 64, 73
military, 47-49, 75-76
ships, 42, 45
Escambrón Battery, 71, 75
Esquemeling, John, 59
Europe, 7, 15, 17, 19, 75
European warfare, 30
Family Compact, 73
Fandino, Captain, 64
Flanders, 39, 50
Florida, 25, 26, 33, 34, 36, 59, 64, 72
flota, 28
Fort Brooke, 81
see also El Morro

Fort St. Christopher, see San Cristóbal
Fort St. Philip of the Headland, see El Morro
France, 27-28, 53, 63, 64, 65, 73-75, 77
Francis I, 28
Francis, the, 42
French, the, 7, 28, 40, 59, 60, 63-65, 72, 73-75, 76
engineers, 17
mariners, 28, 32, 38, 63, 75
Revolution, 73

galeones, 28
Galvez, Bernardo de, 75
Gate of San Juan, 61
Gate of Santiago, 61
German military, 75
Gibraltar, 72
Golden Hind, 36
Gómez, Captain, 40
Grenville, Richard, 35-36
Guadaloupe, French, 29, 73
guarda costa, 28, 63-64
Guzmán, Admiral Pedro Tello de, 42, 62

Haiti, see Hispaniola
Hangman's Hill, 34
Haro, Governor Don Juan de, 54-59
Harvey, Admiral Sir Henry, 75
Havana (Cuba), 28, 36, 37, 43, 45, 65, 66, 70, 78
Hawkins, John, 35, 41, 43
Hebrews, 17
Hein, Piet, 59
Hendrik, Bowdoin, 54-59
Hispaniola, 23, 26, 28, 30, 37, 59
Hispanoqui, Tiburcio, 36
Holland, see Dutch
Holy Roman Empire, 53
Honduras, 17
hornwork, 9, 11, 13, 40, 48, 50-51, 56, 57, 60, 71

Indians, 25
war prisoners, 17
see also Carib, Taíno Indians
Institute of Puerto Rican Culture, 82
Isabella I of Castile, 23
Isabella Colony, 23
Isthmus of Panama, 28
Italy, 39

Jamaica, 49, 59, 60
Judith, 35

La Dragontea, 43
La Fortaleza, 33, 38, 41, 48, 55, 58
construction of, 29-32
rebuilding of, 60-61
today, 9
La Perla Battery, 10, 62
La Princesa Battery, 11
Latin America, 81-82
Layfield, Reverend Doctor, 49
Le Clerc, François, 28
Taino Indians, 23-25.
Tejeda Bastion, 40
Tejeda, Fieldmaster Juan de, 26-41, 51
Toledo Regiment, 70
Tortola, 60
Town Council, 60-61
treasure fleets, 28-29
Treaty of Basel, 73
Trinidad, 11, 29, 53, 75

Ulloa, Governor, 65
United States, 78-82

Valencia (Spain), 17
Vega, Tope de, 43

Veracruz, 28, 35, 53
Vieques, 63
Virgin Islands, 47, 54

War Council, 33, 50
War of Austrian Succession, 64
War of Jenkins' Ear, 64
Waterloo, 77
West India Company, 53, 59
West Indies, 7, 26, 28, 33, 38, 43, 47, 60, 62
World War I, 81
World War II, 15, 81

Yorktown (Virginia), 72
Puerto Rico and The Forts of Old San Juan A fascinating and useful book for the visitor to San Juan National Historic Site, as well as exciting reading for any military enthusiast.

This book presents the first fully rounded explanation of how and why these great forts evolved during nearly four centuries of Spanish dominance in the Caribbean. Its colorful text is alive with the personalities that molded Puerto Rico into a Spanish stronghold and men such as Drake and Cumberland who besieged the forts, seeking to close Spain's vital treasure routes. Unique schematic drawings by Albert Manucy depict fort construction and graphically illustrate 17th and 18th century weapons, tools and the basic concepts of how to design a fort, how to attack a fort and how to repel an enemy. Battle maps, early prints and contemporary photographs of the San Juan forts complete a remarkable account of a little known aspect in Spanish-American history.

ALBERT MANUCY is a specialist in both Spanish and military history, and has recently retired as Curator of the National Park Service, Southeast Region. His previous publications include The Building of Castillo de San Marcos and Florida's Menéndez: Captain General of the Ocean Sea.

RICARDO TORRES-REYES, a native Puerto Rican, was for many years Research Historian at San Juan National Historic Site. He is the author of Harbor Defenses of San Juan in the 16th Century, as well as numerous research papers on the history and archaeology of the San Juan forts.

Published in cooperation with the National Park Service

THE CHATHAM PRESS INC.