historic structure report

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HISTORIC STRUCTURE REPORT
FOR
CASTILLO DE SAN MARCOS NATIONAL MONUMENT
ST. JOHNS COUNTY, FLORIDA

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FOREWORD AND ACKNOWLEDGEMENTS

This study was conceived of as one segment of a comprehensive historical data section for the historic structure report focusing on Castillo de San Marcos. Because of my familiarity with military records and my proximity to the National Archives in Washington, D.C., I was assigned the task of detailing the structural history of the fort and reservation during the years they were administered by the War Department, 1821-1933. John Paige, a talented young Denver Service Center historian, would detail the Castillo's structural history during the British and National Park Service years.

As the War Department knew the fort for most of the period from 1821 until 1933 as Fort Marion, I soon came to refer to the structure by its latter name.

To secure the documentary information that constitutes the core of my report, several hundred feet of manuscript materials on file in Record Groups 77, 79, 92, and 156 at the National Archives and the East Point, Georgia, Federal Records Center were examined. Through the courtesy and more importantly the assistance of Historian Luis Arana of Castillo de San Marcos National Monument, the files at the Castillo were culled. The raw data extracted was evaluated, and became the grist for reconstructing the structural history of Fort Marion.

It soon became apparent that the War Department had an appreciation of the fort's historic significance. And, in 1884, the Chief Engineer secured a $5,000 appropriation from Congress for preservation of Fort Marion and to restore it as far as "practicable to the condition in which the Spaniards left it." This was nearly five years before Congress voted $2,000 for repair and protection of Casa Grande. This action by the 48th Congress was a landmark, and Fort Marion thus enjoys a unique place in the history of federal funding for preservation of the Nation's cultural heritage.

Many persons assisted in the conception and preparation of this report, and without their aide it might never have been completed. First, and foremost, there is John Garner, former Chief of Cultural Resources Management, Southeast Region. He conceived the research design which enabled me to concurrently conduct research at the National Archives and the East Point Records Center on Forts Marion, Jefferson, Matanzas, Pulaski, and Sumter. In years of double-digit inflation, this is the only economical and efficient method of doing investigations of related first order of significance structures built by the United States.

John Garner and former Chief Historical Architect Henry Judd spent a day with me at the Castillo in September, 1978. They made suggestions as to what would be of interest to the preservationists and read the fabric. By sharing their encyclopedic knowledge of the builders' arts, they enabled me to understand and explain details of the fort's nineteenth century structural history on which the documents were vague or silent.

At Castillo de San Marcos National Monument, Historian Arana was a pillar of strength, whether answering my telephone inquiries or selecting suitable illustrative materials. Former Superintendent George Schesventer and Superintendent Martha Aikens welcomed me to the Park, made their facilities available, and were responsive to my requests.

At National Archives, as heretofore, I am indebted to such long time friends and colleagues as Dale Floyd, Mike Musick, Richard Cox, John Matias, Tim Ninninger, and Ms. Nina Baker of Old Military, and Raymond Cotton, Jim Dillon, and Mike Stanchie of Cartographic. At the East Point Federal Records Center, Gayle Peters and C.A. Rayden provided advice and guidance.

At the Denver Service Center, Historians Jerome Greene and John Paige had the thankless task of watching over the typing, coordinating the review process, and arranging for reproduction and distribution.

My colleagues John Garner, Historian Arana, Regional Historian Southeast Region Lenard Brown, and Staff Historian Harry Butowsky of

the Washington Office read the manuscript in draft and made a number of valuable suggestions, saving me from future embarrassments.

I am particularly indebted to Jan Petrukitas, Lou Tidd, Joan Manson, and Nancy Arwood who had the difficult and thankless task of typing the manuscript.

Edwin C. Bearss

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This historic data section for the historic structure report on Castillo de San Marcos contains three of five historic data sections. Those sections dealing with the first Spanish years, 1668-1763, and the second Spanish years, 1784-1821 will be found in outline form in the architectural section of the Castillo de San Marcos National Monument Historic Structure Report.

The Spanish established St. Augustine in 1565. Nine wooden forts were constructed there from 1565 to 1675. Construction began on the Castillo de San Marcos on October 2, 1672. Work on the forts and its defensive lines continued until 1762. The next year Castillo was turned over to Great Britain. Spain regained control of East Florida and the Castillo de San Marcos in 1784. The United States acquired East Florida in 1821. The Castillo de San Marcos was designated a national monument in 1924 and transferred from the War Department to the National Park Service of the Department of Interior in 1933. It has remained as part of the National Park Service system to the present.

John C. Paige

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Section I:
Castillo de San Marcos:
The British Years, 1763-1784

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A. PRELUDE TO BRITISH OCCUPATION

Christopher Columbus's discovery of the New World in 1492 began a three-century struggle among contending European powers for mastery of this colonial empire. Periods of armed conflict were interrupted, only briefly, by periods of peace as the forces of Great Britain, France, and Spain vied for Florida. One of these conflicts, which came to be known as the French and Indian War in English America, began in 1754, and pitted France against Great Britain. Eight years after the commencement of hostilities, Spain was induced to enter the war on the side of the French. This unfortunate decision precipitated a British assault and capture of the city of La Habana, the capital of Spanish Cuba.

In 1762, the Spanish, French, and British governments began to negotiate a peace treaty. On November 3, of that year, in the preliminary treaty between the three contending powers, Spain agreed to cede both East and West Florida to Great Britain in exchange for the return of La Habana, Cuba. Article twenty of the final Treaty of Paris signed on February 10, 1763, formalized this agreement. The treaty allowed the Spanish government to remove artillery and other military accoutrements from the Castillo de San Marcos in St. Augustine when they turned over the fort to the British forces.[1]

B. BRITISH TAKE POSSESSION OF CASTILLO DE SAN MARCOS

British troops under the command of Captain John Hedges took possession of the town and fort at St. Augustine on July 21, 1763. On July 30, Major Francis Ogilvie arrived to take command of the British forces from Captain Hedges. He estimated that the Spanish had upwards

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1. Charles Loch Mowat, East Florida as a British Province, 1763-1784 (1943; reprint ed. Gainesville, Florida: University of Florida Press, 1964), p. 5.

of 130 guns in the fort, town, and outer posts which were removed when the Spanish left the area.[2]

General Jeffrey Amherst, British Commander-in-Chief in North America, was concerned about the state of the fortifications for the newly acquired British possession. On August 24, 1763, General Amherst ordered Lieutenant Colonel James Robertson, Deputy Quartermaster General in North America, to make an inspection trip of St. Augustine, Pensacola, and Mobile. The mission to East Florida was for the purpose of determining the conditions of the fortifications at St. Augustine, and what equipment and soldiers were required to adequately garrison the post.[3]

C. ROBERTSON'S MISSION TO FLORIDA

Robertson found that the fort at St. Augustine contained eighty-two guns during the Spanish occupation. On the Castillo de San Marcos and the town's fortifications, he commented that "The faces and curtains were crowded with embrasures, should you [General Jeffrey Amherst], judge guns only necessary for the flanks, fourteen will be wanted, Mr. Keppel haveing [sic] sent hither two for 24 pound ball."[4] Robertson further discovered that the casemates designed for soldiers' quarters were

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2. According to a letter from Governor Feliu to the Spanish, August 3, 1763, Archivo General de Indias (Sevilla) 86-7-1115, Photocopy at the University of Florida, the date of the surrender of East Florida was July 21, 1763. British sources, however, date the surrender as occurring one day earlier on July 20, 1763. In a latter from Liets to Ogilvie, August 1, 1763, C.O. 5/548/15, Library of Congress, Washington, D.C. and the Georgia Gazette of August 4, 1763 both give the date of transfer as July 20, 1763.

3. Robert R. Rea, "Lieutenant Colonel James Robertson's Mission to the Floridas, 1763," The Florida Historical Quarterly, LIII No. 1 (July, 1974), p. 34; Amherst to Robertson, August 24, 1763, Amherst Papers, Series I, William L. Clements Library, University of Michigan, Ann Arbor, Michigan. For more information on Robertson's mission and the British troop occupation of St. Augustine see Ricardo Torres-Reves, British Garrison of St. Augustine, 1763-1784 (Denver: DSC, 1972).

4. Robertson to Amherst, September 26, 1763, Amherst Papers, Series I, William L. Clements Library, University of Michigan, Ann Arbor, Michigan.

stifling, and he proposed to make loop holes in the fort walls to ventilate the rooms. Another recommendation was for two of the casemates to be converted into officers' barracks. In his letter, Robertson enclosed a description of room use in the fort. Twelve casemates contained provisions and stores, three contained remnants of the Spanish provisions, six rooms served as soldiers' quarters, one casement was designated as an officers' guardroom, and one was designated for a soldiers' guardroom.[5]

1. Amherst's Actions on the Report

Amherst was pleased with the report of Robertson, and gave his approval to carry out the proposed alterations to the fort. Acting on Robertson's suggestions, Amherst planned to send eleven 24-pounders and twelve 3-pounders with carriages down to St. Augustine along with five brass mortars, one being a 13-inch mortar and the other four being 5½-inch mortars, along with their beds. The armaments which finally arrived at St. Augustine in December, however, consisted of eleven 24-pounder cannon, three 12-pounder cannon, one 13-inch mortar and four 5½ inch mortars. This brought the total armaments of the garrison to thirteen 24-pounders, three 12-pounders, two 6-pounders, one 13-inch mortar, and four 5½-inch mortars.[6]

2. Roberts' Visit

During the same year, William Roberts, a traveler to East Florida described Castillo de San Marcos which he mistakenly referred to as Fort St. John. Roberts found the fort to be a square structure with bastions built of soft stone. He estimated the fort's rampart as twenty feet high with a casemated parapet nine feet thick. In addition, he found

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5. Ibid.

6. Amherst to Commanding Officer of St. Augustine, November 3, 1763, Amherst Papers, Series I, William L. Clements Library, University of Michigan, Ann Arbor, Michigan; Ogilvie to Gage, December 17, 1763, Gage Papers, American Series, Vol. XI, William L. Clements Library, University of Michigan, Ann Arbor, Michigan.

the town of St. Augustine enclosed by a wall with a ditch running outside along the wall.[7]

3. Robertson's Official Report

On March 8, 1764, Lieutenant Colonel Robertson submitted his findings in an official report which gave the following commentary:

> The fort is built of a mixture of Sand and shells, brought from the island of Anestasia, these adhere, and can be raised of any size, it hardens in the air but is easily cut into any shape, it is too porous to keep out water however thick the wall may be, the Spaniards therefore cover the outside with plaister, it has this advantage over freestone that when struck by a bullet it receives it without flying in pieces.
>
> The covered way and outworks being uncompleat and the ground immediately round the fort very favorable for an approach. The Spaniards sensible of the risque place they would have run, had Mr. Oglethorp in place of battering the fort from the Island attack'd it on the land side. After his departure fortified themselves by lines which it would be very difficult to approach and easy to defend, the morasses being deep broad and continued. The Spaniards had at St. Augustine above four-score pieces of Cannon which they have remov'd agreable to treaty.
>
> Under the circumstances I have mentioned, sixteen cannon for the flanks of the fort, and sixteen light pieces, easily to be moved from one part of the lines to another would be more proper for the defense of the place, than a heavy numerous artillery.[8]

D. GOVERNOR GRANT'S DESCRIPTION OF CASTILLO DE SAN MARCOS

The Governor of East Florida, James Grant, described the Castillo in the following way in 1764:

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7. T. Jefferys and William Roberts, An Account of the First Discovery, and Natural History of Florida With A Particular Detail of the Several Expeditions and Descents Made on that Coast (London: Printed by T. Jefferys, 1763), p. 24.

8. Robertson to Gage, March 8, 1764, C.O. 5/831/145, Library of Congress, Washington, D.C.

> Prominent from the sea was the Spanish Fort built of a mixture of sandstone and shells hardened by exposure, but so porous that the Spaniards had plastered it over. The Town consisted of four streets crossing at right angles and walled in. As additional security the walls were lined with an impenetrable hedge of an evergreen with sharp pointed leaves which in itself was enough to stop an Indian rush.[9]

E. BARTRAM'S DESCRIPTION OF CASTILLO DE SAN MARCOS

From July 1765 to April 1766, John Bartram, a naturalist, traveled through the Carolinas, Georgia, and Florida. In December of 1765, he visited St. Augustine. On seeing the Castillo de San Marcos, Bartram wrote that:

> It hath at each corner a fine round centery box with its cover of stone like a cupola projecting half way over. These are all made of shell stones so well cemented as to appear one solid stone excavated so as for a man to stand in it with ease and look round thro two or three peep holes. Let it rain never so hard here is much carved work about ye fort and all ye extensive out wals is built with massy hewn stone. Sertainly this frontier garrison must have cost ye king of Spain many millions and it appears by ye many curious hewn stones lying on one side that it was not finished according to their intention . . . .[10]

He further commented that the:

> Great fort at Augustine is 60 paces above in ye outward square on ye one side and 56 broad a ten foot walk on which ye guns roled on ye terract between ye outward strong wall 5 foot thick and ye inward each 4 foot high. Ye area below is 32 paces: 6

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9. Alastair Macpherson Grant, General James Grant of Ballindallock, 1770-1806: Being an Account of his long services in Flanders, American and the West Indies, With Original Letters Throwing Sidelights on Many Strange and Ancient Customs in the Highlands, on Early Days of Road Making and the Recruitment and Equipment of the First Highland Regiments (London: Published Privately by Alastair Macpherson Grant, 1930), p. 74.

10. John Bartram, "Diary of a Journey through the Carolinas, Georgia, and Florida from July 1, 1765-April 10, 1766," Transactions of the American Philosophical Society Held at Philadelphia for Promoting Useful Knowledge, New Series, XXXIII, Part I, (Philadelphia: The American Philosophical Society, 1942), p. 53.

port holes in each side and 8 in each bastion ye passage out of ye area below is in one corner 6 foot wide up an easy terraced ascent without stairs all ye arched rooms round ye area below is bomb proff[11] and are ye chapel, prison, tavern and magazines.

F. TAYLER'S WORK AT CASTILLO DE SAN MARCOS

In 1766, St. Augustine, informed Major General Thomas Gage, the Commander-in-Chief of the British forces in America, on the use and condition of the East Florida fort. Most of the fort's casemates were used to house provisions, ammunition, and other stores, with the remainder employed mainly for soldiers' barracks, Tayler determined that:

> Whatever can admit of so warm an exposure, must be lodged in the casemates that face to the south; and I believe the rooms which have floors in them must be applied to the same purpose, they seem too close and hot for a double barracks in summer.
>
> The casemates in the Front to the westward, have loop holes through the curtain, and from the height of the arches and the draught of Air through them, may I hope conveniently be applied to the purpose of Barracks.
>
> If the Fort was not understood to be necessary for defence altogether, I imagine that some windows maybe very carefully struck out in the East Front to the Sea, and the River and the Loop holes in the West Front enlarged. They are the two sides least exposed; and may promote a current of air, circumstance prodigiously wanted; as the ramparts of the Fort are uncommonly high, and the air quite confined after having with great deference, thought of offering this opinion, I have talked with the Engineer he imagines it practicable, and I should then propose, that if windows were opened, the stone, and Iron cramps, and everything necessary, might be constantly ready to fill them up upon any sudden occasion.
>
> I humbly am of the opinion that this is the cheapest scheme, if not the only method of making the Fort answer the purpose of a Barrack for the Men. The officers could hardly be included till necessity of Service should oblige them to the fort and I am afraid it is impossible to lodge the Men in it, without the advantage proposed.
>
> There is not a single kitchen in the Fort. I have directed some boarded ones to be set up in the ditch, close to the demi gorge

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11. Ibid.

> of the Ravelin; as most in the shade, and out of the way, and might continue there for some time in Service, the Necessaries are a terrible nuisance, they are under the slope to the Rampart; and unless we can correct the old drain by a Sluice, and forcing the water, that, only, would make the Fort a very uncomfortable situation.
>
> If the church is repaired, and floored, it may contain about one hundred Men and I hope to provide for the rest of the Men of a Regiment upon the present Establishment, in the Fort, upon the supposition that the Casemates are opened.[12]

In addition to these observations, Colonel Tayler believed that an oven should be constructed inside the fort.[13] General Gage replied that Colonel Tayler could take whatever measures were necessary to make the fort a healthy place, but any alteration should not in anyway harm the defenses of the post.[14]

1. Unhealthy Condition of the Fort

Despite this instruction, little was done at the time to improve the living conditions in the fort. Two months later, Tayler again reported on the unhealthy conditions of the fort. He commented:

> I will begin with the Fort. I apprehend that a number of men could not be quartered within it. Without a distress hardly supportable from excessive heat and reflection from the sun and most probable risque of epidemick disorders from the clossness of the fort and from want of fresh air and in the winter improper from dampness and cold. Even if habitable it would require a considerable sum to make drains, to fit up the casemates, to make sheds over the South and West aspects within, to build an Bridge and proper kitchens with the Bedstead and many other matters as in the estimate of the new barracks.

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12. Tayler to Gage, January 27, 1766, Gage Papers, American Series, Vol. XLVIII, William L. Clements Library, University of Michigan, Ann Arbor, Michigan.

13. Ibid.

14. Tayler to Gage, March 9, 1766, Gage Papers, American Series, Vol. XLIX, William L. Clements Library, University of Michigan, Ann Arbor, Michigan.

> Independent of the above, the artillery stores take up five of the casemated, their guardroom another, the provisions are all lodged in the Fort and take up several more. The Indian and Governors Stores for the public, the two guardrooms and confinement, and two other rooms are able that I imagine are habitable from dampness and stench . . .[15]

Tayler added that despite these inadequacies, some of the soldiers were barracked in the fort.

2. Artillery at the Fort

Beside reports on the unhealthy condition of the outpost, the British commanders kept careful track of the artillery used by the garrison. In 1770, a report was submitted to the British high command in America listing the following ordnance: thirty-two 24-pounder iron cannons, seven 12-pounder iron cannons, two 6-pounder cannons of brass, one 13-inch mortar, and to ten 5½-inch mortars. Three of the 24-pounders were honey-combed and unfit for use along with one of the 12-pounders. Three of the 24-pounders suffered from their carriages being in disrepair. The 6-pounders were further disabled in that their vents were blown. The 13-inch mortar was useless because it had no bed. Another report on the ordnance commented that the fort had 48 embrasures and that the barbette fronting the ocean was entirely void of ordnance. A request was made for nine cannon to place on the barbette.[16]

3. Repairs and Work in St. Augustine

The next two years were devoted to construction of barracks in town for the soldiers. It was hoped that the barracks also could be used to house some of the stores kept at the fort, however, upon their completion, it was found that only some flour could be stored in these barracks. The rest of the stores were to remain in the fort. About this

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15. Ibid.

16. Maxwell to Gage, September 30, 1770, Gage Papers, American Series, Vol. XLIX, William L. Clements Library, University of Michigan, Ann Arbor, Michigan.

time, the British engineer discovered that the bridge over the moat leading into the fort had several rotted timbers and requested authorization to repair the bridge.[17]

G. DE BRAHM'S DESCRIPTION OF CASTILLO DE SAN MARCOS

William Gerrard De Brahm in 1764 was appointed by British officials to the post of Surveyor General of the Southern District. The following year, De Brahm established his headquarters in St. Augustine. Sometime after 1770, he wrote that on the north side of St. Augustine was a fort built of shell stone with four bastions, ravelin, counterscarp and glacis following the principles of Marshal Sebastien le Prestre de Vauban. De Brahm made extensive comments on the coquina used to build the fort. He found it to be:

> The only stone met with in the northern part of this Province, and consists of Shells congeled together with Sea-Salt, which by repeated Solution and Coagulation has lost its Acid and become silentic. Some are of course Shells, and others not bigger than a sand grain. This latter will bear to be cut in all Shapes, and even in small ornaments. The former are adapted for Grotto Work in European Gardens: also in such Vaults of Fortifications where Strength and Lightness are required, both which Qualities are combined in these Stones, however they must be well cemented over with Paris Plaister and coated with a thin Brick wall in form of a Roof before it is covered with Ground, or according to more skillful invention; or else the Rain and other Moisture is very apt to find its Passage through them, for which reason will fully answer for vaulting Cisterns both in Fortifications and onboard of Men of War to filter Rain and Salt water provided they have their proper Strate of Pebbles and a Variety of Sand.[18]

n 1773, a number of repairs were required for the fort. Work was required on the drawbridge ramparts, covered way, glacis, moat, ravelin,

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17. Carr to Gage, June 19, 1772, Gage Papers, American Series, Vol. LIX, William L. Clements Library, University of Michigan, Ann Arbor, Michigan.

18. Louis DeVorsey Jr., ed., De Brahm's Report of the General Survey of the District of North America (Columbia, South Carolina: University of South Carolina Press, 1971), p. 177.

wells and one of the guard rooms. It was anticipated that the cost of repairs on the drawbridge would amount to a little over two pounds.

That year, the garrison at St. Augustine listed its ordnances as follows: thirty-two 24-pounder iron cannons, seven 12-pounder iron cannons, two 6-pounder brass cannons, one 13-inch brass mortar, two 5-1/2 inch brass mortars, ten 4-2/5 brass mortars, and two 8 inch howitzers.[20]

On the eve of the American Revolution in 1775, Bernard Romans, a traveller to the colony, gave the following description of the Castillo de San Marcos.

> . . . a fort in the modern taste of military architecture of a regular quadrangular form, with four baltions, a wide ditch, a cover'd way, a glacis, a ravelin to defend the gate, places of arms and bombproofs with a casemating all round &c. &c. for a defence against the savages.[21]

H. THE COMING OF THE AMERICAN REVOLUTION AND EAST FLORIDA

In the spring of 1775 as hostilities broke out between the colonists and British troops in New England, British government officials in St. Augustine became fearful of an impending attack on East Florida. Governor Patrick Tonyn believed Castillo de San Marcos was in need of extensive repairs. He anticipated an attack on the fort and town of St. Augustine from either the Carolinas or Georgia. He believed that the fort could only be successfully defended against attack when money was

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19. W. Sower, "Estimate of the Several Works and Repairs to be Carried Out on the Different Forts and Places in North America in the Year 1774," Gage Papers, American Series, Vol. CIX, William L. Clements Library, University of Michigan, Ann Arbor, Michigan.

20. Return of Ordnance and Ammunition in the Garrison of St. Augustine the 30th of June 1773, C.O. 5/553/179, Library of Congress, Washington, D.C.

21. Bernard Romans, A Concise Natural History of East and West Florida (1775; reprint ed. Gainesville, Florida: University of Florida Press, 1962), p. 261.

allocated for the improvement of the outer and inner fortifications. This plea for increased military spending, and preparedness resulted in funds being granted by the crown officials for the construction of the new beds for the mortars and carriages for the 6-pounders. The fort carpenter then built a shed to protect the mortar from sun and rain damage.[22]

1. Toyn's Description of the Fort

The next year, East Florida Governor Tonyn gave the following description of the fort:

> The Fort will quarter occasionally a Battalion and 6 months provisions and firing provided some of the Officers are quartered in the Town, but it is rather too close for a constant quarter. If the fort should be thought of for a Barracks, it will my Lord require an upper Floor to be laid, the casmit will bear it, being 18 feet High, 17½ Broad and 32 in lengths. Five of the casmits the Engineer told me were Bombproof, but, I have doubts of it; the Fort is small, your Lordship will perceive; the Body, or Square within, measures, one side 109, feet, the sides at right angles 103 feet. The out works of the Fort have never been finished.[23]

During 1776, work did commence on repairing the defensive lines around the fort and town including the north curtain from the fort to San Sebastian Creek. The work continued until in October when Governor Tonyn wrote:

> I have the honour of enclosing to your Lordship, a plan of the fortifications and line of this Town, which are finished and may at a small expense be kept in repair. They will be a security in case of war or insurrection and will in time of Peace render this Capital respected by Savages and the more Savage Woodsmen.[24]

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22. Tonyn to Cooper, September 15, 1775, C.O. 5/555/365, Library of Congress, Washington, D.C.; Davies to Tonyn, August 31, 1775, C.O. 5/555/443, Library of Congress, Washington, D.C.

23. Tonyn to Germain, May 19, 1976, C.O. 5/556/596, Library of Congress, Washington, D.C.

24. Tonyn to Germain, October 30, 1776, C.O. 5/557/21, Library of Congress, Washington, D.C.

2. British Loyalists and Prisoners-of-War at St. Augustine

It was during this year that the Earl of Dunmore dispatched from Virginia to St. Augustine, a number of British loyalist, prisoners-of-war, and Blacks. Twelve of the most dangerous prisoners-of-war were confined in the Castillo de San Marcos. As the American Revolution continued, other prisoners were sent to St. Augustine for confinement. Most were permitted to live in town with only the most unrepentant rebels being incarcerated in the fort.[25]

3. Patriot Aggression

Fears of the colonial officials of an impending attack on East Florida proved correct when, in 1776, units of the Georgia militia began advancing toward St. Augustine. The militia force was weak and confined itself to pillaging the frontier outposts of St. Augustine. During the next two years, additional attacks were mounted by the American Patriots, but the British soldiers and loyalists successfully turned back these incursions into East Florida.[26]

I. THE CONTINENTAL CONGRESS DISCUSSES THE REDUCTION OF EAST FLORIDA

In 1778, the Continental Congress began discussions on the capture of East Florida. During these discussions, the Marquis de Bretigny, a french prisoner held by the British in St. Augustine, remarked that he had information that the fort at St. Augustine contained sixty cannon of the 36-and 24-pounder variety. The Marquis further commented that the fort had little of interest to note except that the casemates were said to be bombproof. He had determined, however, that the fort did not have sufficient lodging for the garrison of two hundred men, the water supply inside the fort was extremely bad, and the casemates used for the fort's

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25. Edgar LeGare Pennington, "East Florida in the American Revolution, 1775-1778," The Florida Historical Quarterly, IX No. 1 (July, 1930), p. 31; Tonyn to Dunmore, December 7, 1776, C.O. 5/557/73, Library of Congress, Washington, D.C.

26. J. Leitch Wright, Jr., British St. Augustine (St. Augustine, Florida; Historic St. Augustine Preservation Board, 1975), pp. 28-29.

magazines contained insufficient space for adequate supplies during a siege. The Marquis concluded his remarks with the observation that if the continental forces could trap the British and their dependents within the fort, then the garrison would surrender shortly.[27]

During the discussions on the feasibility of attacking the fort, Baron Randerobe de Thrillers, another french prisoner held in St. Augustine, added that:

> The Fort at St. Augustine is a regular square situated at the extremity of the town at the enterance of the harbor, which it absolutely defends, it is built of massonry work as well as its covert way which has about 16 or 18 large cannon in condition of service. This Fort may contain 300 to 350 men at most to garrision, at present it only has a guard of 30 men which is relieved every morning at ten o'clock and 14 artillerists, who lodge in it. The fort is mined and countermined and has casemates, it has no well of Fresh water although there was one formerly which was destroyed by a shell when the English beseiged it since which the Salt Water has mixed with the Fresh and it has not been possible, not with standing all the pains that have been taken to separate them.[28]

Before the colonists could take action, however, British forces invaded Georgia, and in November of 1778, captured the town of Savannah. This British campaign effectively ended the Patriots threat to East Florida for the remainder of the Revolutionary War.[29]

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27. Memorial and particulars relative to Ft. St. Augustine with a plan of attack, by Marquis de Bretigny, August 26, 1778, U.S. Continental Congress, Papers of the Continental Congress, 1774-89, National Archives, Washington, D.C., Microfilm, Roll 91, Item 78, Vol. III, pp. 51-59. The Marquis de Bretigny, along with a number of other young, ambitious, and noble frenchmen, encouraged by Louis XVI and Benjamin Franklin sailed to America in 1777 to aid the colonists in their struggle against Great Britain. He and his comrades were captured in a cruiser off of Charleston Harbor by the British. They were incarcerated in St. Augustine with Bretigny being placed in Castillo de San Marcos. He escaped six months later disguised as a sailor and made his way to Philadelphia where he spoke to the Continental Congress and urged that the colonists attack the British province of East Florida.

28. Memorial from Baron de Randerobe de Thrilleirs, October 20, 1778, U.S. Continental Congress, Papers of the Continental Congress, 1774-89, National Archives, Washington, D.C., microfilm, Roll 52, Item 41, Vol. X, p. 29.

29. Mowat, East Florida as a British Province, 1763-1784, pp. 122-23.

J. SPANISH THREAT TO EAST FLORIDA

As the menace of an American attack on St. Augustine diminished, the threat of Spanish invasion increased. The Spanish began planning for possible attacks on British possessions in North America in 1778 and on June 23, 1779, the king of Spain declared war on Great Britain. The defenses of St. Augustine, which were being placed in a state of readiness in case of an American invasion, were now made ready for a possible Spanish attack.[30]

1. Preparing the Defenses of St. Augustine

In 1779, the military preparations included work on the outer defense lines of St. Augustine, the glacis of the fort and the covered way. The commander of British troops in East Florida, Lieutenant Colonel Lewis V. Fuser, assigned half of the garrison troops and three hundred Black slaves to this task. Some of the guns at the fort had been transferred to the ship Thunderer, and Governor Tonyn requested that these weapons be returned to bolster the fort's defense.[31]

By December 1779, Colonel Fuser nearly had completed work on the fort's glacis. The work consisted of repairing the glacis and erecting a palisade. Colonel Fuser died in January 1780 leaving the work on the defensive lines surrounding the fort unfinished. Captain John Campbell, an engineer assigned to bolster the defenses of St. Augustine, in

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30. Kathryn Trimmer Abbey, "Spanish Projects for Reoccupation of the Floridas during the American Revolution," The Hispanic American Historical Review, IX No. 3 (August, 1929) p. 274; Wilbur Henry Siebert, Loyalists in East Florida, 1774 to 1784: The Most Important Documents Pertaining Thereto, Edited with Accompanying Narrative (1929; reprint ed., Boston, Massachusetts: Gregg Press, 1972), Vol. I, p. 58; Germain to East Florida, June 17, 1779, C.O. 5/80/227, Library of Congress, Washington, D.C.

31. Siebert, Loyalists in East Florida, 1774 to 1784: The Most Important Documents Pertaining Thereto, Edited with Accompanying Narrative, Vol. I, p. 79; Tonyn to Germain, December 22, 1779, C.O. 5/559/90, Library of Congress, Washington, D.C.; Tonyn to Mowbray, May 29, 1779, C.O. 5/559/289, Library of Congress, Washington, D.C.; Tonyn to Mowbray, May 29, 1779, C.O. 5/559/289, Library of Congress, Washington, D.C.

February of 1780 reported that platforms and some minor repairs of the parapet were necessary to complete the defensive works.[32]

2. Glazier Takes Command

Major Beamsley Glazier replaced the deceased Colonel Fuser as the commander of the British troops at St. Augustine. He ordered that the two howitzers at the fort be sent to Charleston to be used in the British siege of that city. On May 12, 1780, the British campaign ended with the American surrender of Charleston. A little over a month later, Henry Clinton, the commander of the British forces in the siege, sent prisoners to St. Augustine. Meantime, in St. Augustine, Governor Tonyn complained that Captain Campbell had confined his work to repairing the fort and the fort's defensive lines while neglecting the town's defenses. Governor Tonyn requested that this deficiency be rectified by supplying the colony with funding and soldiers to make the necessary repairs.[33]

3. American Prisoners at St. Augustine

Beginning in August of 1780, prisoners-of-war were sent from Charleston to St. Augustine for confinement. Recalcitrant prisoners were incarcerated in the fort while most others were allowed to stay in certain sections of the town. Christopher Gadsden, a leading South Carolina patriot and former lieutenant governor of that state, was kept in a casemate in the fort for forty-two weeks. This influx of prisoners added to the provincial governor's and military commander's concerns about the defensibility of the town and fort. They solicited funds from crown

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32. Tonyn to Germain, December 22, 1779, C.O. 5/559/90, Library of Congress, Washington, D.C.: Lewis Butler, The Annals of the King's Royal Rifle Corps, The Royal Americans, Vol. I: (London: Smith, Edder and Company, 1913), p. 226, Clinton to Tonyn, March 8, 1780, C.O. 5/559/607, Library of Congress, Washington, D.C.

33. Butler, The Annals of the King's Royal Rifle Corps, The Royal Americans, Vol. I: p. 226; Tonyn to Clinton, March 20, 1780, C.O. 5/559/619, Library of Congress, Washington, D.C.; Tonyn to Clinton, May 6, 1780, C.O. 5/559/95, Library of Congress, Washington, D.C.

officials to cover the addition expenses incurred in the maintenance of the prisoners.[34]

4. Final British Actions at St. Augustine

Though the care of American prisoners at St. Augustine proved irksome to civil and military officials, a more menacing threat came from the resurgence of a hostile Spain. The St. Augustine authorities began preparations in 1779 against possible Spanish attack, the Spanish, however, did not move against East Florida, but in late 1780, prepared to assault Pensacola in West Florida. As these events unfolded, the provincial officials of East Florida became increasingly concerned at their own vulnerability to attack. In December 1780, Governor Tonyn wrote to Lord George Germain, the Secretary of State for the colonies, that the fortifications of St. Augustine were in much need of repair and requested funds for such a project.[35]

Then, in January, 1781, the governor requested that an engineer be sent to St. Augustine to inspect the fortifications and make required repairs. Governor Tonyn next employed a hundred Blacks to repairing the fortifications of St. Augustine. In March, Captain

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34. George Smith McCowen Jr., The British Occupation of Charleston 1780-82 (Columbia, South Carolina: University of South Carolina Press, 1972), p. 58, Tonyn to Germain, August 21, 1780, C.O. 5/560/I, Library of Congress, Washington, D.C.; Smith to Poyas, December 5, 1780. Josiah Smith Letterbook, Southern Historical Collection, University of North Carolina, Chapel Hill, North Carolina, p. 410: Tonyn to Germain, December 9, 1780, C.O. 5/560/102, Library of Congress, Washington, D.C.; For additional information on the confinement of American patriots at St. Augustine see Albert C. Manucy and Alberta Johnson's "Castle St. Mark and the Patriots of the Revolution," The Florida Historical Quarterly, XXI No. 1 (July, 1942), pp. 3-24 and Joseph Johnson's Traditions and Reminscences Chiefly of the American Revolution in the South Including Biographical Sketches, Incidents and Anecdotes; Few of which have been Published, Particularly of Residents in the Upper Country (Charleston, South Carolina: Walker and James, 1851), pp. 316-21.

35. Tonyn to Germain, January 27, 1781, C.O. 5/560/150, Library of Congress, Washington, D.C.; Tonyn to Germain, March 21, 1781, C.O. 5/560/110, Library of Congress, Washington, D.C.; Tonyn to Germain, March 21, 1781, C.O. 5/560/110, Library of Congress, Washington, D.C.

Durnford, a royal engineer, arrived and began erecting a chain of redoubts to protect the town. The governor in July, inspected the fortifications, and found that the provincial defenses had been strengthened and enlarged. Work continued through the rest of the year on the redoubts and defensive lines around the city.[36]

The next year, (1782) work continued on the town's fortifications, the fort's defensive lines, and the fort. The British authorities believed that the fort was too small to be defensible, and so concentrated their efforts on improving the outer defense lines of the city and fort. During the year, it was reported that the fort and town contained sixty-one mounted cannons and mortars.[37]

K. THE BRITISH EVACUATE EAST FLORIDA

By 1782, representatives of Great Britain, Spain, France, and the Continental Congress assembled in Paris to negotiate a peace treaty to end hostilities. In January 1783, Great Britain and Spain agreed on a preliminary peace treaty in which Great Britain ceded East Florida to Spain. This treaty allowed the British to remove their artillery pieces and other military accoutrements from St. Augustine. In February, the colonial governor was notified of this treaty agreement, and on

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36. Tonyn to Germain, March 5, 1781, C.O. 5/559/109, Library of Congress, Washington, D.C.; Germain to Tonyn, June 4, 1781, C.O. 5/560/231, Library of Congress, Washington, D.C.; Tonyn to Germain, July 30, 1781, C.O. 5/560/114, Library of Congress, Washington, D.C.; Tonyn to Germain, November 30, 1781, C.O. 5/560/283, Library of Congress, Washington, D.C.; Tonyn to Germain, December 31, 1781, C.O. 5/560/118, Library of Congress, Washington, D.C.; Tonyn to Germain, December 31, 1781, C.O. 5/560/118, Library of Congress, Washington, D.C.

37. Brown to Tonyn, January 24, 1782, C.O. 5/560/360, Library of Congress, Washington, D.C.; McArthur to Tonyn, November 14, 1782, C.O. 5/560/489, Library of Congress, Washington, D.C.;" 1782 Remarks Relative to North America: State of all Forts in the King's Possession in America," Shelburne Papers, Vol. LXVI, William L. Clements Library, University of Michigan, Ann Arbor, Michigan.

September 3, 1783 the definitive treaty was signed which contained the terms agreed on in the preliminary treaty.[38]

1. Two Visitors' Describe the Fort at St. Augustine

Around this time, two visitors came to St. Augustine and described conditions at the fort. A German, Johann David Schoepf, found the fort to be a quadrangle with four bastions, walled moats, and casemates. Schoepf estimated that the parapet facing the harbor was five feet thick, and the parapet facing the landside was four feet thick. The parapet contained 64 embrasures.[39] The other visitor was John Ferdinard Dalziel Smyth. He wrote, "The castle is a square building of soft stone, fortified with whole bastions, having a rampart twenty feet high, with a parapet nine feet thick, and it is case-mated."[40]

2. British Activities in East Florida

Despite the signing of the treaty between Spain and Great Britain in September of 1783, the Spanish under Governor Vicente Manuel de Zespedes did not arrive to take possession of the province until July 1784. This event ended the British occupation of East Florida. Their occupation of Castillo de San Marcos left little permanent change. The major alterations to the fort consisted of the construction of a second floor in some of the casemates. The main British effort went into the maintenance of the fort, and building a soldiers' barracks in the town of St. Augustine. When the American Revolution began, the British began strengthening the various defensive lines around the fort. This was done

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38. Joseph Byrne Lockey, East Florida, 1783-1785: A File of Documents Assembled and Many of them Translated, ed. by John Walton Caughey (Berkeley and Los Angeles: University of California Press, 1949), pp. 54, 144.

39. Johann David Schoepf, Travels in the Confederation, ed. and trans. by Alfred J. Morrison (1911; reprint ed., New York: Bergman Publishers, 1968), p. 231.

40. John Ferdinard Dalziel Smyth, A Tour in the United States of America, (1784 reprint ed., New York: Arno Press, 1968), p. 19.

as the British commanding officers in St. Augustine concluded that Castillo de San Marcos could not be held unless the outer defensive lines were maintainted and the fort not subjected to siege. Later in the war, American prisoners were incarcerated in the Castillo which became a warehouse and prison. Work continued on refurbishing the outer defenses of the fort until the British evacuated from East Florida.

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Section II:
Castillo de San Marcos:
The War Department Years, 1821-1933

By
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National Park Service
United States Department of the Interior

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I. FORT MARION'S FIRST 12 YEARS UNDER THE "STARS AND STRIPES"

A. U.S. Army Takes Possession

In 1819 the United States moved to secure Florida by diplomacy rather than by conquest. Secretary of State John Quincy Adams and the Spanish minister to Washington Luis de Onís signed an agreement providing for the cession of Florida and settlement of other long-standing grievances between their nations. A number of vexing problems developed, and two years passed before the two countries ratified the treaty.

Major General Andrew Jackson who had resigned from the Army to return to his beloved Hermitage, was named governor of Florida by President James Monroe and commissioned to receive the province from the Spanish officials. Jackson, in perfecting his plans, determined to personally oversee the transfer of West Florida. Adj. Gen. Robert Butler of the Army's Southern Division, a close friend, was named by General Jackson to proceed to Amelia Island, at the mouth of the St. Marys River. There, he was to make necessary arrangements for receiving and occupying East Florida.[1]

Upon reaching Amelia Island from Tennessee, Colonel Butler was to communicate with East Florida Governor José Coppinger by confidential courier, informing him of his arrival. Coppinger would be asked whether he had received "instructions to deliver over to the United States the Country and Fortifications ceded." It was important, General Jackson admonished, that we have "possession of the Country as early as possible to prevent smuggling and introduction of Africans."[2]

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1. Jackson to Butler, April 12, 1821, found in Territorial Papers of the United States, The Territory of Florida, 1821-1824, compiled by Clarence E. Carter (Washington, 1956), Vol. XXII, pp. 32-3. Initially, Maj. Gen. Edmund P. Gaines had been selected for this mission, but he was called to Washington to assist in the reorganization of the Army.

2. Ibid.

Colonel Butler was preceded to East Florida by the troops charged with occupation of St. Augustine. On May 1, three companies of the 4th U.S. Artillery, commanded by Capt. John R. Bell, sailed from Boston aboard the ship Meteor. Some ten days later, she put in at Charleston, South Carolina, to land one company of artillery and take aboard provisions and Surgeon Charles N. McCrosky. Again heading out to sea, the ship continued down the coast, anchoring off Amelia Island, on the 15th. Landing at Fernandina, Captain Bell found no orders, but learned from the post commander that Maj. Trueman Cross of the Quartermaster Department was at St. Augustine. Before discharging Meteor, Captain Bell sent one of his officers to contact Major Cross.[3]

Major Cross had been sent ahead to reconnoiter and perfect arrangements to facilitate the occupation of East Florida by the military. On June 7 Major Cross wrote Quartermaster General Thomas Jesup that the military advantages of the area consist "in the capacity of the Fort to defend itself, and perhaps protect the town." He questioned whether Fort St. Marks commanded anything beyond the range of its guns. In the hands of a bold and enterprising foe, St. Augustine and its fort "might be instrumental in establishing and maintaining a post on the St. Johns river." St. Augustine, however, seemed to offer no greater inducement to an enemy than any other small coastal town. If it were not for Fort St. Marks, which he characterized as a "strong work," and one that could not be abandoned with propriety, it would make little difference, once United States authority was established, whether it was garrisoned.[4]

The necessity for military construction and repairs, Major Cross continued, depended on the accommodations the fort afforded in the way

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3. Bell to Calhoun, May 18, 1821, found in ibid., pp. 46-7.

4. Cross to Jesup, June 7, 1821, NA, RG 92, Consolidated Correspondence File.

of barracks and officers' quarters. As yet, he had not seen the fort's interior. If, however, the troops could not be housed in the fort, extensive repairs would have to precede their occupation of any public buildings in St. Augustine. Such of these as he had inspected were in a "state of dilapidation."[5]

Major Cross left the area on June 17, when he boarded a Philadelphia-bound schooner. And some three weeks later, on July 10, the United States formally took possession of St. Augustine and East Florida. Colonel Butler remained at St. Augustine only four days after the ceremony, departing for Pensacola on the 14th, where he was to report to General Jackson.[6]

Captain Bell and his artillerists had accompanied Colonel Butler from Amelia Island to St. Augustine. On the 10th, after participating in the ceremonies, the troops took possession of Fort St. Marks.

B. Troops Occupy and Vacate the Fort

Captain Bell found "the Fort and public buildings" in a "rapid state of dilapidation." To arrest deterioration, Bell ordered Lt. Samuel Washburn to "immediately cause a coat of cement to be laid on the Terrace of the fort." This, it was hoped, would "prevent" water from washing through the masonry, into the Barracks rooms and stores." Washburn would also provide lime for whitewashing the "walls inside and out," and materials for laying floors and building bunks. Measures would also be

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5. Ibid.

6. Butler to Jackson, Aug. 8, 1821, found in Florida Territorial Papers, Vol. XXII, pp. 164-65. Butler reached Pensacola on August 8, where he turned over to General Jackson an inventory of the public property transferred by Governor Coppinger to the United States. Among these documents was a plan of "fort of San Marcos."

taken to repair the government house for use as officers' quarters, as there were no casemates in the fort satisfactory for this purpose.[7]

To fund these repairs, Captain Bell called on Secretary of War John C. Calhoun for a $2,820 allotment. The estimate prepared by Lieutenant Washburn broke down:

Repair of hospital--lime, lumber and labour	$ 75
Repair of soldiers' quarters--timber, plank and nails for floors, bunks and tables	980
Repair of commissary of subsistence store	80
Repair of officers' quarters--lumber, lime, sand, etc., paints and glass	1,029
Repair of fortifications--stone, lime, sand, etc.	140
Head labour	450
	60
	$2,820[8]

Secretary of War Calhoun, in approving the measures taken by Captain Bell, cautioned that as funds were tight, he was to execute the repairs "with as little expense as possible."[9]

Long before Captain Bell learned of the Department's action, he wrote Secretary Calhoun that he was occupying the building adjoining the custom house, the only structure in "fit state for Officers Quarters." The soldiers, both officers and enlisted men, would have to be evacuated from the fort, because the casemates "were without Fire-places and so

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7. Bell to Calhoun, July 17, 1821, found in ibid., pp. 123-24. Lieutenant Washburn was the post quartermaster.

8. Bell to Calhoun, August 4, 1821, NA, RG 92, Consolidated Correspondence File.

9. Calhoun to Bell, August 4, 1821, found in Florida Territorial Papers, Vol. XXII, p. 164.

damp that the men are beginning to be attack'd with rheumatism." Moreover, he did not know of any civil officer entitled to quarters from the government.[10]

This letter was triggered by arrival in St. Augustine of Collector of Internal Revenue John Rodman. Unable to find suitable quarters, Rodman had asked Captain Bell to vacate his.

William G.D. Worthington, who had been named Acting Governor of East Florida, as to be expected, took issue with the military on use of public buildings. He argued that the fort and its appendages ought to be the only structures over which the Army had jurisdiction. In time of peace, he wrote General Jackson, Army officers, if they wished, could rent quarters in St. Augustine. Should it become necessary to remove the troops from the fort, he recommended that they be billeted in the outskirts of the town.[11]

Captain Bell carried his case to the War Department. Writing Secretary of War Calhoun, he called attention to Worthington's efforts to take from the military the "only buildings we can occupy for Quarters for the Troops." Enclosed the Secretary would find a letter from the post surgeon documenting the necessity of removing the soldiers from the fort. If this were approved, the Army would require the government house, treasury, and barracks near the monastery for housing the garrison.[12]

Because of the slowness of the mails, Captain Bell and Acting Governor Worthington were still waiting for resolution of this question, when Lt. Col. Abraham Eustis reached St. Augustine, on September 24,

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10. Bell to Calhoun, August 14, 1821, found in ibid., p. 170.

11. Worthington to Jackson, August 28, 1821, found in ibid., p. 196.

12. Bell to Calhoun, August 28, 1821, found in ibid., p. 197. The copy of the letter from the post surgeon is not on file.

and assumed command of the garrison. Upon doing so, he found 30 soldiers on sick call. This was occasioned by their being quartered in the damp casemates of the fort, "which never were intended for, and never before were occupied as Barracks."

Writing Quartermaster General Jesup, Eustis complained that there were, at present, no public buildings in the city "in sufficient repair to be used as Quarters" by his soldiers. Lieutenant Washburn had died on August 23, and there was nobody present to represent the Quartermaster Department and to oversee the repairs for which the $2,820 allotment had been made.[13]

To support Colonel Eustis' position, Surgeon McCrosky pointed out that the soldiers were quartered in the fort's casemates, which have neither windows nor fireplaces. As the terreplein was much decayed, the run-off from rains passed "readily through it to the ceiling of the rooms and keeps them continually wet."

The rainy season being at hand, it was mandatory that the troops be provided with warm and dry quarters. Already, the results of the soldiers' 11 weeks in the casemates had led to a number of them being felled by rheumatism, catarrh, dysentery, fevers, etc., ailments associated with "damp situations."[14]

On the 27th Colonel Eustis, satisfied that prompt action was required, directed Captain Bell to have the troops evacuate the fort, and to "place them in any suitable building within his control."[15]

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13. Eustis to Jesup, Sept. 25, 1821, NA, RG 92, Consolidated Correspondence File.

14. McCrosky to Eustis, Sept. 25, 1821, NA, RG 92, Consolidated Correspondence File.

15. Eustis to Worthington, Sept. 27, 1821, found in Florida Territorial Papers, Vol. XXII, p. 218.

Captain Bell accordingly called upon the city council to evacuate the building they were using for meetings. The council countered with a resolution, calling upon the military to allow it to remain in peaceable possession of the government house or to provide a similar structure, otherwise the councilmen would resign.[16]

Ignoring the council's protest, Captain Bell pulled the troops out of Fort St. Marks. One company was sent to the "National School," currently the city council's office, and the other to the "Flour Store." Upon occupying the school, the soldiers removed the council's furniture.

Advising Brig. Gen. Winfield Scott of his action, Colonel Eustis recommended that, if St. Augustine were to become a permanent United States military post, the "old buildings" known as St. Francis Barracks, "should be repaired and occupied by the Troops." Such a project would be expensive, but the barracks, if rehabilitated, could accommodate four companies.[17]

General Jackson, upon being apprised of the controversy, supported the civil authority. On October 1, five days before he resigned as governor, Jackson notified Worthington that, as acting governor of East Florida, he was entitled to occupy the government house. The military, however, must be provided with quarters in either the fort or town.[18]

Acting Governor Worthington, on receipt of Jackson's letter, wrote Colonel Eustis requesting that, as soon as convenient, the Army

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16. Resolution of City Council, Sept. 27, 1821, found in ibid., p. 218.

17. Eustis to Scott, Oct. 1, 1821, NA, RG 92, Consolidated Correspondence File; Bell to Jackson, Oct. 8, 1821, found in Florida Territorial Papers, Vol. XXII, p. 246.

18. Jackson to Worthington, Oct. 1, 1821, found in Florida Territorial Papers, Vol. XXII, p. 225.

evacuate the government house. This, the military acceded to without delay.[19]

C. President Monroe Apportions the Public Buildings

The problem regarding a fair division of the St. Augustine public buildings among the Army and the civil authorities was brought to President Monroe's attention. Upon reviewing the documents, the Chief Executive held that the military "ought to yield every accommodation" in its power to the civil officers. He supposed that, with suitable exertion, the soldiers "might put their barracks in state to keep them warm, by chimneys, in the winter, and admit as much air by windows as would prevent contagion." Funds to underwrite these improvements could be drawn from contigencies.[20]

Then, on November 30, 1821, President Monroe, to prevent additional bickering, allotted these St. Augustine structures to the War Department for administrative purposes:

(a) Fort St. Marks "with all the space immediately around it, recognized by the Spanish authorities as public property";
(b) the building and lot referred to by the Spanish as the monastery or St. Francis barracks;
(c) the building adjacent thereto, formerly occupied as barracks by Spanish soldiers;
(d) the buildings known as the "National School" and "Flour Store" and their lots; and
(e) the magazine and area about it.[21]

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19. Eustis to Worthington, Nov. 8, 1821, found in ibid., p. 270.

20. Monroe to Calhoun, Oct. 11, 1821, NA, Ltrs. Recd., Secretary of War.

21. Calhoun to Eustis, Nov. 30, 1821, found in Florida Territorial Papers, Vol. XXII, pp. 285-86.

In view of the President's decision, Colonel Eustis turned the government house, garden, and lot over to Acting Governor Worthington. To get the troops out of the council room (National School), Eustis ordered his quartermaster to rent quarters in the city. As soon as they were procured, Bell's company moved out, and the structure was placed in charge of the civil authority. The "Flour Store," currently quartering Capt. William F. Hobart's company, was vacated in favor of the monastery as soon as it had been rehabilitated. The Flour Store then became the post hospital.

Yellow fever during the autumn felled nearly all the St. Augustine artisans, along with many of the troops, a circumstance that delayed placing the military in proper quarters.[22]

D. Fort St. Marks Serves the Military as a Depot and the Region as a Prison

After the troops moved out of the fort in late September, it was used as a magazine for ordnance, quartermaster, commissary, and medical stores and supplies. Consequently, a 24-hour guard was mounted and maintained. Then, in October, Captain Bell employed the fort as a prison. A Mr. Fairbanks was arrested on a charge of "negro-stealing" and confined there.[23]

Meanwhile, in accordance with Colonel Eustis' orders, a frame structure to be used as a hospital was erected on the fort terreplein.

There was no jail in East Florida, so the St. Augustine City Council, in August 1822, addressed a request to Secretary of State

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22. Eustis to Calhoun, Dec. 18, 1821, found in ibid., pp. 306-07; detachment orders, No. 34, Hqrs. St. Augustine, Dec. 21, 1821, NA, RG 92, Consolidated Correspondence File.

23. West to Monroe, Nov. 5, 1821, Florida Territorial Papers, Vol. XXII, p. 267.

Adams, asking that Fort St. Marks be made available to the civil authorities as a prison. Under the Spanish, it was pointed out, the fort had been employed as such. At present, the only military force in the fort was a sergeant's guard.[24]

The Secretary of State, not having jurisdiction over the fort, informed the City Council that it would have to take up this matter with the War Department. Accordingly, Territorial Delegate Joseph M. Hernandez called on Secretary of War Calhoun to direct the post commander at St. Augustine "to permit the use of dry and wholesome apartments in Fort St. Marks . . . for the Confinement of criminals and debtors until the resources of the territory will enable it to build a jail."[25]

On March 27, 1823, Secretary Calhoun directed Colonel Eustis to make available to the civil authorities that part of the fort necessary for a public prison.[26]

This was done, and several of the "habitable" casemates were assigned to the territorial officials. By September 1826, the deputy marshal was using a number of casemates, the sheriff two, and the post commander was employing two as magazines, two for ordnance stores, and one as a commissary storeroom.[27]

Some 20 months later, certain of the casemates were pressed into service by the military as quarters for the detachment building the

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24. Forbes to Adams, Aug. 20, 1822, found in ibid., Vol. XXII, p. 511.

25. Hernandez to Calhoun, March 11, 1823, found in ibid., p. 645.

26. Calhoun to Hernandez, March 27, 1823, NA, Ltrs. Sent, Secretary of War.

27. Brown to Jesup, Sept. 20, 1826, NA, RG 92, Consolidated Correspondence File. Lt. Harvey Brown was post quartermaster in 1826.

bridge across the San Sebastian River. As soon as the bridge was completed, the detachment moved on.[28]

E. Fort St. Marks Becomes Fort Marion

Meanwhile, the War Department plagued by the confusion resulting from there being two Fort St. Marks, one at St. Augustine and the other in West Florida, took action to resolve this difficulty. On January 7, 1825, Adj. Gen. Charles J. Noures signed a general order redesignating the military post at St. Augustine as Fort Marion.[29]

F. October 1826 Storm

Considerable damage was done to private and public property by a hurricane which hammered the East Florida coast on October 2, 1826. At Fort Marion, the woodyard and stable fences were badly battered, and a stables demolished.[30]

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28. Brown to Jesup, June 11, 1828, NA, RG 92, Consolidated Correspondence File.

29. General Order No. 1, Jan. 7, 1825, NA, RG 94, General Order Book.

30. Canfield to Jesup, Oct. 4, 1825, NA, RG 92, Consolidated Correspondence File. Second Lt. A. Canfield was post quartermaster.

G. Fort's Armament

The Spanish military, when they evacuated St. Augustine and sailed for Cuba in July 1821, left at Fort St. Marks 25 cannons and mortars. Included were:

24-pounder iron cannons	10
16-pounder iron cannons	11
11-inch brass mortar	1
7-inch brass mortar	1
7-inch brass howitzers	2
Total	25[31]

31. Documents, Legislative and Executive of the Congress of the United States, Miscellaneous, 1809-1823 (Washington, 1834), Vol. II, p. 888.

II. LIEUTENANT TUTTLE'S YEARS: 1833-34

A. War Department Selects a Superintending Engineer

1. East Florida Citizens Urge Repair of the Fort and Seawall

In the autumn of 1832 residents of St. Augustine launched a vigorous campaign to secure federal funding for repair of Fort Marion and reconstruction of the city's seawall. The November grand jury for the East Florida Superior Court called for repair of the fort. "The watch-towers," the jurors noted, were broken, and each day saw the "fissures of its terraces more asunder"; its outworks were "leaning and tottering to the sea, while the night-bird as she sits in the cranny of its ruins, alone seems happy in the desolation."[1]

Following up on this opening salvo, Judge Robert R. Reid, a distinguished St. Augustine resident, wrote Territorial Delegate Joseph M. White that the "castle or fort" completed by the Spanish in 1745 is "going rapidly to ruin, its walls at one or two points are falling into the sea." In 1821, when Florida was transferred by Spain to the United States, Reid continued, the fort "was in good repair, and the money expended upon the barracks" could have "preserved a fine and venerable monument of art," besides making it into a commodious barracks and an impregnable fort. Instead, Fort Marion has been permitted to deteriorate, and was currently used as a jail and magazine. For the latter it was unsuited, "because neglect and time have rendered the roof and walls in many places pervious to moisture, and besides, it is near half a mile from the garrison."

Apart from other considerations, the fort "would be most important in the event of servile insurrection, a contingency which, in a slaveholding country, we are always obliged to hold in consideration." Should there be a panic, such as occurred recently in Georgia, Fort

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1. George Hibbs & Per B. Gibbs to Reid, November 1832, found in American State Papers--Military Affairs (Washington, 1860), Vol. V, p. 133.

Marion "in good repair would afford a safe asylum to women and children." Indeed, Reid wrote, it would "impart a sense of strength and security to all of East Florida." Every day's delay in beginning repair of the fort increased the cost, and added to the "general dilapidation."

Moreover, he continued, "the preservation of this great work (which cost so much originally that when the accounts were presented to the Spanish King, he asked if the walls were made of silver)" was a source of pride to the community. Long-time residents, in speaking of the fort's ruinous condition, contrasted it "with the favor and attention bestowed" upon it by the monarchy.

There had been, Reid observed, a seawall extending from the castillo to the southern extremity of the town, which shielded the inhabitants and their property from encroachments by the surf. Part of this wall had been dismantled by the United States to construct a wharf fronting St. Francis Barracks. This breach and others exposed the city and its residents to gradual but certain injury. Unless arrested by a seawall, such as the Spanish had built, they feared that there would soon be a storm bringing heavy loss of property and life.[2]

Post commander Capt. G.S. Drane, when called upon, estimated the cost of materials for repairing Fort Marion and reconstructing the seawall at:

1,200 squares of stone, at $8 per square	$ 9,600
6,000 bushels of shell lime, at 12-1/2¢ per bushel	750
16,000 bushels of sand at 3¢ per bushel	300
10,000 feet 1-1/2-inch plank at $20 per thousand	2,000
10,000 feet of scantling, at $18 per thousand	1,800
5,000 feet 1-1/4-inch plank, at $20 per thousand	1,000
15,000 bricks, at $16 per thousand	2,430
2 large float boats	450
Contingencies	800
Total	$19,130

2. Reid to White, Jan. 24, 1833, found in ibid., Vol. V., pp. 132-33.

Mechanics, Captain Drane noted, could be hired for $1.50 to $2 per day, and laborers at $12 a month.[3]

2. Lieutenant Tuttle Protests His Assignment

Delegate White was a good lobbyist, and made careful use of the information provided by his constituents and Captain Drane. Consequently, the 2d Session of the 22d Congress favorably considered the issue, and on March 2, 1833, President Andrew Jackson signed into law an "Act making appropriations for the engineer and ordnance departments." This act included $20,000 for repair of Fort Marion and reconstruction of the St. Augustine seawall.

Chief Engineer Charles Gratiot, in considering whom he should place in charge of these projects, recalled that Lt. Stephen Tuttle had previously discussed with the Department the possibility of an assignment to a southern station. Accordingly, on March 13, General Gratiot notified Tuttle that he was to be relieved as superintending engineer for repair of the Delaware River fortifications by Capt. Richard Delafield. Tuttle would then proceed to St. Augustine and take charge of repair of Fort Marion and reconstruction of the seawall.[4]

Tuttle, New Jersey-born, had graduated No. 1 in the U.S. Military Academy Class of 1820. He was commissioned a 2d lieutenant in the Corps of Engineers, and remained at West Point until July 1821 as assistant professor of Natural and Experimental Philosophy. Lieutenant Tuttle served as assistant to the Board of Engineers, 1821-22; as the Corps' disbursing agent, 1822-23; as assistant engineer for construction of the defense of New Orleans, 1823-26; as assistant engineer for construction of Fort Caswell, North Carolina, 1826-27; and as assistant

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3. Drane to Reid, Jan. 9, 1833, found in ibid., Vol. V, p. 133.

4. Gratiot to Tuttle, March 13, 1833, NA, RG 77, Ltrs. Sent, Chief Engineer; The Public Statutes at Large of the United States of America . . . (Boston, 1846), Vol. IV, p. 642.

engineer for construction of Fort Morgan, Alabama, and improvements to navigation of Pass au Héron, 1828-29. He was promoted 1st lieutenant on May 24, 1828. Tuttle, in 1829, was named superintending engineer for repair of the Delaware River fortifications. In 1831-32 he was detailed to oversee construction of the National Road in Ohio, and the following year found him back on the Delaware River.[5] Tuttle's credentials were impressive, but he had a reputation in the Corps as a heavy drinker.

Lieutenant Tuttle was distressed by his new assignment. Writing General Gratiot, he noted that his desire for a southern station had been predicated on two conditions--the ill health of his wife and the probability that, under the recently enacted "Fortifications Bill," he would be given the position of superintending engineer at one of the Third System southern forts. He was "entitled by useage, by rank and by every claim to a station which shall not be temporary in its nature." He would be pleased with the St. Augustine detail but for its "being a class of inferior duties," and if he were assured that by next winter he would have a more important defense.

Moreover, he had no desire to leave the Delaware, provided he was assured of being continued on his present projects. If Captain Delafield's National Road duties detained him through the summer, Tuttle preferred remaining on the Middle Atlantic coast until October.[6]

Replying, Chief Engineer Gratiot noted that the Department recognized no principle other than good of the service in the assignment of its officers. Consequently, it could not admit the right of any officer "to decline a service on the ground that it falls within what

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5. George W. Cullum, Biographical Register of the Officers and Graduates of the U.S. Military Academy, from 1802-1867 . . . (New York, 1879), Vol. 1, p. 196.

6. Tuttle to Gratiot, March 21, 1833, NA, RG 77, Ltrs. Recd., Chief Engineer.

he may be pleased to term, the class of inferior duties. Nor could it give the assurance alluded to that during the winter of 1833-34, Tuttle would be assigned to a "more permanent" project. Lieutenant Tuttle was to hold himself in readiness to be relieved by Captain Delafield. Upon Delafield's arrival in Philadelphia, Tuttle would proceed without delay to St. Augustine.[7]

Reflecting on General Gratiot's letter, Tuttle concluded that the Department had placed an improper inference on his motives. Writing Gratiot, he protested that he had no intention of disobeying orders or declining to take charge of the St. Augustine projects. He was aware of his duties as a soldier. As he had interpreted the Department's March 13 letter, it only alerted him to hold himself ready for reassignment to Florida. It was to a prospective order that he had objected. His communication of the 21st, Tuttle reassured the Department, was "merely explanatory of my wishes and my views as to what I presumed I had a right to expect."[8]

Chief Engineer Gratiot, on learning that Tuttle planned to leave Philadelphia for Florida in late April, forwarded to him all the data the Department had on the projects--a pamphlet titled, "Fort Saint-Marks or Marion at St. Augustine."[9]

B. Tuttle Formulates a Program

1. He Seeks Additional Guidance

Four weeks later, on April 24, 1833, Lieutenant Tuttle notified the Department that his wife was seriously ill. They had planned

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7. Gratiot to Tuttle, March 23, 1833, NA, RG 77, Ltrs. Sent, Chief Engineer.

8. Tuttle to Gratiot, March 24, 1833, NA, RG 77, Ltrs. Recd., Chief Engineer.

9. Gratiot to Tuttle, April 15, 1833, NA, RG 77, Ltrs. Sent, Chief Engineer.

to leave New York City for Charleston on next Saturday's packet, but this led him to ask the Chief Engineer for authority to delay his departure until his spouse was sufficiently recovered to accompany him.[10]

General Gratiot was agreeable. By Saturday, May 11, Mrs. Tuttle had recovered from her bout with the fever, and she and her husband boarded the Charleston packet.[11]

The packet's sailing was delayed by perverse winds until the 13th, and she docked at Charleston on Sunday, the 26th. Tuttle, on landing, was disappointed to learn that coach service south of the St. Marys River could not be relied upon. His efforts to charter a vessel for a reasonable price ($150 or less) to take them to St. Augustine were unsuccessful.

Conversations at the busy South Carolina port, with persons familiar with St. Augustine, led Tuttle to conclude that "but little repairs are required to replace a small portion of the Scarp wall of Fort Marion; and that the remaining repairs comprised [are] on the portion of 'Sea Wall' situated between Fort and the Town." The seawall, he was told, necessarily connected with the defense of the harbor. Problems had been created by removal of a section of seawall fronting St. Francis Barracks by the military to facilitate construction of a wharf. This had resulted in a serious erosion problem. Already, part of the street paralleling the beach had disappeared into the Matanzas River. If allowed to continue, the surf would soon undermine the barracks.

Notifying the Department of what he had heard, Tuttle called for instructions as to "how far the funds may be apportioned to the

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10. Tuttle to Gratiot, April 24, 1833, NA, RG 77, Ltrs. Recd., Chief Engineer.

11. Gratiot to Tuttle, April 26, 1833, and Tuttle to Gratiot, May 4, 1833, NA, RG 77, Ltrs. Sent & Recd., Chief Engineer.

construction of the sea-wall connected only with the security of the beach in front of town, exclusive of the parts necessarily connected with Fort Marion."

Available data was insufficient to enable Tuttle to prepare an accurate estimate of funds requisite for repair of the Fort Marion scarp. He, however, believed that $8,000 would suffice. Since it would be impracticable for him to return to Charleston until October he called on General Gratiot to transmit this sum as soon as feasible. This would enable him to make arrangements, before July 1, for the "immediate security of the walls of the Fort."

Because the scope of the seawall's repair was dependent on the whims of the Department, Tuttle would submit no estimate for that phase of the project, until such time as he had an opportunity to visit the site and prepare plans.[12]

Chief Engineer Gratiot reminded Lieutenant Tuttle that, before any funds could be advanced, it was mandatory for him to submit a detailed estimate of the sum needed to meet the "wants of the works, as ascertained from actual inspection."

In regard to the nature of the projects, all Gratiot could do was to quote from the act making the appropriation. It read "for the repairs of the Spanish Fort Marion, at St. Augustine and for reconstructing the sea wall, to prevent the encroachments of the sea, at and near the same."[13]

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12. Tuttle to Gratiot, June 2, 1833, NA, RG 77, Ltrs. Recd., Chief Engineer.

13. Gratiot to Tuttle, June 10, 1833, NA, RG 77, Ltrs. Sent, Chief Engineer.

2. Tuttle Submits a Preliminary Program

By mid-June Lieutenant Tuttle reached St. Augustine. He and his wife made the trip to Florida aboard one of the two vessels engaged in the Charleston-St. Augustine trade. Borrowing a set of drawings from the post commander, Tuttle sketched out for the Department a proposal. Points A and B, which he had penciled in, on the fort's "outwork" had been undermined by the sea and had partially collapsed. Part of the wall of the bastion, marked D, would have to be rebuilt. The terreplein was "totally decayed--so much as to render the casemates unfit for any purpose until the arches shall be covered with a coating impervious to water."

The scarp walls, Tuttle found, were shot proof. There were five casemates on each front and several connecting rooms in each bastion, all without embrasures.

The fort, Tuttle informed General Gratiot, was as "strong as any work of its magnitude," except for the want of embrasures in its casemates. These were indispensible, both in regard to defense and ventilation. Consequently, he recommended that embrasures be cut through the coquina walls.

The seawall, as built, Tuttle explained, was designed for protection of the fort's glacis and nearby public property. Although its repair was necessary, this section of seawall was not the one in which the local people were interested. They wanted the United States to construct a new seawall to extend from the angle marked A, to the stone wharf fronting the barracks.

Tuttle, as yet, had been unable to formulate a detailed estimate for repair of the fort, because the post commander had neither removed the ordnance stores nor turned over the key to the fort. The taking up of the terreplain surface and an examination of the walls were mandatory to preparation of the estimates, Tuttle reminded the Department.

He, however, was ready to submit a scope of work calling for:

a. removal of the terrace covering of the arches by day labor;
b. recovering the arches with lead and positioning new terrace;
c. cutting embrasures in each of the casemates;
d. repairing the arches and walls where required; and
e. while this work was in progress to carry on the repair of the seawall and the outworks.

Unlike the fort, the seawall could be estimated for, on the assumption that it must be rebuilt for 600 feet, or two-third's of its length. This would require 700 cubic yards of masonry, and cost $10,000.

If the Department approved these projects, as outlined, Lieutenant Tuttle asked General Gratiot to transmit, as soon as practicable, the sum called for. This would enable Tuttle to make arrangements for vigorously prosecuting the work before advent of the "sickly season."[14]

The appropriation, General Gratiot reminded Tuttle, was to be applied to repair of "any injury the work may have sustained; and not to any modification or alteration of it." Tuttle was admonished not to "commence on a scale of operations that will involve an amount greater than the present appropriation." He was to transmit, as soon as possible, a drawing "exhibiting the exact state of the works . . .; specifying particularly where the repairs and rebuilding, alluded to in the law, become necessary, together with the probable cost thereof."[15]

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14. Tuttle to Gratiot, June 20, 1833, NA, RG 77, Ltrs. Recd., Chief Engineer.

15. Gratiot to Tuttle, July 8, 1833, NA, RG 77, Ltrs. Sent, Chief Engineer.

3. Department Rejects Tuttle's Embrasure Proposal

The Department's letter scuttled Tuttle's plan for cutting "embrasures" in each of the casemates. Challenging this decision, Tuttle argued that Fort Marion was "uninhabitable and will remain so for white troops, unless embrasures" are cut through into the casemates. This could be accomplished without damaging the walls, and at an expense commensurate with the advantages derived.[16]

When he submitted his annual report for the year ending September 30, 1833, Tuttle again focused on this question. He was unable to perceive the utility of spending funds on a fort deemed to be "untenable by whites for more than twelve years," and which reports indicate was "never permanently inhabited by white Spanish troops."[17]

4. Tuttle Pares His Program

In view of the position taken by the Department regarding the embrasures, Lieutenant Tuttle advised Chief Engineer Gratiot that the only projects now deemed necessary at Fort Marion were resurfacing the terreplein, at a cost not to exceed $2,500; and reconstruction of the three angles in the scarp fronting on Matanzas River.[18]

5. Tuttle Provides the Department with a Copy of the Ramon de la Cruz Memoir

Meanwhile, on July 10, 1833, Lieutenant Tuttle had located in the files at St. Francis Barracks an important planning document--Lt. Ramon de la Cruz's 1821 memoir describing Fort Marion. The De la Cruz memorandum read:

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16. Tuttle to Gratiot, July 31, 1833, NA, RG 77, Ltrs. Recd., Chief Engineer.

17. Tuttle to Gratiot, Oct. 9, 1833, NA, RG 77, Ltrs. Recd., Chief Engineer.

18. Tuttle to Gratiot, Aug. 21, 1833, NA, RG 77, Ltrs. Recd., Chief Engineer.

No. 1 The Fort

Is in the form of a Trapesium fortified on the four sides whose dimensions are as follows:

The front A overlooking the Town and bordering on the Sea, has to the south its exterior side 89 Royal (varas) yards: the interior 40 yards 2 feet: the perpendicular 13 yards 1 foot: the angle of the centre 97 degrees.

The face of the Bastion E on the same front 27 yards: the flank 9 yards 1 foot: the Curtain 40 yards 1 foot: the flank of the Bastion E, nine yards 1 foot: the face thereof 24 yards.

The front B overlooking the country is 94 yards 2 feet: the interior 46 yards 1 foot: the perpendicular 10 yards 2 feet: the angle of the Centre 88 degrees; the face of the Bastion F on this front 28 yards 2 feet, the flank thereof 9 yards 2 feet 6 inches: the curtain 45 yards, the flank of the Bastion G 10 yards and the face 24 yards 2 feet.

The front C overlooking the Fields and bordering on the sea, has to the north, its exterior side 89 yards 1 foot: the interior 40 yards: the perpendicular 14 yards: the angle of the Centre 89 degrees: the face of the Bastion G upon this front 27 yards 1 foot: the flank thereof nine yards 6 inches, the Curtain 40 yards, the flank of the Bastion H 9 yards 1 foot: and its face 27 yards 1 foot.

The front D overlooking the sea, has the exterior side 92 yards 1 foot, the interior 40 yards 1 foot, the perpendicular 13 yards 2 feet, the angle of the center 90 degrees: the face of the Bastion H upon this front 26 yards 1 foot, the flank thereof 9 yards 6 inches; the curtain 40 yards: the flank of the Bastion E 9 yards 1 foot: the face thereof 27 yards 1 foot 6 inches.

The four angles of the figure divided by the numbers 1, 2, 3, 4, are the first 80 degrees, the second 89, the third 80 and the fourth 90. From the preceding division and the protection of the principal angles it appears that the work is perfectly regular but its defences imperfect.

The scarp is equally thick round the whole of the work, but not in the entire thickness of the wall, as the plan and profiles show: the same of the breadth of the terrepleins, beneath which there are 26 casemates for quarters for troops, magazines of stores and provisions; four of which have a plank floor at half their height with a wooden staircase, also for storage of stores and provisions.

The Bastions are full, except at the salient angles, there are Turrets for sentinals whose exterior diameter are two yards 1 foot, with the exception of the Bastion H, which has a Turret, 3 yards 6 inches in diameter, used as a watch tower.

The greatest thickness of the walls at bottom, which are unequal, is 1 yard: all the casemates are half stuccoed: the vaults are 2 feet 2 inches and the layer of the cement upon the Terreplein above them 6 inches: consequently they are not bombproof: One of the Casemates is used as a chapel.

The ramp is 2 yards 1 foot, making its angle as shown in the plan, and on account of the greatness of inclination cannot be used to haul artillery up to the Terrepleins as the profiles show, making it necessary both for the English and Spanish in order to mount their Artillery to form a bridge of two pieces of timber 14 inches square, forming an inclined plane from the centre of the parade to terminate upon the edge of the rampart wall.

The ditch at the Salient Angles 3 and 4 is 11 yards, 2 feet, and at the salient angles 1 and 2, 11 yards 1 foot: the counterscarp of the ditch is half a yard in thickness.

On the front A is the principal door with a standing wooden bridge, which might have a draw bridge, as formerly.

A Ravelin with flanks: without a parapet: the face, on which the bridge communicating with covered way, is 18 yards 1 foot, the flank thereof 3 yards 2 feet: the other face 16 yards 2 feet and the flank 5 yards 1 foot; the scarp is half a yard, and the ditch 6 yards 6 inches, with the counterscarp equal to that of the main ditch: this Ravelin has two Staircases with a centre one of communication.

The covered way is 9 yards 1 foot wide on the front A, B, C; and on the front D from No. 7 to No. 8 is 3 yards 6 inches; with the places of Arms, Traverses and Staircases as the plan shows; the Traverses are of turf.

The parapet of the covered way has no interior slope; its thickness is half a yard of stone and covered with the Glacis, which terminates at 21 yards distance.

The whole of the covered way around the Fort is lined with a Palisade 9 feet in height and from seven to 8 inches thick with proper girders.

In the officers Guard house there is a fire place as represented in the plan, as also in the two contiguous casemates where the soldiers are lodged, each having a separate chimney shaft.

Doors, Windows, and Arcades of Communication of the Casemates

Twenty four doors

Thirty eight windows

The arcade of Communication to the exterior Eight ventilators[19]

6. Dancy's Plan of Fort Marion

During his first weeks at St. Augustine, Lieutenant Tuttle made preparation of a measured drawing of Fort Marion a priority item. By the end of the third week of July 1833, this project had preceded far enough to satisfy him that the Charles Vignoles' "Plan and Section of Fort Saint Mark" was in error insofar as dimensions and number of degrees in certain of the angles.

When he communicated this information to the Department, Tuttle cautioned, work on the project has been retarded by lack of instruments for measuring angles. Nevertheless, he did not foresee any difficulty in "ascertaining and furnishing the drawings of the details from measurements and calculations."

No two fronts were identical, he reported, and every detail has to be measured separately.

Although the St. Augustine fortifications were deemed by the Department to be only marginally significant to the Nation's defense, Tuttle's professional reputation dictated that he not send to Washington an inaccurate plan or faulty estimate.[20]

It was the beginning of August before Tuttle completed the measurements. When he apprised Chief Engineer Gratiot of this, he

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19. De la Cruz Inventory, undated, copy enclosed with Tuttle's letter of July 12, 1833, to Gratiot, NA, RG 77, Ltrs. Recd., Chief Engineer.

20. Tuttle to Gratiot, July 21, 1833, NA, RG 77, Ltrs. Recd., Chief Engineer.

promised to finish the drawings in the near future and send them north on the next Charleston packet.[21]

Such was not to be. On September 1 Tuttle wrote the Department that, in plotting the information secured from his measurements, he found that the dimensions varied "widely" from the Vignoles plan and Lieutenant De la Cruz's description. The former exceeded Tuttle's figures while the data cited in De la Cruz's inventory was "much less" in all details, except for the length of the curtains.[22]

This was as far as Tuttle went with this project. In June 1834, upon relieving Tuttle, Lt. Francis S. Dancy called on him and asked to see the corrected drawing of Fort Marion. Tuttle said he could not find it. Instead, he handed Dancy a "Plan and Section of Fort Saint Mark at Saint Augustine, drawn from a Plan of the British Engineer's Depart. by Charles B. Vignoles."

Like Tuttle, Dancy found the dimensions of the fort as laid down on this drawing incorrect. Dancy accordingly had to remeasure Fort Marion, and prepare a new "Plan of Fort Marion or Fort Saint Marks, Saint Augustine, Florida." This drawing he transmitted to Chief Engineer Gratiot on October 21, 1834.[23]

7. Tuttle Submits His Estimates for Expenditure of the $20,000 Appropriation

Lieutenant Tuttle, although he had been at St. Augustine for five weeks, was disappointed by the Dpartment's failure to comply

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21. Tuttle to Gratiot, July 21 and Aug. 21, 1833, NA, RG 77, Ltrs. Recd., Chief Engineer.

22. Tuttle to Gratiot, Sept. 1, 1833, NA, RG 77, Ltrs. Recd., Chief Engineer.

23. Dancy to Gratiot, Oct. 21, 1834, NA, RG 77, Ltrs. Recd., Chief Engineer. Copies of the Vignoles drawing and the Dancy plan are on file at Castillo de San Marcos National Monument.

with his requisition for $10,000 to underwrite the cost of operations. Upon complaining of this, Tuttle apprised Chief Engineer Gratiot that information secured, while measuring the fort, caused him to change his mind on the scope of several projects cited in his June 20 letter. What he had seen led him to conclude that about 1,500 yards of masonry would have to be rebuilt, at a cost of $5 per cubic yard.

The terreplein would not have to be sealed with lead as he had supposed. He planned to cover it with a coat of cement composed of water, lime, shells, sand, and tar, at a cost of $3,000. This would "answer all purposes of the original design of the work," and could be maintained by three men properly supervised.

Tuttle also advised Washington that the casemates were not bombproof, because their thickness at the crown, including the cement covering, was only from 20 to 35 inches.[24]

On August 29, 1833, Lieutenant Tuttle forwarded the detailed estimates called for by the Department seven weeks before. The cost of procuring stone, he noted, had been entered at 12 cents per foot rather than 8 cents as anticipated. This was because conversations with persons versed in the use of coquina had led to the conclusion that stone of requisite dimensions for a seawall, exposed to the hammering of surf, could not be procured for less. The estimates called for:

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24. Tuttle to Gratiot, July 21, 1833, NA, RG 77, Ltrs. Recd., Chief Engineer.

Workmanship	Category	Extent	Cost	Remarks
Sand, shells, lime	Replacing the terrace covering of arches for the terreplein	6,500	$ 585.00	The materials to be in a proportion of 2 lime, 2 shell, and 1 sand
Labor, days	Workmanship for above	260	195.00	
Repairing terrace floors, square feet	Floors of casemates	10,000	300.00	
Stone cubic yards	Reconstructing seawall	*2,577	5,375.25	*This estimate based on 50 men can quarry 1,000 feet per day at $37.50
Workmanship in laying stone	Reconstructing seawall	2,577	5,154.00	
Workmanship in taking down and reconstructing water battery	Water Battery	400	2,000.00	45 horses can transport same at 45.00
Repair of door, window gratings, windows, and woodwork of the casemates	General Repair		1,000.00	6 men can transport same across river 4.50 6 men to aid in landing 4.50 1 principal quarry man 2.00
Excavating, reopening old arches which had been closed, removal of rubbish, cleaning up fort and out ditches	General Repairs	1,000	750.00	Cost per 1,000 cubic feet $93.50
Construction of arch to replace a wooden support which has fallen in over a small room in NE bastion	General Repairs	20	140.00	
Repair of temporary bridges across ditches	General Repairs		80.00	
Construction of sufficient bridges at close of operations	General Repairs		200.00	

Repair of 4 lookout towers	General Repairs	200.00
Contingencies		1,020.26
Total		$20,000.00[25]

Chief Engineer Gratiot, in accordance with procedures, reviewed and approved Tuttle's estimates. He also ordered the Secretary of the Treasury to act on Tuttle's requisition for $10,000.[26]

C. Repairs to and Maintenance of Fort Marion

1. Tuttle Accepts Responsibility for the Fort

To facilitate repair of Fort Marion, preparations were made to transfer responsibility for the structure from the post commander to the Corps of Engineers. Although Captain Drane had agreed to this verbally, it was decided to formalize the situation. Consequently, on June 26, 1833, Lieutenant Tuttle made a written request to be placed in possession of the fort. On doing so, he noted, this was being done to comply with regulations, because their relations had been amicable.[27]

Replying, Captain Drane announced that on Friday, the 28th, he would turn over to Tuttle those parts of Fort Marion for which he was responsible, excepting the powder magazine. This he would retain because the garrison's powder was stored within. He had written Chief of Ordnance George Bomford to apprise him of this situation, and the need for a safe storage facility elsewhere for the powder.

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25. Tuttle to Gratiot, Aug. 29, 1833, NA, RG 77, Ltrs. Recd., Chief Engineer.

26. Gratiot to Tuttle, Sept. (no day of month), NA, RG 77, Ltrs. Recd., Chief Engineer.

27. Tuttle to Drane, June 26, 1833, NA, RG 77, Ltrs. Recd., Chief Engineer.

In addition, there were two fort casemates over which Drane had no control. These were used by District Marshal Samuel Blair as a county jail.[28]

2. Fort and Lieutenant Tuttle

a. Cleaning, Maintaining, and Policing the Fort and Grounds

On June 28, 1833, as soon as Captain Drane turned over the keys to the fort, Lieutenant Tuttle employed 20 laborers to remove "the rubbish of the arches in the bastions--the covering of the arches, and such other obstacles as are in the way of a thorough examination of the Fort."[29]

Writing the Department on July 3, Tuttle reported that his men were "ventilating the arches with fire and . . . removing the rubbish." Fort Marion, he continued, had not been garrisoned by the military since the autumn of 1821, except for those casemates appropriated as storerooms by the Ordnance Department. Moreover, there were some casemates that had never been "opened or examined" by United States troops.

What he saw confirmed his opinion that the fort would be "uninhabitable" unless the casemates were embrasured.[30]

By mid-July, workmen had opened three casemates that had been closed by the Spanish or British military. In one of these human bones were found.[31]

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28. Drane to Tuttle, June 27, 1833, NA, RG 77, Ltrs. Recd., Chief Engineer.

29. Tuttle to Gratiot, June 26 and July 3, 1833, NA, RG 77, Ltrs. Recd., Chief Engineer.

30. Tuttle to Gratiot, July 3, 1833, NA, RG 77, Ltrs. Recd., Chief Engineer.

31. Tuttle to Gratiot, July 10 and 21, 1833, NA, RG 77, Ltrs. Recd., Chief Engineer. Tuttle theorized that these casemates had been closed up because of their "inutility."

By the end of September, when Tuttle submitted his annual report for the year, his workmen had "thoroughly cleansed" the fort. Grass and weeds had been removed from the walls; the ditch freed of rubbish; bridges replaced; broken tapia removed; casemates ventilated and "purified" by fire; and the outworks policed.[32]

b. Tuttle Evaluates the Structure

Fort Marion was a well built work, Tuttle informed the Department. Its coquina was superior to the best brick in the Nation's First and Second System Forts. Except for its wooden doors and window frames, it was in as good repair as any Second or Third System fort on which Tuttle had been employed.[33]

Tuttle, however, deemed maintenance of the fort a useless expenditure, because of its limited utility. The casemates, without embrasures, were unhealthy for troops, and could only be employed for storage. In wartime this use would be largely circumscribed because the casemates, excepting two or three in each of the bastion salient angles, were not bombproof.[34]

3. Dancy Takes Charge

a. He Calls for Repair of the Water Battery

In June 1834 Lieutenant Dancy relieved Tuttle. Upon doing so, Dancy was shocked to discover that no repairs had been made to the angles of the water battery, and that one had crumbled into the sea.[35]

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32. Tuttle to Gratiot, Oct. 9, 1833, NA, RG 77, Ltrs. Recd., Chief Engineer.

33. Ibid.

34. Tuttle to Gratiot, Oct. 9, 1833, NA, RG 77, Ltrs. Recd., Chief Engineer.

35. Dancy to Gratiot, June 7, 1834, NA, RG 77, Ltrs. Recd., Chief Engineer.

Dancy hoped to soon provide Chief Engineer Gratiot with a plan of the seawall fronting the water battery. Unless this structure was repaired, it would quickly crumble, because the surf had undercut it at several places, and the "angles have fallen down, and are continuing to fall down daily."

He recommended that the government take measures to prevent the water battery from "going to ruins, as a monument of other time, and as recalling many incidents in our history which are very interesting." This was particularly true, as the cost of repair would not exceed several thousand dollars.[36]

The $20,000 appropriation nearly exhausted and much of the money squandered, the Department was in no mood to act on Dancy's proposal.

b. Projects Accomplished in the 12 Months Ending September 30, 1834

In October 1834, upon closing down the project, Lieutenant Dancy reported that grass and vines were rapidly returning to the walls and ditch. His predecessor, before being relieved, had floored one casemate and ceiled it to a height of 8 feet to serve as a magazine; a second 34- by 16-foot casemate had been ceiled and floored as a filling room and two doors hung; while a third casmate (25 by 16½ feet) had been floored as a storeroom and a door and two window shutters hung.

Dirt and rubbish had been removed from two parade wells, though one had since been refilled. There were on hand for continuing the fort's repair 1,000 feet of squared pine timber, and 80 bushels of sand, lime, and pounded stone for resurfacing the terreplein.[37]

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36. Dancy to Gratiot, July 12, 1834, NA, RG 77, Ltrs. Recd., Chief Engineer.

37. Dancy to Gratiot, Oct. 20, 1834, NA, RG 77, Ltrs. Recd., Chief Engineer.

D. Government Quarries Coquina on Anastasia Island

1. United States Secures the Right to Quarry

Lieutenant Tuttle's expectations that he would be able to purchase stone for repair of the fort and seawall, delivered, were dashed. Local enterprise was lacking, and he was unable to induce anyone to undertake a contract for quarrying and transportation of coquina.

Plans were therefore made by Tuttle for the government to quarry and transport stone to the site. A hitch developed, when several individuals claimed ownership of the Anastasia Island public quarries in accordance with Spanish land grants. To solve this impasse, Tuttle met with the United States District Attorney. Several oldtimers were called upon to examine landmarks and to submit affidavits.[38]

Lorenzo Gracesqui and Francis Marion visited the King's (public) Quarries. The former, who had quarried coquina for Jesse Fish (deceased) some 25 years before, pointed out the boundary between Fish's property and the King's Quarries. Gracesqui identified the line as extending about one mile from Fish's north boundary to a stake near a cluster of scrub oaks in the trail leading to the lighthouse.[39]

Marion recalled that the boundary separating the Fish estate from the King's Quarries was near the point identified by Gracesqui. The line, he continued, was "a considerable distance south of the old well where the encampment of the Spanish criminals" was located.[40]

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38. Tuttle to Gratiot, Aug. 21 and 29, 1833, NA, RG77, Ltrs. Recd., Chief Engineer.

39. Gracesqui's Affidavit, Aug. 23, 1833, NA, RG 77, Ltrs. Recd., Chief Engineer.

40. Marion's Affidavit, Aug. 26, 1833, NA, RG 77, Ltrs. Recd., Chief Engineer.

Upon being advised of these difficulties, Chief Engineer Gratiot called on Tuttle to make arrangements with the landowner(s) for the United States to work the quarries.[41]

Meanwhile, a compromise was negotiated for the United States with the Fish heirs by the city fathers. It was agreed that Lieutenant Tuttle would be allowed to quarry stone for the projects "free from all cost, charge or claim of the said heirs." In cutting the coquina, Tuttle was to "confine himself to the part of the island" conceded by Gabril W. Perpall to belong to the United States.

This privilege was not to be construed as authority for the government to cut or quarry any stone south of a stake set by Joseph S. Sanchez, 298 chains and 12 links, measured via the road south of the lighthouse.[42]

2. Stone Qualities Delight Tuttle

Lieutenant Tuttle was delighted with the quarries. When he turned his hands to in late September, they were directed to cut the coquina in blocks 6 feet long by 5 to 2 feet in width.[43]

His enthusiasm continued to build up during the next seven weeks. The blocks being cut required no dressing, and were removed from the quarries "as regular as hewn timber." Those from the lower two strata averaged from one to two cubic yards each. The coquina was cut by specially made axes and pick axes, and the size of the blocks depended on the thickness of the strata. The upper stratum

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41. Gratiot to Tuttle, Sept. 10, 1833, NA, RG 77, Ltrs. Sent, Chief Engineer.

42. Tuttle to Gratiot, Sept. 5, 1833, NA, RG 77, Ltrs. Recd., Chief Engineer.

43. Tuttle to Gratiot, Oct. 9, 1833, NA, RG 77, Ltrs. Recd., Chief Engineer.

was about one foot in depth, the middle about two feet, and the bottom varied from two to four feet in thickness.

Tuttle was so impressed with the coquina's properties (its strength and resistance to splintering) that he believed it could be used to advantage in the Third System Forts under construction at Cockspur Island on the approaches to Savannah and on the Middleground in Charleston Harbor. He recommended that the superintending engineers, in charge of these projects, be ordered to Anastasia Island to examine the coquina, with a view to its use in lieu of brick for scarp walls.[44]

The Department considered and then dropped Tuttle's suggestion.

3. Quarries in the Summer of 1834

After relieving Tuttle in June 1834, Lieutenant Dancy visited the Anastasia Island Quarries. He found that not less than 400 squares of 100 cubic feet of stone had been removed, and that an unlimited quantity could be secured by extending the quarry.

Of the coquina removed, 265.91 squares had been laid-up in the seawall, while there were about six squares lying loose on the wall, where they had been delivered by John M. Hanson. Another four or five squares were on the island.

Dancy was disturbed to learn that Hanson and several others, in accordance with authority given by Lieutenant Tuttle, had removed 50 to 75 squares of stone from the island. When Dancy protested, Hanson exhibited a letter from Tuttle stating that Hanson was to be paid in part with coquina from the government's quarries.[45]

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44. Tuttle to Gratiot, Oct. 12 and Nov. 30, 1833, NA, RG 77, Ltrs. Recd., Chief Engineer.

45. Dancy to Gratiot, Oct. 20, 1834, NA, RG 77, Ltrs. Recd., Chief Engineer.

4. Closing Down the Quarries

If the project were to be closed, Dancy needed guidance. He wished to know if the houses and other improvements at the quarries were to be sold. If they were, he cautioned, it would be impossible to realize more than a small percentage of the $1,000 they had cost.[46]

Upon being advised by the Department to sell the public property, Dancy disposed of everything, except a gin and the frame house and kitchen. No bids were received for the gin, while only $40 was offered for the house and kitchen. This was a sum so ridiculously low that it was decided to let them stand on the chance that they might be required in the future.[47]

E. Appropriation is Squandered on the Seawall

1. Goaded by Citizens the Department Changes its Goals

There was much local opposition to the language of the act making the $20,000 appropriation for repair of Fort Marion and the seawall. Consequently, on August 13, 1833, a memorial was addressed to Lieutenant Tuttle. The petitioneers noted that it would be a mistake to "reconstruct" the wall on the foundations of the old, because its utility would be diminished and its cost increased by giving it a "circuitous instead of a direct course."

Tuttle was called upon to suspend work on the seawall, while making the citizens' wishes known to the War Department.[48]

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46. Dancy to Gratiot, July 12, 1834, NA, RG 77, Ltrs. Recd., Chief Engineer.

47. Dancy to Gratiot, Oct. 20, 1834, NA, RG 77, Ltrs. Recd., Chief Engineer. At the quarries there were two frame houses, one a three-room structure, with a kitchen, that had served the superintendent as quarters, and the other a kitchen for the hands. There were also three palmetto huts.

48. Memorial from Citizens to Tuttle, Aug. 13, 1833, NA, RG 77, Ltrs. Recd., Chief Engineer.

Secretary of War Lewis Cass, upon reviewing the memorial and the legislative file, decreed that the seawall be "built without regarding the old structure, and in such a manner and position," as in Lieutenant Tuttle's opinion, "will best subserve the purpose of protection to the Fort."[49]

When he submitted his annual report for the year ending September 30, 1833, Lieutenant Tuttle informed the Department that he considered reconstruction of the seawall vital to the interest of St. Augustine, as well as to the preservation of the harbor. He was of the opinion that an equal sum cannot be more appropriately spent in East Florida than for "continuation of the seawall to protect the city from the violent gales" to which the area is subjected. He, however, did not deem "it a duty" upon which he should be placed, though he would not "hesitate to perform any duty required by my country." He recommended that, if Congress voted additional funds for the project, it should be supervised by the Quartermaster Department.

Although not authorized to provide the Department with estimates, he was voluntarily, at the request of the citizens, preparing figures and plans for continuation of the seawall.[50]

Like most of his projects, Tuttle never got around to preparing and submitting a final document. This was another task to which Lieutenant Dancy fell heir.

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49. Gratiot to Tuttle, Sept. 5, 1833, NA, RG 77, Ltrs. Sent, Chief Engineer.

50. Tuttle to Gratiot, Oct. 9 and 12, 1833, NA, RG 77, Ltrs. Recd., Chief Engineer.

2. Tuttle Pushes Construction

Quarrying coquina for the seawall began in October 1833, but it was late November before teams and carts for hauling stone from the quarries to the landing were sent to Anastasia Island.[51]

Torrential January rains caused serious delays, especially at the quarries. Nevertheless, cutting of coquina was stopped during the fourth week of the month, on assumption that a sufficient quantity was on hand.

The laying-up of blocks into the wall proceeded satisfactorily, notwithstanding the foul weather. If the weather improved and there were no accidents, Lieutenant Tuttle forecast that the project would be completed by mid-March.[52]

February was cold and windy, and the surf hindered work on the seawall. On the 4th the scow capsized with a heavy load of stone, and one of the black workmen was drowned. Considerable time was lost in salvaging the stone, and righting and repairing the craft.[53]

When the owner asked to be reimbursed for loss of his slave, the Department advised him that the United States could not be held responsible for loss of life on its projects.[54]

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51. Tuttle to Gratiot, Nov. 30, 1833, NA, RG 77, Ltrs. Recd., Chief Engineer.

52. Tuttle to Gratiot, Feb. 1, 1834, NA, RG 77, Ltrs. Recd., Chief Engineer.

53. Tuttle to Gratiot, March 1, 1834, NA, RG 77, Ltrs. Recd., Chief Engineer.

54. Gratiot to Tuttle, March 17, 1834, NA, RG 77, Ltrs. Sent, Chief Engineer.

There was a marked improvement in the weather in March. Work on the seawall accelerated. By April 1 more than $18,400 of the appropriation had been disbursed. To enable him to close down the projects and balance his accounts, Lieutenant Tuttle called on the Department to send him the remainder of his monies.[55]

On April 30 Tuttle had bad news for Chief Engineer Gratiot: the wastage of coquina was so extensive that another 20 squares would have to be quarried.[56]

3. Dancy Seeks to Secure the Project

Lieutenant Dancy, upon relieving Tuttle as superintending engineer, faced a difficult task. He was called on to close out a project where a predecessor had lost all control. Visiting the quarries, Dancy found from 6 to 10 squares of cut coquina and 20 or more squares of refuse stone, varying from 4 to 16 inches in thickness, 1 to 3 feet in length, and 6 to 18 inches in breadth. These, he pronounced, suitable for "working up in the wall, and for fill in behind it."

To document for the Department the status of the project, Dancy prepared a sketch of the seawall. Unless measures were taken to complete it, he warned:

> It will probably ere long be washed down, as it has its foundations in many places but little under the surface of the sand, and the water flows freely between the joints of the stone, both vertically and horizontally, and the high tide in many places behind the wall is from 2 to 4 feet deep.[57]

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55. Tuttle to Gratiot, April 1, 1834, NA, RG 77, Ltrs. Recd., Chief Engineer.

56. Tuttle to Gratiot, April 30, 1834, NA, RG 77, Ltrs. Recd., Chief Engineer. A square was 100 square feet.

57. Dancy to Gratiot, June 7, 1834, NA, RG 77, Ltrs. Recd., Chief Engineer. A copy of Dancy's sketch titled, "Ground Plan of the Seawall near St. Augustine, Florida," is on file at Castillo de San Marcos NM.

When he transmitted his monthly returns for June, Dancy informed the Department that it would not be in his "power to make much progress," because they must wait until lime and cement can be shipped down from Charleston.

Also enclosed, the Chief Engineer would find a corrected profile of the seawall, along with an affidavit signed by Lts. Andrew A. Humphreys and Robert P. Smith. As General Gratiot would see, the wall, as laid down in the first drawing, was 60 feet longer than in the Humphreys-Smith Plan. His error, Dancy explained, had arisen from a mistake in noting the number of tapes with which the measurements were taken. The seawall was 870 feet in length, and at its highest point, adjacent to the fort, was about one foot lower than the old Spanish wall at the south end.[58]

4. Unscrupulous Contractor Scores at the Government Expense

The stone laid-up into the seawall by Hanson and his people, Lieutenant Dancy found, was "without a single attribute of stability or regularity." In his calculations, Dancy informed the Department, he had "allowed 1 foot 6 inches for the foundations beneath the surface of the sand." In no instance did it exceed this figure, and for only a short distance was it equal. For about a third of the wall's length, new stone was laid on the foundation of the old. This was, in Dancy's opinion, a serious error, because the old foundations had been undermined until they inclined outward one to two degrees.[59]

Tuttle had told Dancy that Hanson had verbally agreed to quarry, transport, and lay, in a workman-like manner, 28 squares of

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58. Dancy to Gratiot, July 12, 1834, and Humphreys & Smith to Gratiot, June 18, 1834, NA, RG 77, Ltrs. Recd., Chief Engineer. A copy of the Humphreys-Smith drawing is on file at Castillo de San Marcos NM.

59. Dancy to Gratiot, Oct. 20, 1834, NA, RG 77, Ltrs. Recd., Chief Engineer.

stone at $20 per square. But, when Dancy questioned Hanson, the latter claimed that Tuttle was wrong, and that this figure only covered quarrying and delivery of the coquina.[60]

F. Tuttle Copes with Construction-Related Problems

1. Vexing Search for Quarters

Among the problems encountered by Lieutenant Tuttle, on his arrival in St. Augustine, was finding suitable quarters. Post Quartermaster Dancy was no help. Because of the distance between St. Francis Barracks and Fort Marion, more than half a mile, the Tuttles rented housing in the town.

When the Department questioned this expenditure, Tuttle informed General Gratiot that, if he were quartered at the barracks, he would be compelled to get a horse at a monthly expense to the United States of $8. Should the Chief Engineer refuse to sanction his action, Tuttle would be compelled to erect quarters near the fort.

When the subject was referred to Quartermaster General Jesup, he ruled that, because there were vacant public quarters at St. Francis Barracks, Tuttle was not entitled to commutation for rent of housing in the city.[61]

2. Contracting for Medical Care for Black Workmen

Soon after reaching East Florida, Tuttle discussed with Post Surgeon Richard Weightman the question of the physician providing medical attention to workmen on the projects. Upon being apprised of this conversation, Surgeon General Joseph Lovell notified Weightman that, according to Army Regulations, Weightman was not required to look after

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60. Ibid.

61. Tuttle to Gratiot, June 26 and Oct. 24, 1833, NA, RG 77, Ltrs. Recd., Chief Engineer; Dancy to Tuttle, Nov. 1, 1833, and Dancy to Jesup, Nov. 13, 1833, NA, RG 92, Consolidated Correspondence File.

the illnesses or injuries of workmen employed on Corps of Engineer projects.[62]

This presented Tuttle with a dilemma. In hiring slaves to work on the projects, he had agreed that the government would provide medical attention. As a way out of this impasse, he, at Weightman's suggestion, employed Dr. Peter Porcher to attend to the slaves, most of whom were to be employed in the Anastasia Island quarries.[63]

Chief Engineer Gartiot approved Tuttle's action respecting Dr. Porcher.[64]

3. Saga of "Ariel"

a. Lieutenant Tuttle Obtains a Schooner

To facilitate communications with Charleston and transportation and stockpiling of supplies and building materials, Lieutenant Tuttle made arrangements for transfer of the schooner Ariel from the Navy Department to the Corps of Engineers. The craft had been employed by the Live Oak Agent for East Florida.

Terms of the transfer provided that Tuttle was to be responsible for the vessel, and stand ready to return her whenever required by the Navy in "as good order and well conditioned as at present with exception of the customary wear and tear." Should Ariel be lost, the Army was to reimburse the Navy in the sum of $800.

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62. Lovell to Weightman, Aug. 7, 1833, NA, RG 77, Ltrs. Recd., Chief Engineer.

63. Tuttle to Gratiot, Sept. 1, 1833, NA, RG 77, Ltrs. Recd., Chief Engineer. Dr. Porcher would be paid at the rate prescribed for contract surgeons at posts garrisoned by from 50 to 100 men, with an allowance of 33 1/3 percent on the same for medicines.

64. Gratiot to Tuttle, Sept. 11, 1833, NA, RG 77, Ltrs. Sent, Chief Engineer.

Tuttle justified to the Department this transaction by pointing out that currently there was only one packet operating between Charleston and St. Augustine, and that she made "not more than two trips in eight weeks."[65]

On September 10, 1833, the Department approved Lieutenant Tuttle's action.[66]

Late in September, Secretary of the Navy Mahlon Dickerson wrote the War Department that his agency wished to dispose of Ariel. Notifying Tuttle of this, Chief Engineer Gratiot advised that Tuttle was to purchase the schooner at her "original cost," including permanent repairs, if it were in the public interest.[67]

Tuttle did not deem it consistent with his duties to purchase Ariel at the price cited, $800. He had anticipated purchasing her for about $400, including the stores, and did not believe the St. Augustine projects justified a higher price, unless as a transfer from one Department to another. Moreover, there were debts against the craft for which he could be libelled.

Although she had been useful, Tuttle could not concede that the expense attending the schooner's employment was

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65. Tuttle to Gratiot, Aug. 21 and 29, 1833, NA, RG 77, Ltrs. Recd., Chief Engineer; Dictionary of American Naval Fighting Ships (Washington, 1959), Vol. I, pp. 59-60. Ariel sailed for Charleston on her first voyage for the Engineers on August 28. While there, she and her cargo were insured for $1,000. Ariel had been built by Dorgin & Bailey of Baltimore and had been purchased by the Navy in April 1831.

66. Gratiot to Tuttle, Sept. 10, 1833, NA, RG 77, Ltrs. Sent, Chief Engineer.

67. Gratiot to Tuttle, Sept. 28, 1833, NA, RG 77, Ltrs. Sent, Chief Engineer.

indispensable during the remainder of the season. He would retain Ariel until he heard further from the Chief Engineer.[68]

Chief Engineer Gratiot, after reviewing the correspondence and discussing the subject with the Navy Department, directed Tuttle to pay $400 for Ariel.[69]

b. Poor Supervision Sours a Bargain

In November, 1833, the schooner was laid-up for repairs at the Charleston yard of Holmes & Rowand. Captain Hawkins, guided by the Navy's policy, had Holmes & Rowand treat Ariel as if she were a "vessel in the permanent service of the Navy and Treasury Departments." This resulted in a costly overhaul of the craft.

Tuttle was accordingly thunderstruck, when he was billed by Holmes & Rowand. Referring the documents to the Department, Tuttle noted that he was unable to assume responsibility for paying the account, because the appropriation was insufficient to meet this charge and other necessary expenses of the projects.[70]

The Department had no solace. It could not, Chief Engineer Gratiot informed Tuttle, sanction the cost of unwarranted repairs.[71]

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68. Tuttle to Gratiot, Oct. 16, 1833, NA, RG 77, Ltrs. Recd., Chief Engineer.

69. Gratiot to Tuttle, Dec. 11, 1833, NA, RG 77, Ltrs. Sent, Chief Engineer.

70. Tuttle to Gratiot, Feb. 1, 1834, NA, RG 77, Ltrs. Recd., Chief Engineer.

71. Gratiot to Tuttle, Feb. 21, 1834, NA, RG 77, Ltrs. Sent, Chief Engineer.

Ariel continued to haunt Lieutenant Tuttle. Because of his "want of judgement," and the "mistakes of the master," he would be unable to accomplish as much at St. Augustine as desired. To recoupe a portion of the loss, Tuttle broached the possibility of transferring the schooner to the Treasury Department for service as a revenue cutter. If this were done, her value should be placed at $2,000.[72] This proved impossible, because the Treasury Department had no interest in the craft.

c. Dancy Unloads a Lemon

On June 25, 1834, soon after Lieutenant Dancy relieved Tuttle as superintending engineer, General Gratiot directed Dancy to sell Ariel, at the first opportunity. He was to apply the proceeds to the projects.[73]

Not until after the projects shut down did Lieutenant Dancy advertise and sell Ariel and her tackle for $310 to the highest and last bidder. As her keel and bottom planking were honeycombed by teredos, Dancy expressed himself as satisfied with the price.[74]

G. Lieutenant Tuttle Falls on Evil Days

1. He is Relieved by Lieutenant Dancy

The Department, embarrassed and disgusted by Lieutenant Tuttle's handling of the projects, determined to order him to appear before a general court martial. On May 15, 1834, Chief Engineer Gratiot wrote Tuttle charging him with conduct unbecoming an officer and gentleman, disobedience of orders, and neglect of duty. On receipt of

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72. Tuttle to Gratiot, April 1, 1834, NA, RG 77, Ltrs. Recd., Chief Engineer.

73. Gratiot to Dancy, June 25, 1834, NA, RG 77, Misc. Ltrs., Chief Engineer.

74. Dancy to Gratiot, Oct. 20, 1834, NA, RG 77, Ltrs. Recd., Chief Engineer.

this notice, Tuttle was to turn over to Lt. Francis L. Dancy of the 2d Artillery all funds and documents belonging to the St. Augustine projects and to consider himself under arrest and confined to the city.[75]

A North Carolinian, Dancy had graduated from the U.S. Military Academy as No. 10 in the class of 1826. Commissioned a 2d lieutenant in the 2d Artillery, he was ordered to Fort Monroe. He was on engineer duty from October 1828 to August 1829; on topographical duty August 1829 to March 1831; on ordnance duty March to July 1831; and back on topographical duty from July 1831 to December 1832. Promoted to 1st lieutenant, Dancy was ordered to Fort Moultrie, South Carolina, and in 1833 to St. Augustine.[76]

Dancy was an ideal choice for this assignment. Earlier, on learning that Tuttle was unhappy with duty at St. Augustine, Dancy had written General Jesup soliciting the superintendency, provided the project was turned over to the Quartermaster Department.[77]

Chief Engineer Gratiot's letter reached Lieutenant Tuttle on June 2, and the latter notified Dancy that he was to turn over to Dancy the public property for which Tuttle was responsible. When they discussed the situation, Tuttle announced that he was closing his accounts as of June 1, and transferring to Dancy the funds remaining in his hands. In addition, Tuttle continued, contractor Hanson had the money accruing from the sale to him of public property belonging to the projects.

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75. Gratiot to Tuttle, May 15, 1834, NA, RG 77, Ltrs. Sent, Chief Engineer.

76. Cullum, Biographical Register, Vol. I, p. 293.

77. Dancy to Jesup, Nov. 13, 1833, NA, RG 92, Consolidated Correspondence File.

On the 5th, Dancy called on Tuttle and received an invoice of the public property, including the schooner Ariel. As she was of no use in carrying on operations at St. Augustine, Dancy proposed to sell her, and perhaps recover $600 to $700.

When Dancy presented Hanson with a work order signed by Tuttle for $300 to complete the seawall at $20 per square, Hanson declined to accept it. He told Dancy that he had on hand $400 to $500 "arising from the sale of property belonging to the works . . ., and sold by Mr. Tuttle's order." These items, Hanson continued, had been purchased on the understanding that he would quarry and transport stone in that amount.[78]

2. He Faces Court Martial

Acknowledging receipt of his orders, Lieutenant Tuttle informed the Department that the "allegations" against him were so "notoriously unfounded," they would cause him no inconvenience to refute.[79]

When the court martial convened at St. Francis Barracks on June 25, Tuttle found himself charged with: (a) conduct unbecoming to an officer and a gentleman, resulting from frequent appearances in public in a shameful state of intoxication; (b) frequently gambling at billiards and cards in public places; and (c) neglect of duty in not paying proper attention to the public works committed to his care. After listening to considerable testimony, the court judged Tuttle guilty on the first and third specifications, and ordered him dismissed from the Army.

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78. Dancy to Gratiot, June 7, 1834, NA, RG 77, Ltrs. Recd., Chief Engineer.

79. Tuttle to Gratiot, June 15, 1834, NA, RG 77, Ltrs. Recd., Chief Engineer.

President Jackson, on reviewing the sentence, gave Tuttle the option of resigning his commission or being cashiered. If he refused, the President would take such action "upon the subject as Justice may require and the honor of the Army and good of the Service may demand."

Given this option, Tuttle resigned his commission.[80]

3. He Drinks Himself to Death

Meanwhile, Lieutenant Dancy was writing the Department that Tuttle's habits since the court martial were worse than before. Since last summer, Tuttle's "mental faculties" had been in "a state of perfect derangement," and he was unable to transact the "most trifling business."

It had been ten days since Dancy had seen Tuttle, and at that time Tuttle looked extremely unwell, his mind wandered, and he spoke of events that had never occurred. Tuttle now spent his days wandering from grogshop to grogshop.[81]

Tuttle did not have long to live. He died at St. Augustine on January 21, 1835, only days after the Secretary of War had accepted his resignation.

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80. Stephen Tuttle Court Martial, 1834, NA, RG 153.

81. Dancy to Gratiot, Dec. 31, 1834, NA, RG 77, Ltrs. Recd., Chief Engineer.

III. THE FRANCIS DANCY YEARS: 1834-39

A. Congress Agrees to Underwrite Completion of the Projects

1. Local People Press for Another Appropriation

It soon became apparent to residents of St. Augustine that the $20,000 appropriated by the 2d Session of the 22d Congress for repair of the fort and seawall would not suffice to complete these projects. The legislative council accordingly petitioned Territorial Delegate Joseph M. White to employ his "best exertions to obtain additional and sufficient appropriations for the entire accomplishment" of "the repair and preservation of Fort St. Marks" and "reconstruction and extension of the seawall in front of the city . . . from Fort St. Marks to St. Francis Barracks."[1]

The 1st Session of the 23d Congress, which adjourned on June 30, 1834, ignored this appeal and failed to appropriate additional monies for the St. Augustine improvements. Consequently, Lieutenant Dancy, as soon as the small sum turned over to him by Lieutenant Tuttle and the $310 realized from sale of Ariel had been expended, closed down the projects.[2]

To secure back-up data to submit to Congress, when it convened on December 1, 1834, Chief Engineer Gratiot called on Lieutenant Dancy for plans and detailed estimates for continuing reconstruction of the seawall and repair of the fort. When these were not forthcoming, Gratiot, on December 14, wrote Dancy. As these documents had been called for by the House of Representatives, Dancy was to provide them at his earliest opportunity.[3]

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1. Resolution Passed by Legislative Council, Jan. 22, 1834, Proceedings of Legislative Council of Florida, Doc. 301.

2. Gratiot to Dancy, July 14, 1834, NA, RG 77, Misc. Ltrs. Sent, Chief Engineer.

3. Gratiot to Dancy, Dec. 11, 1834, NA, RG 77, Misc. Ltrs. Sent, Chief Engineer.

2. Lieutenant Dancy Prepares and Submits Plans and Estimates

Some six days before, unknown to General Gratiot, Dancy had posted a letter containing the desired information. Among the items enclosed were plans and estimates for necessary repairs to Fort Marion and completion of the seawall. Unless construction was resumed on the seawall, Dancy cautioned, the money already spent would serve no purpose. He had also prepared estimates for continuance of the wall in front of the city as far as the wharf fronting St. Francis Barracks, beyond which the waterfront was not affected by pounding surf during nor'easters. These storms had been known to cause surging flood tides on the Matanzas River from 6 to 10 feet above mean low water.

The Fort Marion repairs estimated for were those "absolutely necessary" for preservation of the work, and did not extend to placing it in "complete repair." Should this latter alternative be desirable, Dancy observed, estimates would be required to fund costs of woodwork necessary in fitting up the casemates as quarters or storehouses. Only three of the 23 casemates had been fitted up under the 1833 appropriation. There would also be required an estimate for a "new terrace" to turn off the water from the terreplein, the present one being broken up in many places, thus permitting water to seep through to the arches.

The fort repairs estimated for and deemed necessary were described as one bastion front resting on the bay shore. Its protective seawall had been undermined by the surf, and the masonry was "tumbling to ruins." At two places, water passed freely into the ditch and had commenced the same "destruction on the body of the fort that has been effected" upon the seawall. If steps were not soon taken to check the encroachments by the sea, the entire "structure must speedily and prematurely become a pile of ruins." But, if the United States judiciously expended a few thousand dollars on Fort Marion, Lieutenant Dancy wrote, "it would remain for ages a monument and not an unworthy

one of the Spanish nation by whom it was erected, and a memento of events ever memorable in the history of our country."[4]

Dancy's estimates, to accomplish these projects, called for:

Reconstructing the seawall or water battery of the fort, 590 feet in length, and a section of	
45 cubic feet per running foot . . .	265.70 squares of stone
Deduct the old stone in the present wall, which may be used in rebuilding 200 squares of stone	200 squares of stone
Quantity required	65.50 squares
Completing that part of wall (commenced under Lieutenant Tuttle) from its junction with the wall of Fort Marion, 870 feet south, to its termination at point A on attached map, on an average height of 8 feet and a section of 40-1/4 cubic feet per running foot . .	350.17 squares
Deduct stone already laid in wall . . .	251.67 squares
Number of squares required	98.50 squares
From point A to point B the old seawall is in a good state of preservation, except for a 40-foot interval, which will require 16.0 squares of stone	16.10
From point B to point C, 610 feet, with a section of 40-1/4 cubic feet	245.52
From point C to point D, 314 feet, with a section of 40-1/2 cubic feet	126.83
From point D to point E at barracks' wharf, 1,128 feet, section 40-1/2 cubic feet . .	454.00
For constructing two breakwaters, each 200 feet in length, and 192 cubic feet to a section	768.00
Total quantity of stone needed for reconstructing water battery and seawall in front of St. Augustine to wharf in front of St. Francis Barracks	1,773.80 squares

4. Dancy to Gratiot, Dec. 8, 1834, found in American State Papers, Military Affairs, Vol. V, p. 462.

Cost of quarrying, hauling, and transporting stone, at $14 per square of 100 cubic feet	$14.00
Cost of laying the masonry	4.00
Total cost per square of 100 feet	$18.00
Amount required 1,773.60 squares at $18 per square	$31,938.40
For filling with earth and shells in rear of wall a width of 50 feet and average height 3 feet, entire length 2,962 feet, will make 16,465 cubic yards at 50 cents per cubic yard	8,227.00
Amount required	$40,165.40
Contingencies, 10 percent	4,016.54
Appropriation needed	$44,181.94[5]

Before the end of the year, Territorial Delegate White received a memoir from the grand jury for St. Johns and Mosquito Counties calling on Congress for an appropriation for continuing repair of Fort Marion and construction of the seawall. The importance of completing a "Barrier to protect this ancient city from inroads of the Ocean cannot be overlooked," it was pointed out.[6]

3. House Military Affairs Committee Calls for an Appropriation

Dancy's estimates, along with the memorials urging an additional appropriation for repair of Fort Marion and completion and extension of the seawall, were transmitted to Congress by Secretary of War Lewis Cass.

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5. Ibid. A copy of the "Plan of Part of the Front of the City of St. Augustine" by F.L. Dancy, Lt. U.S. Army, is filed with Dancy's letter to Gratiot, Dec. 8, 1834, NA, RG 77, Ltrs. Recd., Chief Engineer.

6. Gibbs to Territorial Delegate, Dec. 20, 1834, found in Territorial Papers--Territory of Florida, 1834-1839, Vol. XXV, p. 81.

On January 7, 1835, Chairman John Thomson of the House Committee on Military Affairs, to which the correspondence was referred, reviewed for his colleagues the structural history of the fort and seawall during the years since the Florida cession. He lamented that a portion of the $20,000 appropriated by Congress for repair of the fort and reconstruction of the seawall had been squandered by Lieutenant Tuttle. Justice dictated, Thomson informed the House, that the seawall be rebuilt and placed "in the situation that it was when Spain surrendered it to the United States." Although Fort Marion might not, because of the depth of water over the bar, occupy an important place in the plans of the Corps of Engineers for the Nation's seacoast defense, the committee did not believe this was sufficient reason for "abandoning a work commenced under the authority of a law of the United States." This was especially true, in view of plans to open an inland passage from the St. Johns into the head of North River. If implemented, this would open to navigation by steamboats an inland waterway from Charleston to St. Augustine.

Thomson's committee accordingly recommended that a $44,181.94 appropriation, the sum estimated by Dancy, be made for repair of Fort Marion and reconstruction of the seawall between it and St. Francis Barracks.[7]

4. Congress Appropriates Another $50,000 for St. Augustine

Despite the endorsement of the Military Affairs Committee, no appropriations for St. Augustine were made by the 2d Session of the 23d Congress. The proposal was reconsidered by the 1st Session of the 24th Congress, which convened on December 7, 1835, and was included in the "Fortifications Bill" signed into law by President Andrew Jackson on July 2, 1836. According to this act, $50,000 was appropriated for repair of Fort Marion and reconstruction of the seawall at St. Augustine.[8]

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7. Thomson to House of Representatives, Jan. 7, 1835, found in American State Papers, Military Affairs, Vol. V, p. 461.

8. Public Statutes at Large of the United States of America. . . (Boston, 1846), Vol. V, p. 78.

B. United States Prepares to Resume Operations

1. Dancy is Named Superintendent

Lieutenant Dancy, now in charge of repairs to the St. Augustine-Pensacola road, was intrigued by this news. Writing Chief Engineer Gratiot from Fort Drane, he inquired into the possibility of being placed in charge of the St. Augustine projects. If this could be done, he would deem it an honor. He was confident that he could handle the task as well as any officer in the Corps of Engineers, while his "knowledge of the people & the country would give" him an advantage over most individuals.[9]

Unknown to Dancy, General Gratiot was writing Lt. Joseph K.F. Mansfield, the superintending engineer at Savannah. He informed Mansfield of passage of the Fortifications Bill, and of the $50,000 available for expenditure on the St. Augustine projects. Mansfield was to have general supervision of these undertakings, in addition to his other responsibilities--construction of Fort Pulaski, overseeing improvement of the harbor at Brunswick, Georgia, and completing the inland waterway between the St. Marys and St. Johns.

Because this would tax his time and energy to the limit, Gratiot had decided to provide Mansfield with an assistant at St. Augustine. Familiar with Lieutenant Dancy's capabilities, Gratiot had asked that he be detailed to the Corps of Engineers. If this personnel action were approved by General-in-Chief Alexander Macomb, Dancy would be ordered to report to Lieutenant Mansfield.

The Department would be guided, General Gratiot noted, by Mansfield's judgment "as to the most proper means of applying the

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9. Dancy to Gratiot, July 10, 1836, NA, RG 77, Ltrs. Recd., Chief Engineer. In late December 1834, the troops garrisoning St. Francis Barracks had been ordered to Fort King, East Florida. Dancy had accompanied Company D, 2d U.S. Artillery, to its new station. Dancy to Jesup, Dec. 15, 1834, NA, RG 92, Consolidated Correspondence File.

appropriation, so as to comply with the wishes of Congress and the community." Mansfield was to inspect the St. Augustine works and instruct Dancy accordingly. Under no circumstances, General Gratiot cautioned, were expenditures to exceed the appropriation.[10]

General Macomb was agreeable to the transfer of Lieutenant Dancy, and orders were issued for him to report to the Chief Engineer. Not knowing this, Dancy, on July 22, resigned his commission as lieutenant in the 2d Artillery. He cited the unhealthful situation at Fort Drane and a desire to improve his economic situation, as his reasons.

Upon reaching St. Augustine and learning of his reassignment, Dancy wrote General Gratiot. He explained that if he had remained in the Army and had accepted a transfer to St. Augustine, his brother officers would have had just grounds for complaint.

But, in view of the limited number of officers available, he inquired, Is it possible for the Department to name me "to prosecute the work, with a certain per diem or Sallery, to be taken out of the appropriation?"

If so, he would welcome such an arrangement because: (a) his wife was in delicate health; (b) of his interest in the projects and knowledge that the appropriation had been based on his estimates; and (c) of his familiarity with local speculators, who were a "most insinuating and unprincipled set, and could be expected to worm their way into the confidence of any stranger that may be entrusted with the work."

If he could not be employed to oversee the projects, Dancy urged that Lt. James R. Irwin, an honest and capable officer, be considered. The same could not be said for Lt. Thomas P. Ridgley,

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10. Gratiot to Mansfield, July 12, 1836, NA, RG 77, Ltrs. Sent, Chief Engineer.

another officer interested in the assignment. Besides lacking technical expertise, Ridgley was easily influenced by the opinions of special interest groups.[11]

After reviewing his options and discussing the situation with Secretary of War Cass, Chief Engineer Gratiot notified Dancy that he had been named agent for expending the St. Augustine appropriation. Dancy was to be paid $3 per day and 2 1/2 percent on the sums disbursed. Upon receipt and approval of his bond, funds would be remitted on his estimates.

Dancy would be under superivision of Lieutenant Mansfield.[12]

Dancy was in Washington when he learned of his selection. Before accepting the position at the enumerated compensation, he called the Department's attention to the high cost of living in St. Augustine. To cite a few examples, he noted that pork cost $23 to $27 per barrel, flour $12 to $14 per barrel, and brown sugar 15¢ to 18 3/4¢ per pound. The inflation, he observed, was caused by outbreak of the Second Seminole War and the area's isolation.

Consequently, he urged that his compensation be pegged at $5 per day and 2 1/2 percent on all disbursements.[13]

Acting Secretary of War Carey A. Harris, although personally opposed to increasing the compensation, deferred to General

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11. Dancy to Gratiot, Aug. 4, 1836, NA, RG 77, Ltrs. Recd., Chief Engineer; Dancy to Hunt, July 27, 1836, NA, RG 92, Consolidated Correspondence File.

12. Gratiot to Dancy, Aug. 24, 1836, NA, RG 77, Misc. Ltrs., Chief Engineer.

13. Dancy to Secretary of War, Sept. 19, 1836, NA, RG 77, Ltrs. Recd., Chief Engineer. The Second Seminole War, a bloody and costly conflict, had erupted in December, 1835.

Gratiot. The Chief Engineer sympathized with his friend's situation, and, on September 26, Dancy accepted the position of superintendent for repair of Fort Marion and reconstruction of the seawall at a salary of $1,500 per year and 2 1/2 percent on his disbursements.[14]

The next day, the 27th, the Department notified Lieutenant Mansfield of this arrangement. Mansfield was reminded that he was to give Dancy all necessary instructions, "conformably to directions" found in the Department's July 12 letter.[15]

Not wanting to be under any local obligations, Dancy determined to secure the required $10,000 bond from B.M. Jackson, a North Carolinian and personal friend of the President. Upon forwarding his bond from Norfolk, Virginia, where he had gone for a short vacation, Dancy enclosed a requisition for $7,636.35 to fund October operations at St. Augustine.[16]

Dancy's bond was promptly reviewed and approved by Secretary of War Benjamin Butler. In drawing the draft on Charleston's Planters & Mechanics Bank to fund Dancy's requisition, the Department rounded out the figure to $7,700.[17]

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14. Dancy to Gratiot, Sept. 26, 1836, NA, RG 77, Ltrs. Recd., Chief Engineer.

15. Lee to Mansfield, Sept. 27, 1836, NA, RG 77, Ltrs. Sent, Chief Engineer.

16. Dancy to Gratiot, Oct. 12, 1836, NA, RG 77, Ltrs. Recd., Chief Engineer. This sum broke down: $3,000 for machinery, tools, and boats; $150 for superintendent's salary, $1,500 for workmen's wages, $300 for workmen's subsistence, $2,000 for materials (stone, lime, & lumber), $500 for contingencies, and $186.35 for 2 1/2 percent on disbursements.

17. Lee to Mansfield, Oct. 17, 1836, NA, RG 77, Ltrs. Sent, Chief Engineer. Upon receipt of the draft, Dancy deposited it with the Southern Life Insurance & Trust Banking Co. of St. Augustine.

2. Dancy Returns to St. Augustine and Makes Preliminary Arrangements

On October 22, 1836, Dancy arrived back in St. Augustine from Virginia. Although he had twice written Lieutenant Mansfield, requesting instructions for "prosecuting the work," no reply had been received.

He was also troubled to learn that persons opposed to his appointment planned to petition the Department to postpone resumption of the projects until the Seminole War was brought to a victorious conclusion. They argued that, if large numbers of men were employed on Dancy's undertakings, there would not be sufficient manpower available to protect the city.

Dancy, in apprising the Department of this situation, assured General Gratiot that there was "no difficulty in obtaining workmen here," and it would not be at the expense of the area's manpower pool. At present, there were hundreds of men, locally, drawing rations from the government "under the plea of distress and want of occupation."[18]

On November 10, Dancy received by mail his anxiously awaited instructions from Lieutenant Mansfield. They enabled him to perfect, by the end of the month, his preliminary arrangements, i.e., obtaining laborers, tools, machinery, boats, lighters, etc.[19]

3. Dancy Vainly Seeks to Have Fort Marion Turned Over to the Engineers

Fort Marion, Superintendent Dancy found, was garrisoned by the St. Augustine militia. These citizen soldiers had been called into

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18. Dancy to Gratiot, Oct. 28, 1836, NA, RG 77, Ltrs. Recd., Chief Engineer.

19. Dancy to Gratiot, Dec. 2, 1836, NA, RG 77, Ltrs. Recd., Chief Engineer.

Federal service at the outbreak of the Seminole War. Because it would be inconvenient, if not impossible, for workmen to repair the fort unless he exercised some authority over the garrison, Dancy called on Lt. Col. Ichabod Crane, the officer in command at St. Francis Barracks. Crane explained that he could do nothing to assist Dancy without an order from the War Department.

To solve this impasse, Dancy asked General Gratiot to discuss the situation with General Macomb.[20]

Chief Engineer Gratiot accordingly addressed a request to the Adjustant General for an order requiring the militia to evacuate Fort Marion, and placing it under control of the Corps of Engineers.[21]

Adj. Gen. Roger Jones bucked the subject back to Colonel Crane. On doing so, he noted that Fort Marion was now deemed to be a frontier post. Consequently, it was Crane's responsiblity to determine whether its occupation by troops would "materially interfere" with the projected repair of the fort.[22]

Colonel Crane, however, was unwillng to turn the fort over to the Corps of Engineers, because it currently constituted a post of defense. It was occupied by a detail from his command assigned to guard the large quantity of ordnance stores deposited there. On its terreplein there was a building built by Bvt. Brig. Gen. Abraham Eustis and employed as a hospital for convalescents, while the civil authorities continued to use several casemates as a prison.

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20. Dancy to Gratiot, Nov. 20, 1836, NA, RG 77, Ltrs. Recd., Chief Engineer.

21. Gratiot to Dancy, Dec. 14, 1836, NA, RG 77, Misc. Ltrs., Chief Engineer.

22. Jones to Crane, Dec. 15, 1836, NA, Ltrs. Sent, Adj. Gen., Microcopy M-565.

Crane had, he explained, already turned over to Dancy such casemates as required to support the Corps' operations, and did not foresee how his troops could in any way interfere with Dancy's projects.[23]

Dancy was understandably disappointed by the decision. It would be difficult, he confided to General Gratiot, to "manage a set of laboring men, who have constantly mingled with these volunteers & drafted men, who are submissive to no rule or government, but who do and act, according to their own whims & notions, and who from want of occupation are engaged in all sorts of dissipation, etc.[24]

C. Work on the Seawall Receives Priority

1. Dancy Advocates and Mansfield Approves Relocation of the Seawall

Superintendent Dancy, upon examining the seawall, recommended to Lieutenant Mansfield that they relocate the structure fronting the city, as well as the 870-foot section of wall erected under Lieutenant Tuttle's supervision. This was because of the "defective manner" in which the Tuttle section was constructed. Many of the old foundation stones had had an inclination toward the bay, and Tuttle, to compound the problem, had failed to adhere to "a single principle of masonry." Consequently, Tuttle's wall had neither solidity nor symmetry.

The flood tide mark, Dancy continued, varied from 20 to 40 yards from the Spanish seawall, while at several places this structure had been undercut by the surf.

Dancy, to cope with this situation, recommended that the wall be relocated about 30 feet farther east, and be given a straight

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23. Crane to Jones, June 1, 1837, NA, Ltrs. Recd., Adj. Gen., Microcopy M-567.

24. Dancy to Gratiot, Feb. 7, 1837, NA, RG 77, Ltrs. Recd., Chief Engineer.

alignment, instead of its present polygon-like configuration. Such a change would provide St. Augustine with a "wide and pleasant street" paralleling the Matanzas River, rather than 15-foot-wide Bay Street.

This change, Dancy assured the Department, was covered by his estimates, as the relocation had been contemplated. The change order also enjoyed local support.[25]

It was the last week of December before Lieutenant Mansfield had an opportunity to visit St. Augustine and review with Dancy what was expected. Upon reconnoitering the seawall, Mansfield concurred that the only alterative was to relocate and rebuild.

Before returning to Savannah, Mansfield provided Dancy with guidelines to be observed in executing the project:

(a) Stone for the seawall was to be quarried on Anastasia Island.

(b) A large deposit of riprap was to be positioned at the three salient angles of the fort's water battery.

(c) "A new seat and direction" was to be given to the seawall fronting St. Augustine, thus advancing the line of the wall as indicated during their reconnaissance.

(d) The city seawall was to be carried to a height of 1-1/2 feet above flood tide. The wall was to have a thickness of 5 feet at the bottom and 3 feet at the top, with a batter of 1 inch to the foot. The wall was to rest on a foundation 7 feet broad and 2 feet deep, thus affording a 1-foot offset to the front and rear.

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25. Dancy to Gratiot, Dec. 2, 1836, NA, RG 77, Ltrs. Recd., Chief Engineer.

(e) The masonry was to be laid in good mortar "about one quarter hydraulic except the face of the Sea Walls which will be laid about one foot deep in hydraulic mortar and pointed with same."[26]

2. Construction is Resumed

On Monday, January 2, 1837, two days after Mansfield's departure, Superintendent Dancy turned a force of workmen to breaking up the Spanish seawall and the wall built under Lieutenant Tuttle's supervision.[27]

Several days later, the masons began laying-up blocks of stone, much of which had been salvaged. By the end of January, they had laid in cement and mortar 36 squares (3,600 cubic feet) of coquina.[28]

3. Congress Fails to Sanction the Change

Meanwhile, Dancy was disturbed to received a letter from Chief Engineer Gratiot. Gratiot informed him that, upon reviewing the legislation, the Department had concluded that repairs could only be made to what existed. The seawall therefore could not be relocated.[29]

To cope with this interpretation, Territorial Delegate White had legislation introduced into Congress to authorize relocation and extension of the seawall.[30]

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26. Mansfield to Gratiot, Jan. 5, 1837, and Mansfield to Dancy, Dec. 27, 1836, NA, RG 77, Ltrs. Recd., Chief Engineer.

27. Dancy to Gratiot, Jan. 10 and Feb. 12, 1837, NA, RG 77, Ltrs. Recd., Chief Engineer.

28. Dancy to Gratiot, Feb. 12, 1837, NA, RG 77, Ltrs. Recd., Chief Engineer.

29. Gratiot to Dancy, Dec. 29, 1836, NA, RG 77, Ltrs. Sent, Chief Engineer.

30. Dancy to Gratiot, Feb. 12, 1837, NA, RG 77, Ltrs. Recd., Chief Engineer.

This proved to be of no avail, because the 2d Session of the 24th Congress adjourned without enacting a "Fortifications Bill."[31]

It was too late to turn back, however, because the Spanish and Tuttle walls had been dismantled.

4. Seawall Takes Shape

Although there were many rainy days in February, the masons and their helpers laid in lime mortar and hydraulic cement 17,272 cubic feet of stone. Laborers, at the same time, continued to tear down the old walls and fill in behind the new wall with 250 cubic yards of earth.[32]

By the end of June, the masons had laid in "hydraulic and lime mortar" 36,311 cubic feet of masonry. Various sections of the seawall had been raised to these heights: 912 feet to 7 feet, 48 feet to 5'6", 53 feet to 5 feet, and 68 feet to 2 feet. Behind the wall, laborers had positioned 800 cubic yards of earth and shells.[33]

5. Storms Test Its Strength

A series of tropical gales slowed progress in August. A three-day storm, accompanied by surging tides, commenced on the 1st, to be followed by a two-day blow setting in on the 5th. These tested the stability of the seawall. Tides surged to within six inches of the top of the wall, and water passed around the ends, flooding the area being filled. At the height of the August 5 hurricane, breakers crashing into

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31. Gratiot to Dancy, March 8, 1837, NA, RG 77, Ltrs. Sent, Chief Engineer.

32. Dancy to Gratiot, March 5 and April 2, 1837, NA, RG 77, Ltrs. Recd., Chief Engineer.

33. Dancy to Gratiot, July 2, 1837, NA, RG 77, Ltrs. Recd., Chief Engineer.

the wall sent spray cascading to a height of 30 feet. Despite the storm's violence and the wall's uncompleted condition, no stones were dislodged.[34]

As of September 30, 1837, there had been laid, commencing at the fort, 1,530 running feet of seawall, containing 61,344 cubic feet of masonry.[35]

Unseasonably high tides delayed the masons in October. When he submitted his report for the month, Superintendent Dancy noted, "The tides . . . [have] scarcely even left the Scite of the wall, thereby rendering it impossible to progress with the foundations, without resorting to greater expence, than the means on hand would authorize."[36]

Weather conditions improved in November, and the masons laid 5,000 cubic feet of stone.[37]

6. Closing Down Construction

By the beginning of 1838, most of the $50,000-appropriation exhausted, Dancy reduced his force. Through this action, he hoped to continue the project until Congress made more funds available. If they were compelled to shut down operations, Dancy cautioned, the property would have to be disposed of at a great loss to the United States, especially as the tools, lighters, etc., were in good condition. If sold at public auction, they could not be replaced for double what they would bring.

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34. Dancy to Gratiot, Sept. 1, 1837, NA, RG 77, Ltrs. Recd., Chief Engineer.

35. Annual Report for Year Ending Sept. 30, 1837, NA, RG 77, Ltrs. Recd., Chief Engineer.

36. Dancy to Gratiot, Nov. 1, 1837, NA, RG 77, Ltrs. Recd., Chief Engineer.

37. Dancy to Gratiot, Dec. 1837, NA, RG 77, Ltrs. Recd., Chief Engineer.

Although the payroll was slashed, work continued to progress. Dancy had budgeted his funds, he reported on March 4, to continue operations, on a reduced scale, until June 30.[38]

Congress, the Nation still locked in the throes of a depression, was in no hurry to enact a "Fortifications Bill." By the end of June, no relief in sight and the last of the 1836 appropriation obligated, Superintendent Dancy closed down operations and laid off all hands, except a few men retained to look after the materials and other public property.

D. Quarries Reopen

On November 28, 1836, Dancy had reopened the Anastasia Island quarries by putting 20 men to work cutting coquina.[39] During the first week of December, he doubled this force. The men, during the month, quarried 120 squares of stone. The average size of the blocks was 4 feet long by 2 feet thick. Another 130 squares were taken from the quarries in each of the first two months of the new year.[40]

During the first quarter of 1837, workmen quarried about 350 squares of coquina. The blocks varied from 15 to 50 cubic feet each. Of the total, about 30 squares had been hauled to the landing, and 25 squares had been lightered across the Matanzas River to the construction site.[41]

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38. Dancy to Gratiot, Feb. 5 and March 4, 1838, NA, RG 77, Ltrs. Recd., Chief Engineer.

39. Dancy to Gratiot, Dec. 3, 1836, NA, RG 77, Ltrs. Recd., Chief Engineer.

40. Dancy to Gratiot, Jan. 10, Feb. 12, and March 5, 1837, NA, RG 77, Ltrs. Recd., Chief Engineer.

41. Dancy to Gratiot, April 2, 1837, NA, RG 77, Ltrs. Recd., Chief Engineer.

By the end of June 1837, there was enough coquina on hand to enable Dancy to suspend quarrying. Teams and drivers were retained and employed transporting stone from the quarries to the landing, where it was loaded on flatboats and floated to the site.[42]

E. Projects Become Embroiled in Politics

1. Campaigning for Additional Money

Late in 1837, a number of St. Augustine citizens petitioned Congress, urging that an appropriation be made to continue construction of the seawall. If no action were taken, they warned, "the utility of what has already been expended will be greatly diminished from the incomplete state of the wall."

Since Superintendent Dancy had submitted his estimates in 1834, they pointed out, labor costs and the price of materials had escalated, so that the $50,000 appropriated by the 1st Session of the 24th Congress would not suffice. Moreover, it had been necessary to take down and reconstruct the Tuttle wall, a contingency that had not been included in Dancy's figures. So far, nearly 1,600 running feet of seawall was nearly completed, and in the unfinished state had, during the previous summer, withstood several severe tropical storms. To protect the harbor, the petitioneers noted, the wall should be extended to Wallen Street, 734 feet beyond the barracks wharf.[43]

The memoir was presented to the chairman of the House Military Affairs Committee by Territorial Delegate Charles Downing, and a copy placed before the Senate Military Affairs Committee by Chief Engineer Gratiot. When he forwarded a copy of the petition to the

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42. Dancy to Gratiot, July 2, 1837, NA, RG 77, Ltrs. Recd., Chief Engineer.

43. Petition to Congress by Inhatitants of St. Augustine, undated, found in Territorial Papers-- Territory of Florida 1838-1839, Volume XXV, pp. 448-49.

Department, Dancy expressed the hope that Congress' response would be favorable, so he might have an opportunity of completing the project.[44]

To support the Department's request for another appropriation, Dancy prepared and forwarded, through Lieutenant Mansfield, the prerequisite estimates. He called for:

continuing the wall from point B at Hubbert's corner, the point at which it had reached on September 30, 1837, to point C at Sanchez alley a distance of 1,168 feet requiring 42,500 cubic feet of stone. There is on hand at the quarries 13,000 cubic feet and at the landing 4,000 cubic feet ready for transportation to the site of the works, deducted from the amount required is	25,000 feet
For continuing wall from point C at Sanchez alley to point D at Wallens Corner, a distance of 1,650 feet, section of 42 1/2 cubic feet to the running foot requires	70,125 feet
For an additional height of one foot from the seawall of Fort Marion at point A to point C, a distance of 2,668 feet, section of three cubic feet to the running foot requires	10,200 feet
For repairs of the seawall of Fort Marion, a distance of 548 feet of a section of 60 cubic feet to the running foot requires	32,880 feet
For a breakwater 200 feet long of a section of 120 cubic feet to a running foot requires . . .	24,000 feet
Required to complete seawall	162,705 feet
For a coping of granite six inches thick by three feet wide for the whole distance from point A to point D, a distance of 4,318 feet of a section of 1 1/2 cubic feet to a running foot requires . .	6,477 feet
For 48 granite steps, four cubic feet each . .	192 feet
For 16 granite steps 40 cubic feet each . . .	640 feet
Total granite required	7,309 feet

44. Dancy to Gratiot, Jan. 7, 1838, NA, RG 77, Ltrs. Recd., Chief Engineer.

Cost of quarrying 162,705 cubic feet of stone at 11 1/4 cents per cubic foot	$18,304.30
Cost of hauling 162,705 cubic feet at 4 cents per cubic foot	6,508.20
Cost of boating 162,705 cubic feet at 3 cents per cubic foot	4,881.15
Cost of laying 162,705 cubic feet at 6 cents per cubic foot	9,762.30
Cost of 7,309 cubic feet of granite at 60 cents per cubic foot	4,385.40
Cost of laying granite at 6 cents per cubic foot .	438.54
Cost of filling with earth behind wall a distance of 4,318 feet, section of 200 cubic feet to running foot requires 31,985 cubic yards at 29 9/10 cents per cubic yard	9,585.50
For contingencies 10 percent	4,041.10
	$57,916,50
Deduct balance of former appropriation on hand September 30, 1837	13,465.00
Total appropriation required	$44,452.97[45]

2. Congress Appropriates Another $29,500 for St. Augustine

In July 1838, President Martin Van Buren signed into law a "Fortifications Bill," containing an appropriation of $29,500 for Fort Marion and the St. Augustine seawall. Secretary of War Joel R. Poinsett, in accordance with the recommendation of Territorial Delegate Downing, decided to make the project the responsibility of the Topographical Engineers.

General Gratiot accordingly called upon Lieutenant Mansfield to alert Superintendent Dancy to be prepared to turn over to

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45. Dancy to Gratiot, Feb. 25, 1838, NA, RG 77, Ltrs. Recd., Chief Engineer.

an officer detailed from that department the papers, books, plans, etc., appertaining to the seawall and Fort Marion.[46]

3. Delegate Downing Seeks to Get Rid of Dancy

Dancy had been apprised of this move. To counter it, he wrote his friend General Gratiot. This was, he confided, only the latest incident in a campaign of harassment by Delegate Downing directed against Dancy and his family. Although Downing now complained of the money drained from the appropriation for the agent's salary and percentage, he had told Dancy, in 1836, "you must be liberal in the expenditure of this appropriation, circulate the money freely among the people, I don't care a damn if you don't put one stone on another, [just] so you spend the money freely; for I have no property to be protected" by the seawall.

If he were replaced, Dancy continued, there would be a greater sum expended in "payment of agents, contractors and percentages" than had been spent by him. How would Lt. John L'Engle attend to these projects, Dancy inquired, and continue to supervise his half dozen appropriations for roads? L'Engle, he answered, could only do so through an agent. And here was the principal difference. Would the persons employed be L'Engle's and Downing's "irresponsible political agents," or an agent of the Corps of Engineers?[47]

On August 4, Dancy carried his case to Secretary of War Poinsett. Writing the Secretary, he enclosed a number of affidavits on his behalf. He also traced the history of the project in the months since it had been confided to him. Now, Dancy protested, when all "obstacles and difficlties have been overcome and the work far advanced toward completion it is taken from me, and I am to be cut off from all credit in

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46. Gratiot to Mansfield, July 16, 1838, NA, RG 77, Ltrs. Sent, Chief Engineer.

47. Dancy to Gratiot, July 21, 1838, NA, RG 77, Ltrs. Recd., Chief Engineer.

the matter, and my reputation in a measure blasted, merely because I would not bow at the footstool of Mr. Downing."[48]

General Gratiot went to bat for Dancy, and, on August 14, Secretary Poinsett reversed himself. Writing Dancy, the Department informed him that he was to be continued as agent. He was likewise apprised that Congress had appropriated $29,500 for the St. Augustine projects. Of this sum, one-half was available for expenditure in calendar year 1838 and the balance in 1839.[49]

F. Dancy's Last Months as Superintendent

1. The Megredy & Smith Granite Contract

On September 3, 1838, while the project was closed down, Superintendent Dancy, who had traveled north to Baltimore, contracted with Megredy & Smith for delivery at St. Augustine of:

a. 1,500 to 2,000 running feet of granite coping. The stones were to be three feet wide with a front of not less than two feet six inches, and varying from eight inches to twelve inches in thickness. The fronts were to be dressed smooth with a level of one inch to one foot, the sides to be squared.

b. Five slabs or platforms five-foot front, three feet six inches wide, and eight inches thick. The fronts to be dressed smooth.

d. Fifty blocks for steps, three feet six inches long, one foot three inches wide, and nine inches in height. Both the risers and treads were to be smooth.[50]

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48. Dancy to Poinsett, Aug. 4, 1838, NA, RG 77, Ltrs. Recd., Chief Engineer.

49. Gratiot to Dancy and Gratiot to Mansfield, Aug. 14, 1838, NA, RG 77, Ltrs. Sent, Chief Engineer.

50. Contract, Dancy with Megredy & Smith, Sept. 3, 1838, NA, RG 77, Ltrs. Recd., Chief Engineer.

In early December, the first shipment of granite reached St. Augustine from Baltimore.[51]

2. Operations Resume on October 1, 1838

Employing an allotment from the $29,500 appropriation, Superintendent Dancy resumed operations on October 1, and before the end of the month he had a large number of men on Anastasia Island quarrying coquina.[52]

G. Dancy Loses Out

1. Delegate Downing Flexes His Muscles

Dancy had won a reprive not a victory. On November 24, 1838, some ten days before the 3d Session of the 25th Congress convened, Delegate Downing wrote Secretary Poinsett. He called attention to recent legislation, authorizing an increase in the number of staff officers. The Department had justified this on the need for additional officers to superintendent construction of public works. Consequently, Downing questioned the decision to continue Dancy's employment as agent, at a salary of $1,500 per annum and 2 1/2 percent on all disbursements.

Because the Department had seen fit to retain Dancy in this position, Downing appealed to Secretary Poinsett, in the name of "justice to Florida, and to yourself" to name a staff officer to replace Dancy.[53]

When his letter failed to elicit the desired results, Downing promised reprisals. On December 12, he again wrote Secretary Poinsett. He charged that Dancy was employing his position as superintendent for electioneering purposes. If the Department insisted on retaining Dancy

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51. Dancy to Gratiot, Dec. 2, 1838, NA, RG 77, Ltrs. Recd., Chief Engineer.

52. Dancy to Gratiot, Sept. 23 and Nov. 4, 1838, NA, RG 77, Ltrs. Recd., Chief Engineer.

53. Downing to Poinsett, Nov. 23, 1838, NA, RG 77, Ltrs. Recd., Chief Engineer.

as agent, Downing promised to lobby to defeat any appropriation for funds needed to complete the St. Augustine projects. He urged that this work, along with the Pecolata Road undertaking, be placed under superintendence of Captain L'Engle of the Quartermaster Department.[54]

This time the Department succumbed to political pressure. Secretary Poinsett directed that the St. Augustine projects be placed under an officer of the Corps of Engineers.[55]

2. The Corps Gets a New Chief

Meanwhile, the position of Chief Engineer had become vacant. On December 6, 1838, one week before the Secretary decided that Dancy was expendable, the Army got a new Chief Engineer. General Gratiot on that day was dismissed from the service by order of President Van Buren. He stood charged with "having failed to pay into the Treasury the balance of the monies placed in his hands in 1835 for public purposes, after spending" the amount which he claimed the government owed on settlement of his accounts as disbursing agent and superintending engineer at Hampton Roads from 1819 to 1826.[56]

Col. Joseph G. Totten, the Nation's foremost authority on construction of masonry forts and senior member of the Board of Engineers, was named as Gratiot's replacement by Secretary of War Poinsett.[57] A tireless worker who loved detail, Colonel Totten soon made his presence felt. Refusing to delegate authority, he, for the next 26 years, kept a tight rein on his subordinates. It has been said that not a brick nor stone was laid, not a cubic yard of earth excavated nor

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54. Downing to Poinsett, Dec. 12, 1838, NA, RG 77, Ltrs. Recd., Chief Engineer.

55. Poinsett to Acting Chief Engineer, Dec. 15, 1838, NA, RG 77, Ltrs. Recd., Chief Engineer.

56. Cullum, Biographical Register, Vol. I, p. 99.

57. Smith to Chase, Dec. 17, 1838, NA, RG 77, Ltrs. Recd., Chief Engineer.

rammed, nor a cubic foot of concrete poured in the forts under construction without his sanction.

3. Department Names Lieutenant Benham Superintending Engineer

It became Colonel Totten's responsibility to inform Superintendent Dancy of the Department's decision. On December 18, Totten wrote Dancy that the St. Augustine projects were to be placed under the supervision of Lt. Henry Benham. Dancy was to turn over to his successor all public property and funds for which he was charged.

The Department, Totten continued, wished to commend Dancy for his good conduct. He could rest assured that his relief in no way reflected on his agency, but was dictated by a decision on the part of the Secretary to place as many works as possible under superintendency of members of the Corps.

Henry W. Benham had been born in Connecticut, probably Meriden, on April 17, 1813. He entered Yale in 1832, but soon received an appointment to the U.S. Military Academy, from which he graduated first in the class of 1837. Commissioned a brevet 2d lieutenant in the Corps of Engineers, Benham was ordered to Savannah as assistant to Captain Mansfield.[58]

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58. Cullum, Biographical Register, Vol. I, p. 518; Ezra J. Warner, Generals in Blue: Lives of the Union Commanders (Baton Rouge, 1964), p. 30.

IV. BENHAM COMPLETES THE ST. AUGUSTINE SEAWALL

A. Dancy Gives the Department Problems

1. Benham Relieves Dancy

On January 9, 1839, Lieutenant Benham reached St. Augustine by ship from Savannah, and assumed responsibility from agent Dancy for repair of Fort Marion and reconstruction of the seawall. It was the 20th before Dancy closed out the last of his accounts.

Upon doing so, Dancy wrote Chief Engineer Totten, thanking him for the commendation. He was gratified to learn that the campaign of villification conducted by his political enemies had done nothing to affect his standing with the Department.[1]

Dancy having been replaced, Secretary of War Poinsett was requested to have $8,500 remitted to Lieutenant Benham at St. Augustine. Four thousand dollars were to be payable by a draft on Baltimore for materials, and $4,500 by draft on Charleston.[2]

2. Benham Becomes Suspicious

Lieutenant Benham, within several weeks of his arrival in East Florida, was made aware of a number of questionable practices involving his predecessor. Late in January, Benham was handed a note for collection drawn on Brig. Gen. Joseph M. Hernandez for a quantity of stone. The note was signed by Dancy, and was to be paid as soon after January 1, 1839, as monies for construction of the seawall were received. Benham refused to pay the note, because the stone referred to had not been turned over to him by Dancy. When Benham inquired about the stone, Dancy said it belonged to the general. The stone was later transferred to a public road being built by Dancy.

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1. Benham to Totten, Jan. 9, 1839, & Dancy to Totten, Jan. 21, 1839, NA, RG 77, Ltrs. Recd., Chief Engineer.

2. Smith to Mansfield, Jan. 3, 1839, NA, RG 77, Ltrs. Sent, Chief Engineer.

Next, several bags of corn, condemned by the Quartermaster Department, were sent to the quarries. The horses refused to eat this corn. After Benham complained, Dancy responded, "It is . . . good for horses . . . just put it in water and they will eat it." Upon inquiry, Benham learned from the post quartermaster that this corn was part of a 70- to 80-bag lot purchased by Dancy at the quartermaster auction.

Dancy had likewise charged the government $27.50 for a trice of rice, which Benham believed belonged to the project, because it was in the public storeroom. When Benham questioned the overseer, the man stated that the subject trice, along with four others, had been shipped down from Charleston. Two trices had been issued to the hands, and an equal number sent to the quarries.

Dancy had charged the United States $42.55 for 1,682 feet of two-inch plank purchased for and used at the quarries.

While Dancy was turning over to him responsibility for the public property, Benham saw a pile of 1,000 to 2,000 feet of pine flooring in the fort. When Benham asked about these boards, Dancy answered, "<u>They are my own private property</u>." Later, Dancy told Benham's overseer that the boards belonged to the United States and had been receipt for to Benham.

Benham challenged Dancy's claim to have expended 24,000 feet of one-inch plank in the fourth quarter of 1838, and ownership of a horse, which was removed from the quarries subsequent to January 9.[3]

3. <u>Dancy Withholds Certain Documents</u>

When Superintendent Dancy was relieved, the only papers he turned over to Lieutenant Benham, in addition to several circulars and

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3. Benham to Totten, May 18, 1839, NA, RG 77, Ltrs. Recd., Chief Engineer.

old letters addressed to him by the Department, were the monthly report for December 1838; a statement of funds disbursed on the project up till September 30, 1838; and the estimates to September 30, 1838. Benham had asked for the quarterly returns for the final three months of 1838. Dancy, however, refused to release them, stating they were his private papers.

Benham found that he must have these documents, if his clerk were to complete the quarterly returns for the period ending March 31. The clerk accordingly secured this document without Dancy's consent and drew up the prerequisite returns.

Soon thereafter, Dancy, through the clerk, requested return of his papers. Benham said no, claiming that they belonged to the projects. Whereupon, Dancy had a writ of replevin served on Benham. After consulting the U.S. District Attorney, Benham refused to surrender the papers, and the magistrate, who had issued the writ, quashed it.[4]

Meanwhile, Dancy had complained to the Department of the manner by which Benham had secured possession of certain of his personal papers.[5]

4. Captain Mansfield's Investigation

Dr. Frederick Weedon now wrote the Department complaining of certain malpractices by the ex-superintendent. To support these charges, Weedon submitted affidavits filed by four employees. Chief Engineer Totten, upon reviewing the documents, found that they focused on alleged use by Dancy of public labor and materials for private gain. Dancy countered that the men were paid for their work out of his pocket, and all public materials replaced.

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4. Benham to Totten, Apr. 27 & May 18, 1839, NA RG 77, Ltrs. Recd., Chief Engineer.

5. Totten to Benham, May 6, 1839, NA, RG 77, Ltrs. Sent, Chief Engineer.

To ascertain the truth, the Department ordered Captain Mansfield from Savannah to St. Augustine.[6]

In mid-May, Captain Mansfield spent several days at St. Augustine, returning to Savannah on the 23d. After questioning a number of people, Mansfield concluded that the accusations against Dancy could not be sustained. He accordingly recommended to the Department that Dancy be exonerated and that the subject be dropped. This conclusion he supported with a number of documents, which he appended to his report.[7]

The Department observed, on reviewing the proceedings, that Dancy was not "free from errors of administration which may be attributed to inexperience and that Dr. Weedon was the only prosecutor personally against" him. Mansfield was unable to recall any St. Augustine citizen leveling any charges against Dancy's "official conduct" until after he had been replaced by Lieutenant Benham.

Dancy had received his directions pertaining to construction and location of the seawall from Mansfield, and insofar as workmanship and general appearance of the structure, it could not be faulted.

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6. Totten to Mansfield, May 6, 1839, NA, RG 77, Ltrs. Sent, Chief Engineer.

7. Mansfield to Totten, July 15, 1839, NA, RG 77, Ltrs. Recd., Chief Engineer. Among the documents annexed to Mansfield's report were: (a) charges found in the letter of Dr. Weedon and accompanying depositions provided by the Department; (b) Dancy's reply to the charges; (c) a review of the testimony taken by Mansfield; (d) correspondence between Dancy and Mansfield about stone furnished for construction of Fort Pulaski; (e) copies of bills for purchase of lumber by Dancy on his own account; and (f) copies of letters from Captain Mansfield to Dr. Weedon, E.B. Gould to Dancy, Lt. McLane to Dancy, Dancy to Mrs. Weedon, and Mrs. Weedon to Dancy.

By not surrendering to Lieutenant Benham the papers belonging to the projects, Dancy had errored. Satisfied of his mistake, Dancy, in accordance with Mansfield's instructions, agreed to transfer these documents to Benham.[8]

5. Dancy Defies the Department

Dancy, however, continued to drag his feet. On May 25 Benham again called on Dancy to provide him with the subject papers or copies thereof. Replying, Dancy promised to do so "at his leisure."

On his return from the North, in mid-October 1839, Benham was disappointed to discover that Dancy had not seen fit to follow through on his promise. As the documents were needed to make out the annual report, he wrote Dancy, calling on him to "forward the same to me in the course of today or tomorrow."[9]

Dancy answered that the "originals of all records, Papers, etc.," were already on file with the Department.[10]

In view of Dancy's continued recalcitrance, Benham applied to the Department to provide him with copies of the subject papers.[11]

Chief Engineer Totten, upon receipt of the Benham-Dancy correspondence, transmitted copies to Captain Mansfield. The Department regretted to see Dancy assume this position, now that he was beyond its control. Mansfield was to ascertain if this were correct. If not, he was

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8. Ibid.

9. Dancy to Benham, Oct. 17, 1839, & Benham to Totten, Oct. 18, 1839, NA, RG 77, Ltrs. Recd., Chief Engineer.

10. Dancy to Benham, Oct. 17, 1839, NA, RG 77, Ltrs. Recd., Chief Engineer.

11. Benham to Totten, Oct. 18, 1839, NA, RG 77, Ltrs. Recd., Chief Engineer.

to ask Dancy to furnish the papers without delay, because they were badly needed by Lieutenant Benham.[12]

Mansfield accordingly wrote Dancy, urging him to turn over the subject papers to Lieutenant Benham. Dancy thereupon contacted Benham and announced that he was engaged in my "leisure moments in making out copies of all the letters and papers, connected with the sea wall in my possession, and so soon as they are completed you shall have them."

Upon being apprised of this, Mansfield wrote to Totten requesting that he be relieved from "further participation in the affairs of the Department at St. Augustine."[13]

B. 1839 Construction Season

1. Benham's Program is Submitted, Reviewed, and Approved

On March 23, 1839, Lieutenant Benham submitted his estimate for the second quarter. He called for $5,685. The Department would see that he had not estimated for any masonry for June. His reasoning was founded on rumors that the "Fortifications Bill" before Congress included only $10,000 for his projects in 1839, which with the balance on hand as of April 1 would provide but $15,000 for the next 12 months. Such a sum would be insufficient to continue both quarrying and laying-up stone with the number of hands now employed. Consequently, he had resolved to suspend the latter phase of the operation through the summer.

The payroll and other expenditures for quarrying would enable Benham to hold expenditures at from $800 to $1,000 per month. In

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12. Totten to Mansfield, Oct. 21, 1839, NA, RG 77, Ltrs. Sent, Chief Engineer.

13. Mansfield to Dancy, Oct. 30, 1839; Dancy to Benham, Jan. 6, 1840; and Mansfield to Totten, Feb. 6, 1840, NA, RG 77, Ltrs. Recd., Chief Engineer.

addition, quarrying was done by blacks, who were "not affected" by the heat and humidity, while the horses were to be kept employed hauling.

Come October and the end of the "sickly season," the masons would again be turned out "in such a manner as to expend the appropriation by about the time a new one may be expected."[14]

Benham's informants were correct. When President Van Buren signed the "Fortifications Bill" enacted by the 3d Session of the 25th Congress into law on March 3, 1839, it appropriated $10,000 for repair of Fort Marion and the St. Augustine seawall. Notifying Benham of this, Chief Engineer Totten directed that these monies be applied to the seawall, in conformity to approved plans. He was to direct operations toward early completion of the portions of the wall already commenced, "not undertaking more new work than can be completed with the money available."[15]

Upon receipt of the Department's letter, Lieutenant Benham wrote Colonel Totten, reiterating his proposal for expending the appropriation. Meanwhile, Colonel Totten had received, reviewed, and approved Benham's program as outlined in his March 23 letter.[16]

2. Construction Activities: January-September 1839

a. Operations at the Quarries

During the first nine months that Lieutenant Benham was in charge, 35,300 cubic feet of coquina were quarried, and 7,000

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14. Benham to Totten, Mar. 23, 1839, NA, RG 77, Ltrs. Recd., Chief Engineer.

15. Totten to Benham, Mar. 22, 1839, NA, RG 77, Ltrs. Sent, Chief Engineer.

16. Benham to Totten, Apr. 6, 1839, & Totten to Benham, Apr. 9, 1839, NA, RG 77, Ltrs. Recd. & Sent, Chief Engineer.

cubic feet were hauled from the quarries to the landing opposite the city.[17]

b. Seawall's Length Reaches 2,600 Feet

As of January 9, 1839, 2,120 running feet of seawall were under construction. It extended from Fort Marion to a point "opposite, or a little beyond the most central portion of the city." Five hundred and twenty-two feet of wall had been coped with granite.

During the weeks between January 9 and June 20, when the masons were paid off, they laid-up another 480 running feet, containing 19,200 cubic feet of masonry. The seawall now extended 2,600 feet "completing the protection to the concave line of the shore opposite the most central and important portion of the city, and which from its shape has heitherto been the most exposed" to gales.

Taking advantage of the protection afforded by the seawall, landowners began enclosing lots that had been eroded and prepared to erect buildings on the sites of those demolished by hurricanes and nor'easters.

In addition to the coquina blocks laid, 770 running feet of granite coping had been received from Megredy & Smith and positioned under Benham's supervision.[18]

c. Benham Trusts the Tides to Silt-in the "Trough"

When he took charge Benham found that the last 500-foot section of seawall built by Francis Dancy was separated from that first constructed by an opening left for a basin. The 500-foot section was from 100 to 150 feet from the shoreline. Through this channel-like "trough," tides ebbed and flowed.

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17. Annual Report for the Year Ending Sept. 30, 1839, found in Benham to Totten, Oct. 19, 1839, NA, RG 77, Ltrs. Recd., Chief Engineer.

18. Ibid.

Lieutenant Benham hoped that sands deposited by this tidal action would fill up the "trough," thus saving the government the expense of transporting earth and filling it by manual labor.[19]

3. Benham Spends Four Months in the North

On May 1, 1839, Lieutenant Benham requested to be ordered North about June 1. This would enable him to undertake several missions to expedite early completion of the project. While absent from St. Augustine, he wished to see Chief Engineer Totten and discuss plans for repair of Fort Marion. Among points to be considered were reconstruction of the water battery, which was "very much dilapidated." He also wished directions "relative to the manner of completing the Sea Wall for from the position which has been given to it, I have great doubts whether the original plan should be adhered to."

He desired to recruit white laborers in the North. The slaves currently employed, Benham complained, were a worthless group. It seemed that Agent Dancy had contracted with the owners in such a manner that most of the blacks had remained with him and were now working on a public road. Those remaining were drones, whom Benham could neither reinforce nor discharge, because no others could be hired locally.

In addition, he hoped to make contracts on better terms than through agents for delivery of materials, especially granite for coping. If he were in the area, he could visit the Susquehanna Valley and the Haddam, Connecticut, quarries. During his absence, the operations would be confined to quarrying coquina. To superintend these, he had an energetic overseer.[20]

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19. Ibid.

20. Benham to Totten, May 1, 1839, NA, RG 77, Ltrs. Recd., Chief Engineer.

The Department, on May 25, approved Benham's request for travel orders and a furlough to visit his Connecticut home. But, before leaving St. Augustine, he was to complete "a full and minute survey of Fort Marion and its environs." To assist with this project, Acting Chief Engineer Frederic A. Smith forwarded a tracing of De Barre's chart of the harbor and Dancy's 1834 plan of Fort Marion.[21]

Acknowledging the Department's communication, Benham noted that it had been his intention to commence the survey of the harbor, but proper instruments were unavailable locally. While in the North, he planned to select and, with the permission of the Chief Engineer, purchase such instruments as were necessary.

When he stopped off in Washington, while en route to Connecticut, he would bring along an accurate plan of Fort Marion.[22]

The Department was agreeable to deferring the harbor survey until autumn. As soon as apprised of this, Benham placed his overseer in charge of the project and boarded the Charleston packet.[23]

Lieutenant Benham returned to St. Augustine on October 16, having been delayed five days at Savannah, awaiting passage south. While there he learned from Captain Mansfield that there was a small thedolite at Fort Pulaski. There was no current need for the instrument at the Cockspur Island fort, so Benham inquired into the possibility of its transfer to Fort Marion to enable him to begin his surveys.[24]

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21. Smith to Benham, May 25, 29 & 31, 1839, NA, RG 77, Ltrs. Sent, Chief Engineer.

22. Benham to Totten, June 12, 1839, NA, RG 77, Ltrs. Recd., Chief Engineer.

23. Totten to Benham, June 24, 1839, NA, RG 77, Ltrs. Sent, Chief Engineer.

24. Benham to Totten, Oct. 16, 1839, NA, RG 77, Ltrs. Recd., Chief Engineer.

The Department was agreeable to the transfer, and Captain Mansfield packed and shipped the theodolite to St. Augustine.[25]

4. Benham Calls for Another 1,700 Feet of Seawall

Soon after his return to Florida, Lieutenant Benham submitted to the Department a project to afford "complete protection" to the city by construction of another 1,700 running feet of seawall. To justify this undertaking, he warned that the sea was gradually encroaching on the water front south of Bridge Street, particularly the southernmost 800 feet. Much of this frontage belonged to the United States, and included the St. Francis Barracks site.

Funds already appropriated, Benham believed, were sufficient to complete, except for the coping, about one-half this 1,700 feet. An additional $20,000 was required. This sum brokedown:

For quarrying and transporting coquina to the site 40,000 cubic feet, at 15¢	$ 6,000
For trimming and laying coquina at 10¢	4,000
For blacksmith for repair of tools, etc., 200 days at $2.50	500
For carpentry for repair of flatboats, etc., 200 days at $2.50	500
For 2 inch plank for flats and scaffolding, etc., 6,000 feet at $25	150
For hydraulic cement (200 bbls), at $3	600
For 2,700 running feet of granite at $2	8,100
For contingencies	150
Total	$20,000[26]

25. Totten to Mansfield & Benham, Oct. 26, 1839, NA, RG 77, Ltrs. Sent, Chief Engineer.

26. Annual Report for Year Ending September 30, 1839, found in Benham to Totten, Oct. 19, 1839, NA, RG 77, Ltrs. Recd., Chief Engineer.

C. Benham's Authority is Challenged and His Character Traduced

1. United States Successfully Defends Itself Against E.B. Gould's Claims to the Landing and Quarries

Lieutenant Benham, accompanied by Mr. Dancy, visited the Anastasia Island quarries in mid-January, 1839. When asked about ownership of the landing where the coquina was loaded aboard flatboats, Dancy replied, it is public property. He, however, cautioned that somebody had billed the United States for rent, but he had refused the claim.

Then, in April, Elias B. Gould came to Benham and protested that the government was using his land as a landing place and for stockpiling stone. Continuing, Gould explained that he had called this matter to Dancy's attention on several occasions without securing any redress.

Benham replied, telling Gould that if he could provide a survey, they would review the metes and bounds. Gould returned the next day with a plat, and they spent several hours reconnoitering the area. What they saw satisfied Benham that the "entire landing area" was on public land.

But, as a compromise, Benham suggested that the last bend in the road be prolonged to the creek, and the United States retain possession of the ground north of the line f-g. Gould said no. He insisted that the boundary was an old path, overgrown in bushes, leading to the south part of the island. If extended to the creek at "e," this line would place the entire landing on his property. Unable to perceive the justification for such a claim, and realizing that if it were acknowledged, it would subject the United States to claims for damages and the possibility of being cut off from access to the quarries, Benham stood his ground. He, however, instructed his overseer not to store any stone north of the line f-g.

Benham heard nothing more from Gould until the late winter of 1839-40. At that time, Benham was brought before the

Territorial Court by Gould, charged as a trespasser. Gould asked that he be awarded $1,000 in damages.

Since Gould seemed willing to seek an amicable solution, they again traveled to the site. They were accompanied by County Surveyor Antonio Triay and two long-time residents. Disembarking, the oldtimers identified a ditch and enclosure, and announced that this was the road. Gould refused to accept their view.[27]

When Benham wrote the Department of this difficulty, he explained that he and the U.S. District Attorney were satisfied that the road referred to in the deeds was delinated (a-1-i) on the plat. If their interpretation were accepted by the courts, it would leave a large landing area to the public. As for the $1,000 in damages claimed by Gould, it exceeded by $520 the sum he paid for the entire 100-acre tract.[28]

Secretary of War Joel Poinsett accordingly requested Attorney General Felix Grundy to defend the government's claim to the quarries and landing. Upon investigating the claims, it was found that there were only three confirmed grants on Anastasia Island--Sanchez's of 25 acres, Rodriguez's (Gould's) of 100 acres, and Fish's for 10,000 acres or the "whole island." In every instance, the quarries were expressly reserved for use by the government. This right to use the quarries by the United States had been accepted by all grantees, except Gould.

The difficulty had surfaced, because from 1821 to 1833 there had been no officer present to enforce the government's right of access to the quarries. In 1830, three years before Lieutenant Tuttle's arrival, there had been a dispute between Rodriguez and the Fish heirs,

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27. Benham to Totten, Mar. 2, 1840, NA, RG 77, Ltrs. Recd., Chief Engineer. A copy of "Plat No. 3 being an accurate survey of the contested landing place along" road to the tower," or "Southern boundary of the portion of land claimed by Mr. E.B. Gould on Anastasia Island," is on file at Castillo de San Marcos National Monument.

28. Ibid.

and Antonio Triay had been employed to make a survey, and he had laid off a 172-acre tract instead of the 100 acres listed in the grant, and had fixed his name to the document as "City and County Surveyor" from custom. This survey had been furnished to Gould when he purchased the tract. It was on the authority of the Triay survey that Gould had brought suit against Benham for damages.[29]

While on furlough in the North, in July 1840, Lieutenant Benham learned that a citizen of St. Augustine, with Gould's permission, was removing stone from the public quarries. Although Benham's clerk called the subject to District Attorney Thomas Douglas' attention, he had declined to intervene.

Benham accordingly wrote the Department that this case must be resolved. If the government's claim were in jeopardy, citizens could be expected to continue quarrying the best and most convenient coquina, thus increasing the expense of securing stone for the public works by one-half.[30]

Once again, Secretary Poinsett called on District Attorney Douglas to "take the most efficient legal measures to protect the public interest."[31]

Gould's suit for trespass against Lieutenant Benham was scheduled to be heard before the March 1841 term of the District Court. At the last moment, Attorney David Levy (Yulee) announced that his client was dropping the suit.

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29. Benham to Totten, Mar. 28, 1840, NA, RG 77, Ltrs. Recd., Chief Engineer.

30. Benham to Totten, July 21, 1840, NA, RG 77, Ltrs. Recd., Chief Engineer.

31. Smith to Benham, Aug. 3, 1840, NA, RG 77, Ltrs. Sent, Chief Engineer.

Benham's delight that the government's right to use the landing had been acknowledged by Gould was tempered by his desire to have the matter pushed. If this had been done, the metes and bounds of Gould's 100 acres would have been identified on the ground.

He also regretted that the court had been denied the opportunity of establishing the boundaries of the tract reserved for public quarries. At the time of the grant to Jesse Fish, these boundaries had been staked by an engineer. Now, however, it was impossible to locate the stakes, or find any one to point out where they had been driven.[32]

2. Benham's Enemies Step-up Their Attacks

In the late spring and early summer of 1840, several of the people with whom Lieutenant Benham had had difficulties undertook a campaign to embarrass him and to secure his reassignment. At first, he sought to ignore these attacks, but when they employed the press to traduce his character, he began to fret.[33]

On July 26 from New York City he mailed to the Department copies of two St. Augustine newspapers, containing personal attacks on his character, along with a letter to Secretary of War Poinsett in his defense.

Under ordinary circumstances, Benham explained, these charges might seem too trifling to merit a rebuttal. But he had heard rumors that "the suggestion of removal there made is now being secretly attempted to be carried into effect at Washington." Whatever may have

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32. Benham to Totten, Mar. 20, 1841, NA, RG 77, Ltrs. Recd., Chief Engineer.

33. Copies of the newspapers containing the attacks on Benham have been removed from his July 26, 1840, letter to Totten. Because of the time factor, we were unable to consult the St. Augustine newspapers for this period.

been his opinion two months before upon the subject, recent events had demonstrated that ever meritorious officers, "know not at what moment they may be called upon to answer to accusations, and repel charges, the injustice, folly and absurdity of which might be exposed by even the weakness of an infant's mind."[34]

Several months after Benham's return to St. Augustine, David Levy confirmed what had been rumored. Levy boasted that he had hand carried to Washington letters urging Benham's replacement as superintending engineer. Levy also "virtually" acknowledged that he had accused Benham of playing politics, and throwing "the money and influences of the work into the hands" of persons opposed to the Van Buren administration.

Levy, Benham reminded the Department, was Gould's attorney and a close associate of Francis L. Dancy's father-in-law. The Department was no doubt well aware of Dancy's "peculations, and attempted peculations."

Benham trusted that Secretary of War Poinsett would view the newspaper attacks on his superintendency for what they were.[35]

Secretary Poinsett acknowledged receipt of the letter but made no official comment.[36]

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34. Benham to Totten, July 26, 1840, NA, RG 77, Ltrs. Recd., Chief Engineer.

35. Benham to Poinsett, Jan. 11, 1841, NA, RG 77, Ltrs. Recd,, Chief Engineer.

36. Poinsett to Benham, Jan. 30, 1841, NA, Ltrs. Sent, Secretary of War, Microcopy M-6.

D. Lieutenant Benham Takes Two Furloughs

1. His Trip North: June-October 1840

By early March 1840, the $10,000 appropriated by the 3d Session of the 25th Congress was nearly exhausted. Writing the Department, Lieutenant Benham warned that available funds would not permit work being carried on after April 30. It would then be necessary to close down operations for the season, and place the horses out to pasture on Anastasia Island. Several men would be retained to look after the public property.[37]

Chief Engineer Totten, the 1st Session of the 26th Congress having delayed action on a "Fortifications Bill," cautioned Benham that he must calculate upon a suspension of operations. He was to reserve sufficient monies "to pay for the indispensable supervision of the public property until" April 1, 1841. He would, therefore, budget expenditures during the next quarter "to be relieved" by June 30, 1840, of all expenses, except those for one or two persons to oversee the public property.[38]

In view of this situation, Benham asked for and received authority from the Department to absent himself from his duty station during the summer. If the current session of Congress made an appropriation for a continuation of the projects, Benham must cut short his furlough and return to Florida, after having first made arrangements for such materials as must be supplied from the North.[39]

In early June, before starting for Connecticut, Benham saw that the government property was secured and paid off all hands,

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37. Benham to Totten, Mar. 7, 1840, NA, RG 77, Ltrs. Recd., Chief Engineer.

38. Totten to Benham, Mar. 17, 1840, NA, RG 77, Ltrs. Sent, Chief Engineer.

39. Benham to Totten, Mar. 30 & Apr. 3, 1840; Totten to Benham, Apr. 24, 1840, NA, RG 77, Ltrs. Recd. & Sent, Chief Engineer.

except his clerk and one man. The former was not retained for his clerical abilities, but to look after the public property at the fort and in the city. The other man was placed in charge of the horses and the Anastasia Island improvements.[40]

Lieutentant Benham planned to return to St. Augustine by October 1. He was delayed, however, and booked passage south from New York City in the last week of September on the ship Salon, bound for Savannah. Also aboard the vessel were a number of soldiers. He finally reached St. Augustine on October 12, and lost no time in resuming work on the seawall.[41]

2. His Trip to Cuba: January-March 1841

By early December 1841, the limited funds available had been obligated, and Benham was again in the process of closing down the project. Since there was no need for his presence at St. Augustine until March, when Gould's suit against him was scheduled for trial, he requested six weeks' leave. If it were approved, he planned to visit military posts as far south as Key West, cross the Straits of Florida, and see the city of La Habana.[42]

Chief Engineer Totten approved Benham's request. His six weeks leave was to begin as soon as the project was secured.[43]

On January 17, 1841, Benham, having met his obligations, turned over to Capt. Abraham C. Myers of the Quartermaster

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40. Benham to Totten, June 8, 1840, NA, RG 77, Ltrs. Recd., Chief Engineer.

41. Benham to Totten, Sept. 27 & Oct. 12, 1840, NA, RG 77, Ltrs. Recd., Chief Engineer.

42. Benham to Totten, Dec. 6, 1840, NA, RG 77, Ltrs. Recd., Chief Engineer.

43. Totten to Benham, Dec. 12, 1840, NA, RG 77, Ltrs. Sent, Chief Engineer.

Department, for safe keeping, the Engineer property for which he was responsible. Benham then boarded a Key Biscayne-bound steamboat.[44]

Benham reached Charleston on March 2, on his return from Cuba. From there, he continued on to St. Augustine, where he arrived on the 10th.[45]

E. Progress on the Seawall: November 1839-May 1840

During the construction season, beginning in November 1839 and ending in May 1840, 750 running feet of seawall, averaging 8 feet in height was laid. In addition, about 225 running feet of a smaller wall enclosing a basin at Saint Francis Barracks was built. Altogether some 33,150 cubic feet of masonry was laid.

About 200 running feet of coping was received and positioned on the section of the wall between Fort Marion and the Market Place Basin, thus completing the wall between these points.

As of October 1, 1840, the seawall extended 3,375 running feet from Fort Marion on the north to Saint Francis Barracks on the south, the distance contemplated when the project was planned. To the south of the present termination of the wall, for a distance of 600 feet, was a tract belonging to the United States upon which were located a number of structures belonging to the Quartermaster Department. The waterfront, in this area, was subject to erosion, and estimates had been submitted to Congress by the Department to extend the seawall to protect this area. The 1st Session of the 26th Congress had refused to make an appropriation to fund this undertaking.[46]

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44. Benham to Totten, Jan. 17, 1841, NA, RG 77, Ltrs. Recd., Chief Engineer. Among the improvements for which Captain Myers assumed responsibility were three buildings at the quarries (a frame stable, 50 by 30 feet; a quarters, 38 by 16 feet; and a 15- by 12-foot kitchen) and at Fort Marion a blacksmithy.

45. Benham to Totten, March 2 & 10, 1841, NA, RG 77, Ltrs. Recd., Chief Engineer.

46. Benham to Totten, Oct. 16, 1840, NA, RG 77, Ltrs. Recd., Chief Engineer.

In the same period, some 7,000 cubic feet of coquina had been quarried on Anastasia Island and transported to the mainland.[47]

F. Reduced Force Continues Work

1. Yellow Fever Brings Pressure on the United States to Drain the "Trough"

Soon after Lieutenant Benham's return to St. Augustine from the North in October 1839, and submission of his report extolling the "extraordinary healthiness" of the area, yellow fever struck. Three-fourths of the inhabitants and all the army officers (15) stationed there, except Benham, were stricken. Six of the officers died.[48]

After the pestilance disappeared, following the first frost, a number of citizens, including General Hernandez and District Attorney Douglas, called on Lieutenant Benham. They told him that stagnant water, trapped behind the seawall, was a source of the plague, and insisted that the "trough" must be filled. Benham argued that they were mistaken, because "land overflowed by tide from the Sea without any mixture of fresh water, cannot produce disease of any kind."

But, to satisfy the local people, Benham was agreeable to taking measures to alleviate this situation. He accordingly proposed to Chief Engineer Totten three alternatives for accomplishing this project. They were to: (a) fill in the "trough" between the basin, the wall, and the high water mark; (b) cut a large opening through the wall near Angle S, to provide a powerful tidal current behind the wall; or (c) take up the wall between K' and M' and rebuild it along lines M'1' and 1'K.

The first option, Benham advised the Department, involved use of about 16,000 cubic yards of fill, which would have to be

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47. Ibid.

48. Benham to Totten, Jan. 22, 1842, NA, RG 77, Ltrs. Recd., Chief Engineer.

transported in flatboats and then shoveled across the wall. Cost of such an undertaking would exceed $12,000.

Turning to the second alternative, Benham had reservations as to its effectiveness. Already, the "trough" was overflowed by the ebb and flow of tides passing between the piers of wharf (c). It could be assumed that the powerful current created in this limited space would have scoured at least as deep a channel here as anywhere else in rear of the wall. Such, however, had not occurred. Should the Department opt for this alternative, it would cost about $3,000.

The third possibility involved taking up and rebuilding about 1,000 feet of seawall at a cost of $6,000. This was Benham's preference, because it would locate the wall "very near the position originally designed for it." Sited thus, the structure would

> prove a complete and effectual barrier to the ravages of the seas; which cannot be the case in its present site thrown out so far, as to give during the gales, some action, though probably not a very violent one of the water in rear of the wall upon the shore.

The seawall would then provide the citizens with access to the shore, and use of the structure along this entire line from which they were now cut off.[49]

2. Plans are Made and Approved for Expenditure of the Balance of the Appropriation

After reviewing Benham's letter, Chief Engineer Totten advised him that the 1st Session of the 26th Congress had adjourned on July 21, without making an appropriation for the St. Augustine projects.

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49. Benham to Totten, July 19, 1840, NA, RG 77, Ltrs., Recd., Chief Engineer.

Consequently, Benham was to close down operations. To this end, available balances, along with such monies as might accrue from sale of surplus public property, were to be applied to placing the seawall in "the best possible condition."

The small sum on the books made impossible the relocation of the 1,000 feet of wall recommended by Benham, as well as the alternative of filling in the space behind the structure. Some other means of eliminating stagnant water behind the wall must be found. To accomplish this, Colonel Totten suggested making an opening near point G and closing the passage at the wharf.

Without holding Benham to this course of action, Totten called on him to prepare a project for expenditure of the remaining funds. Benham's goal would be to place the work in the aforementioned condition; "leaving not a single claim unliquidated; extinguishing all sources of future expenditure; and on no account transcending the amounts on hand and to be raised by the sale of surplus property."[50]

From New York City, on the last day of July, Benham replied. Unexpended funds in his hands and on deposit in the Treasury totaled $1,350. From the sale of surplus property (eight horses and a colt, 60 to 70 barrels of cement, flatboats, etc.), he estimated, there could be raised another $1,000 to $1,200.

To meet the Department's goals, he proposed to expend these monies to construct a small wall on the north, south, and east sides of the public square to constitute a basin. Such a structure 250 running feet in length, four feet in height, three feet at the base, and two feet at the top, could be built for $800 to $900.

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50. Totten to Benham, July 27, 1840, NA, RG 77, Ltrs. Sent, Chief Engineer.

The remainder of the funds would be employed to fill in behind the wall and help alleviate the threat to the community from yellow fever.[51]

Chief Engineer Totten, replying, cautioned that the smallest sum possible be disbursed for filling. If Benham's plan were a good one, "little or nothing may be needed for that object." Totten trusted that the remaining funds would be applied to extending "the wall southward; finishing as you go."[52]

Benham questioned the Department's decision to continue the seawall southward. At present, he noted, the structure abutted against an earthen embankment formed at the foot of stone wharf D, and some 30 feet from the wharf. The latter structure, which had caused formation of the bank, protected the shore for 50 to 75 feet farther south. If extended into this area, the seawall, besides possessing little utility, would cost about one-half the available funds.

He was satisfied that the suggestion to construct a small wall opposite the public square to protect that part of the city from flooding during storms had merit. In this conclusion, Benham enjoyed the support of General Hernandez and most of the citizens.[53]

3. Market Basin is Enclosed

In mid-October 1840, upon Benham's return from the North, he found the population in good health. A Protestant clergyman told Benham that, since the autumn of 1839, he had officiated at only one funeral.

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51. Benham to Totten, July 31, 1840, NA, RG 77, Ltrs. Recd., Chief Engineer.

52. Totten to Benham, Aug. 7, 1840, NA, RG 77, Ltrs. Sent, Chief Engineer.

53. Benham to Totten, Aug. 24, 1840, NA, RG 77, Ltrs. Recd., Chief Engineer.

In addition, an arched opening introduced into the seawall, 20 feet north of angle G, had practically drained the "trough" of stagnant water. Encouraged by this success, Benham recommended two more openings be made in the wall--one at angle G and the other 500 feet north of the subject angle.[54]

During the next 12 weeks, Benham employed a small force to accomplish the approved program. On January 11, 1841, the funds expended, Benham transmitted to the Department a drawing of the wall around the market basin. Three hundred and seventy-five running feet of wall, five feet in height, three feet wide at the base, and two feet across at the top had been laid.

Simultaneously, a large force of laborers had filled in earth behind the basin walls, as well as the seawall.[55]

The basin, whose walls had not been coped, was, Benham reported, a multipurpose feature. It prevented water, after heavy rains, from carrying off soil from the public square and streets, and provided a secure harbor for flatboats to moor while discharging and taking aboard cargo.[56]

G. Project is Closed Down

1. Complying with the Senate Resolution of December 30, 1840

During the years following the Panic of 1837, economy-minded congressmen focused increased attention on how the War

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54. Benham to Totten, Oct. 16, 1840, NA, RG 77, Ltrs. Recd., Chief Engineer.

55. Benham to Totten, Jan. 11 & Oct. 16, 1841, NA, RG 77, Ltrs. Recd., Chief Engineer. A copy of a drawing titled, "Plan of the Sea Wall of Saint Augustine from the Public Square to the South, as completed January first 1841," is on file at Castillo de San Marcos National Monument.

56. Benham to Totten, Oct. 16, 1841, NA, RG 77, Ltrs. Recd., Chief Engineer.

Department expended funds appropriated for coastal fortifications and related projects. Consequently, on December 30, 1840, the Senate passed a resolution calling on Secretary of the Treasury Levi Woodbury to report the drafts drawn by his Department that "have been protested for non-payment or that have been presented for payment and remain unpaid."[57]

Ten days later, Chief Engineer Totten transmitted copies of the resolution to his superintending engineers.[58]

Acknowledging receipt, Lieutenant Benham assured the Department that no public monies nor Treasury drafts had been exchanged for bank notes or had been sold by him.

As for the second question, all that could be said was that the public funds for which he was reponsible were deposited in the local Southern Life Insurance & Trust Co. This was a specie paying institution.[59]

Then, in May, the St. Augustine bank was compelled to suspend specie payment, because Departmental circulars prohibited disbursing officers from depositing funds in non-specie paying banks. Benham then called for instructions on what to do with the public funds. There were, he explained, no banks in the region that now honored their notes in specie.[60]

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57. Congressional Globe, Jan. 5, 1841.

58. Circular Letter, Jan 8, 1840, NA, RG 77, Ltrs. Sent, Chief Engineer.

59. Benham to Totten, Jan. 22, 1840, NA, RG 77, Ltrs., Recd., Chief Engineer.

60. Benham to Totten, June 8, 1840, NA, RG 77, Ltrs. Recd., Chief Engineer.

2. United States Realizes Less than $1,000 from Sale of Public Property

In 1840, the failure of Congress to enact a "Fortifications Bill" resulted in a decision by the Department to close down a number of projects and dispose of surplus public property. A number of congressmen questioned this decision, and they called on the Department to ascertain the cost to the United States, vis-a-vis the monies realized from the sale of public property, resulting from these suspensions. By circular letter, Chief Engineer Totten called on Lieutenant Benham and other superintending engineers to submit a statement of the "aggregate cost, and . . . the proceeds of sale" of all machinery, implements, and materials.[61]

Checking his books, Benham found that the aggregate cost of materials, machinery, etc., since the beginning of the project in 1833 had been $37,873.58. Of this sum, a large proportion was for lumber, granite, and other materials expended on the work. The remainder was for machinery, tools, horses, etc. Most of these had been sold at from one-sixth to one-tenth of their value, excepting the horses which returned from one-third to one-half their cost.

Sale of this property yielded $943.04 and included everything except several buildings at the quarries, 15 granite steps, and two portable cranes.[62]

3. Department Seeks to Resolve Charges of Excessive Expenditures

During the summer of 1841, Secretary of War John Bell called on Chief Engineer Totten for a report touching on "unnecessary or

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61. Totten to Benham, Jan. 8, 1841, NA, RG 77, Ltrs. Sent, Chief Engineer. This request was triggered by a Senate Resolution of December 17, 1840.

62. Benham to Totten, March 15, 1841, NA, RG 77, Ltrs. Recd., Chief Engineer.

extravagant expenditures of funds provided by Congress for purposes connected with the National Defence." To provide the Secretary with this data, Totten, by circular letter, called on his superintending engineers for answers to six questions: (a) Can any change of plan be made in reference to the work now under construction by which the costs thereof might be reduced? (b) What was the principal material(s) used in the work, and if it could be changed to any that would be less expensive? (c) What has been done with a view to the personal accommodation of personnal associated with the project(s)? (d) What was the cost of land acquisition? (e) Had extravagent prices been paid for materials? (f) How did the salaries of the clerk, overseers, etc., compare with those paid to local people engaged in similar work?[63]

Lieutenant Benham answered the questions: (a) He did not know of any change in plans by which the utility of the seawall and water battery could be preserved. (b) The coquina, quarried locally, cost 12 to 14 cents per cubic foot, opposed to 28 cents per cubic foot for bricks used at Fort Pulaski. Local shell lime cost 15 to 18 cents per bushel, while stone lime from the North could be had at from $1.75 to $2 per barrel, a difference much in favor of the Florida product. (c) No housing nor offices had been erected at St. Augustine and charged against the appropriations. A quarters, however, had been built for the overseers at the Anastasia Island quarries. It was also used as a storehouse. (d) No land acquisitions had been charged against the appropriations, because the public land had been ceded to the United States by the Spanish government. (e) The only price for materials that might be deemed excessive was the 1,500 running feet of coping purchased by Dancy from Megredy & Smith. This price had been $3.75 per running foot. Since taking charge, Benham had contracted for coping at $2.83 per running foot. (f) There had never been more than two persons employed as overseers. One was in charge of the quarries

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63. Totten to Superintending Engineers, Sept. 13, 1841, NA, RG 77, Ltrs., Sent, Chief Engineer.

and the second, who doubled as clerk, superintended construction of the seawall.[64]

H. 27th Congress Appropriates $15,000 to Finish Seawall

1. Totten Provides Guidelines

On March 16, 1841, Chief Engineer Totten wrote Lieutenant Benham that the 1st Session of the 27th Congress had appropriated $15,000 for resumption of work on the St. Augustine projects.

Upon reviewing the correspondence, Totten found that there was no need to extend the seawall south of point "T," about 500 feet from the St. Francis Barracks Basin, where it rested against a solid shell bank, which constituted an "excellent terminus for the work."

Benham would "give to this portion of the wall such a direction as you shall deem best calculated to secure a safe terminus--deviating from the direction given in the drawing, if necessary for that purpose."

Totten was delighted to learn that the "trough" behind the seawall, south of the Market Basin into which the tide surged, was not as great a health hazard as heretofore. The Department agreed that the opening of additional drains at angle "G" and 500 feet to the north thereof would rid the area of stagnant water.

Benham was to employ the appropriation to accomplish these objects. All monies not expended for these purposes were to be programmed for: (a) dressing the rear surface of he coping on the seawall adjacent to Fort Marion; (b) completing the St. Francis Barracks Basin walls; and (c) laying additional coping. He was to keep in mind that the $15,000 was to "complete every operation in relation to the wall," and to insure that no further appropriation will be asked of Congress. It

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64. Benham to Totten, Oct. 16, 1841, NA, RG 77, Ltrs. Recd., Chief Engineer.

was hoped that there would be a sufficient balance to begin "the more important repairs of the Sea Wall of the Fort."

Benham would, at the earliest opportunity, prepare and submit for approval an opealing program for expenditure of the $15,000. He was to accompany it with a tabular estimate of the gross anticipated monthly disbursements. This was to enable the Treasury to forecast demands and be prepared to meet successive monthly requisitions. This tabular estimate would not replace the detailed monthly estimates required by Army Regulations.[65]

2. Benham Submits a Program

Benham was satisfied that with the $15,000 he could complete the seawall and fill in behind it were necessary. The latter would not be as formidable task as feared. During the summer of 1840, city authorities had raked and cleaned the weeds and algea from the stagnant pools. More important, the "trough" was being slowly filled in by silt carried by tides and sand deposited by run-offs following the torrential rains common to the area.

In regard to early completion of the seawall, Benham asked the Department's indulgence. Experience had demonstrated that, during Dancy's superintendency, working conditions, especially for the masons, were unsatisfactory in the summer.

The recent ill-advised sale of the public property necessitated its replacement before construction could be resumed. This could not be done overnight. To further complicate the situation, skilled northern mechanics could not be induced to come south during the sickly season. If men were hired locally, as they had been for the 1839-40 season, there would be problems, because they required "constant supervision."

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65. Totten to Benham, March 16, 1841, NA, RG 77, Ltrs. Sent, Chief Engineer.

To cope with these problems, if the Department were agreeable, he would resume quarrying on October 1, and laying masonry four weeks later. The project would then be carried to completion, which should be by late winter.

Turning next to the sections of wall requiring granite coping, Benham recommended its use on the wall to be built south of the St. Francis Barracks basin. This section of wall was opposite the quartermaster storehouses, and when finished could be used as a wharf for unloading flatboats. Coping also should be positioned on the small wall of the two basins, otherwise they would be damaged by the steady passage of pedestrians and the loading and unloading of boats.

After completing the seawall and filling the "trough" to its rear with earth, the small balance remaining would be employed to purchase tools, materials, etc., for repair of the water battery.[66]

Next, Benham submitted for approval his estimated expenditures for 1841:

for September - - - - -	$5,000
for October - - - - - -	1,500
for November - - - - -	1,500
for December - - - - -	1,500
Total	$9,500[67]

3. Benham Takes Leave and Arouses Totten's Ire

After waiting seven weeks and receiving no answer to his letter of April 28, Benham, satisfied that it had miscarried, booked passage aboard a vessel bound for New York City. On doing so, he asked authority to remain in the North for the summer, where his

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66. Benham to Totten, April 26, 1841, NA, RG 77, Ltrs. Recd., Chief Engineer.

67. Ibid.

services could be employed contracting for materials and machinery necessary for resumption of the project.[68]

This was a blunder on Benham's part. Upon receipt of Benham's request, Chief Engineer Totten forwarded orders, giving him 3½ months' leave from the date of his departure from St. Augustine.

Benham protested that this was unfair. He contended that his trip North was in line of duty, and should be funded by the United States, because it was made to facilitate purchase of materials, tools, etc., needed to finish the seawall. Only last year, he complained, while on leave he had visited, at his own expense, a number of quarries. This had enabled him to contract for granite coping at a cost to the government of 100 percent less than the price paid under Dancy's contract with Megredy & Smith. Moreover, when he made the contract, the agent's commission had been saved.

Continuing, Benham argued that his request was justified by custom. He knew that Captain Mansfield had traveled North from Savannah every summer since 1831, but one, and each time Mansfield had done so under orders, entitling him to transportation and "his full emoluments."[69]

Chief Engineer Totten's ire was stoked by the tone of Benham's letter. When Totten answered, he noted that, if he had been present, he would have rejected a request for orders to proceed to the North to perfect arrangements for materials. His reasoning was: Benham was on duty at "St. Augustine with a certain amount of funds available for the year," part of which could be spent with advantage during the summer at the quarries and the rest in getting ready for operations in

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68. Benham to Totten, June 27, 1841, NA, RG 77, Ltrs. Recd., Chief Engineer.

69. Benham to Totten, July 24, 1841, NA, RG 77, Ltrs. Recd., Chief Engineer.

the autumn, on return of the workmen. But Benham had chosen to come to Washington and solicit authority to continue on to Connecticut to accomplish what could be done as well by letter. Consequently, Totten had presented Benham with the alternative of either returning to St. Augustine or applying for leave to attend to personal business. Though Totten believed that Benham's presence was needed at St. Augustine, Totten had acceded to the latter option.

Totten saw no reason to change his mind, and answering Benham's arguments engrossed time needed for more important business.[70]

On September 27, at the expiration of his furlough, Benham sailed from New York City for St. Augustine. He arrived in the Florida city on October 9.[71]

I. Work on the Seawall in 1842

1. Hewing and Dressing Stone

Benham soon had a large force employed on the seawall. Upon reviewing Benham's monthly report of operations for February 1842, Chief Engineer Totten complained that it was costing too much for "hewing the back of the granite coping of the north division of the wall."[72]

Commenting on this criticism, Benham informed the Department that the project as formulated called for the seawall to be banked with earth. Consequently, Mr. Dancy had taken no steps to trim the back of the stonework. When Benham took charge in January 1839, he found stones projecting from the body of the wall from 3 to 12 inches

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70. Totten to Benham, Aug. 27, 1841, NA, RG 77, Ltrs. Sent, Chief Engineer.

71. Benham to Totten, Sept. 27 & Oct. 9, 1841, NA, RG 77, Ltrs. Recd., Chief Engineer.

72. Totten to Benham, March 15, 1842, NA, RG 77, Ltrs. Sent, Chief Engineer.

to a distance of 2,000 feet. As final arrangements were in flux, he had continued the wall in the same manner. Moreover, as the wall was to be coped with granite blocks, varying from 8 to 12 inches thick, he had deemed it a waste of time and materials to level the wall before laying the coping. The upper course of coquina, upon which the coping was to be positioned, had also been left irregular.

The expenditures complained of, Benham explained, involved hewing and pointing the seawall and trimming the rear of it for a distance of 3,880 running feet. This was being done in the least expensive manner feasible. South of the market basin, the wall was being merely rough hewn plumb, and "flash pointed for 2 1/2 feet down and the pointing dashed over with pounded shell stone and the material projections of the part below this where the wall stands out from the shore very roughly trimmed off."

Because the wall between the fort and the market basin paralleled one of the city's principal streets, it was being rough hewn and plastered.[73]

2. Progress Made During the Year Ending September 30, 1842

Workmen during the winter and spring extended the seawall 400 feet farther to the south to better protect the St. Francis Barracks tract. Four hundred and seventy running feet of coping were laid on the seawall south of St. Francis Barracks, and 672 running feet of coping on the narrow walls of the two basins. All the wall, except for the 1,700 feet between the basins, was now coped. The latter, however, because of its location should not be subject to injury from loading and unloading of flatboats.

The area behind the wall near the fort, where no passage had been left for the ebb and flow of the tides, had been filled and

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73. Benham to Totten, March 28, 1842, NA, RG 77, Ltrs. Recd., Chief Engineer.

landscaped. A lesser amount of earth had been deposited behind the curved middle section of the wall in late June to raise "the surface at the dividing" of the tides. This was done in expectation that drainage would be facilitated and "the offensive and stagnant mud formed in this space" would soon be covered.[74]

During the year ending September 30, 1842, workmen laid 16,000 cubic feet of masonry and 1,142 running feet of coping, and transported and spread 5,800 cubic yards of sand and earth for levelling and filling behind the walls. Much of this fill had to be "removed with . . . shovels some 4 or 5 times over the soft mud in rear of the walls."

Expenditures on the seawall during this period were in excess of $15,440 of which $1,600 had been paid for the granite coping. About $3,000 had been obligated for a "new outfit of tools and machinery" to replace those sold when the project was closed down in 1841.[75]

3. Closing Down the Project

By early May 1842, Benham's thoughts turned to closing down the projects for the summer. Writing the Department for guidance, he pointed out that the seawall masonry had been finished, and he anticipated that by June 30 a sufficient quantity of earth will have been boated and unloaded for the backfill.[76]

Then, on August 11, Benham received a copy of a circular letter, calling on him to suspend operations.[77] Replying, he informed the

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74. Benham to Totten, July 4 & 10, 1842, NA, RG 77, Ltrs. Recd., Chief Engineer.

75. Benham to Totten, Sept. 30, 1842, NA, RG 77, Ltrs. Recd., Chief Engineer.

76. Benham to Totten, May 5, 1842, NA, RG 77, Ltrs. Recd., Chief Engineer.

77. Circular Letters, July 28, 1842, NA, RG 77, Ltrs. Sent, Chief Engineer.

Department that there were 10 to 12 men employed on the seawall and an equal number at the fort. A suspension of work on the former would be a source of regret, because he was striving, with the limited funds available (about $600), "to improve as much as possible the condition of the lands" in rear of the seawall before the "sickly season." He believed this sum sufficient to cover with several feet of sand the "offensive marsh." If so, it would alleviate local fears of "disease from the disagreeable and offensive miasma arising thereform."[78]

After studying the correspondence, the Department directed Benham to continue to landscape and drain the area in rear of the seawall until the funds on hand were expended.[79]

Benham, however, decided there were insufficient funds to meet the spirit of the circulars, and closed down work on the seawall. Upon doing so, there remained in the Treasury $350 of the $15,000 appropriated by Congress on September 9, 1841, besides the $5,000 reserved by the Chief Engineer's order for the fort.

He regretted that it was impossible to employ this limited sum to cover with sand and earth all "the offensive portions in rear of the seawall," one of the worst being south of and contiguous to the market basin. The result, he feared, would be pressure by the citizens to compel Congress to appropriate additional funds to fill in and landscape the entire area.

Benham proposed to transfer the flats, tools, etc., purchased for repair of the seawall to the Fort Marion account. The seven hoses, two having recently died, would be sold at public auction.[80]

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78. Benham to Totten, Aug. 11, 1842, NA, RG 77, Ltrs. Recd., Chief Engineer.

79. Welcker to Benham, Aug. 13, 1842, NA, RG 77, Ltrs. Sent, Chief Engineer.

80. Benham to Totten, Aug. 27, 1842, NA, RG 77, Ltrs. Recd., Chief Engineer.

Colonel Totten hoped that issuance of Treasury notes, authorized by the last session of Congress, would enable the Secretary of the Treasury to remove the restrictions imposed on construction of all public works. Consequently, it would be poor economy for Benham to sell, at a sacrifice, the horses, oxen, and other public property.[81]

4. October 5-7, 1842, Nor'easter

On October 10, 1842, Lieutenant Benham transmitted to the Department a "Drawing of the Sea Wall of St. Augustine, showing the situation, length, and from the Sections, etc., & all other particulars in relation to the wall." Since the drawing had been completed, the wall had been damaged in several places by vessels being dashed against it during the October 5-7 nor'easter. This storm had caused serious damage to property, both in the city and harbor.

The tide rose nearly to the top of the seawall's coping and, rushing through openings, flooded adjacent streets. Had the wall never been built, most of the houses on Maine Street would have been swept away. There had been one steamer, four schooners, and a number of smaller craft moored in the harbor when the storm roared in. Of these, only one schooner was afloat after the blow. The schooner Sanchez broke loose from her anchorage, at the foot of the wharf, and was driven into the angle between the wall and the next wharf south. She broke down the top of the wall for a distance of 30 feet. The small wall in the market basin was damaged in several places.

All flatboats belonging to the project had been damaged and several wrecked. A large craft, recently repaired for reception of granite, foundered near the southeast angle of the fort. It was promptly salvaged.

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81. Totten to Benham, Sept. 6, 1842, NA, RG 77, Ltrs. Sent, Chief Engineer.

A large flatboat was driven against the boathouse recently erected in the re-entrant angle of the south part of the water battery. It demolished the house and damaged four other craft.[82]

J. United States Spends Another $6,000 on the Seawall

1. Totten's 1844 Inspection of the Seawall

On his May 1844 visit to St. Augustine, Chief Engineer Totten examined the seawall. On doing so, he saw that a change in depth of water in front of a portion of the structure, which permitted the unloading of wood and other cargo over the wall, had demonstrated the need for putting "hard coping" upon the 1,700 feet not previously protected in this manner. There was insufficient money, however, remaining in the appropriation to accomplish this. Lieutenant Benham was to prepare and submit estimates for this work, as well as to fill in behind the wall with sand to the "height of common high water," and to provide for necessary drainage. These estimates would be presented to Congress when it convened in December.

Meanwhile, measures were to be taken to protect the foot of the wall, wherever tidal currents were undercutting the sand shielding it. Totten called for positioning riprap in front of the wall in these areas.[83]

2. Benham Submits His Estimates and Congress Makes Another Appropriation

Lieutenant Benham, in accordance with Colonel Totten's instructions, prepared estimates for completing the seawall. He believed

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82. Benham to Totten, Oct. 10, 1842, NA, RG 77, Ltrs. Recd., Chief Engineer.

83. Totten to Benham, May 19, 1844, NA, RG 77, Ltrs. Sent, Chief Engineer.

it could be done for $5,000, in addition to the $1,133.04 remaining from monies on hand from the appropriation for repair of Fort Marion.[84]

The Short Session of the 28th Congress included $5,000 for St. Augustine in its "Fortifications Bill." On March 7, 1845, Chief Engineer Totten wrote Benham that the sum available for the project was $6,200, including $1,139 remaining in the agent's hands. Although no part of these funds could be spent on Fort Marion or for completing repair of the seawall before July 1, Benham was to prepare a program, to include a statement of anticipated monthly expenditures for the next 15 months.

Because Benham was to remain in the Philadelphia-Annapolis area to oversee completion of the Forts Severn, McHenry, and Mifflin projects, he should not plan to return to Florida before autumn. In the meantime, he might perfect arrangements to expedite progress upon his arrival.

Benham was cautioned that, in formulating his program, this expenditure must "complete our labors at that place." The Department could not ask for additional money for that area.[85]

Upon evaluating the situation and his commitments, Benham concluded that it would be December 1 before he returned to St. Augustine. This would be sufficiently early, provided arrangements could be made for construction of four mud scows for transporting earth. Such craft would enable his laborers, on a favorable day, to throw 60 to 70 cubic yards over the seawall. A contract would be made in the near future for delivery of the coping. As he saw it, the appropriation would be spent:

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84. Benham to Totten, Oct. 14, 1844, NA, RG 77, Ltrs. Recd., Chief Engineer.

85. Totten to Benham, March 7, 1845, NA, RG 77, Ltrs. Sent, Chief Engineer.

For coping to be received and delivered in December, 1,750 running feet at $1.75	$3,062.50
For masons' labor in setting coping @ 8¢ per running foot	140.00
For labor in receiving, landing, and assisting masons at 14¢ per running foot	245.00
For building four scows @ $180 each	720.00
For labor for filling in behind seawall	1,952.50
For care of public property from May 1, 1846, to June 30, 1847, 14 months at $20 per month	280.00
Total	$6,400.00[86]

3. Striking a Compromise with the City

Benham next called the Department's attention to a potential problem. There were a number of lots between Bridge and Green Streets that, according to deed description, were bounded on the east by "the edge of the sea" or "low water." Once the area west of the seawall was filled by the United States, these property owners would assert their claims.

To forestall land grabs, Benham recommended that the Department approach the city council with a proposition: in return for renewing the land, the city would lay out a broad street parallel to and adjacent to the seawall.[87]

The Department embraced this concept. On March 26, Benham was directed to take up his subject with the "city fathers," and secure either by voluntary relinquishment or by other legal means the street in question for use of the city. The reserve of the subject street

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86. Benham to Totten, March 22, 1845, NA, Ltrs. Recd., Chief Engineer.

87. Ibid.

might be made dependent upon completion of the seawall, and filling in behind by the United States. Care must be exercised by Benham to do nothing to commit the government to completion of the wall or street.[88]

Benham, having had much experience in dealing with the municipal authorities, wished to know if he could pressure them into making the desired concession. This could be done, he believed, by informing them that funds for filling in behind the wall were contingent on the laying out of the street.[89]

There was nothing in the language shaping the appropriation, Chief Engineer Totten cautioned, that made expenditure of monies for the seawall contingent on conveyance of land for a street. The object of the Department's March 26 letter was merely to give Benham freedom of action on this subject.

As an additional guideline, the Department advised Benham that the balance of the sum for repair of Fort Marion currently in his hands ($1,109.66) had been reappropriated for "completing the Sea Wall at St. Augustine," and to this goal it must be applied.[90]

Benham therefore wrote the "city fathers," informing them of the recent appropriaton and its objects. He told of plans to fill in behind the seawall, and of the desire that a street be laid out.

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88. Totten to Benham, March 26, 1845, NA, RG 77, Ltrs. Sent, Chief Engineer. Colonel Totten presumed that the city authorities had the inherent power to lay out streets.

89. Benham to Totten, March 30, 1845, NA, RG 77, Ltrs. Recd., Chief Engineer.

90. Lee to Benham, April 1, 1845, & Welcker to Benham, April 11, 1845, NA, RG 77, Ltrs. Sent, Chief Engineer.

Some local politicians and landowners, concluding that the landscaping and laying out of the street were linked, protested to the War Department.

This caused Chief Engineer Totten to again warn Benham that there must be no "intimations or threats that the government will do this or that." He should by conversations and inquiries endeavor to ascertain the inhabitants' opinions and dispositions, as well as those of the authorities, so that the government might know before hand in what spirit its proposition pertaining to the street would be received.[91]

Benham assured the Department that the citizens had misconstrued the tenor of his letter. Nothing in the way of alternatives had been cited beyond a request that an early reply was desired, because no steps could be taken toward filling in behind the seawall until this question was resolved.[92]

On July 11, Benham received a letter from Mayor Elias Gould, announcing that the city council had agreed to lay out a street, not less than 50 feet in width, adjoining the seawall from the public square on the north to St. Francis Barracks on the south.[93]

This concession was welcomed by the Department, and Benham was authorized to fill in behind the wall, as contemplated, on resuming operations. He was again admonished to exercise care that expenditures did not exceed the appropriation by as much as one dollar.

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91. Totten to Benham, May 23, 1845, NA, RG 77, Ltrs. Sent, Chief Engineer.

92. Benham to Totten, May 31, 1845, NA, RG 77, Ltrs. Recd., Chief Engineer.

93. Benham to Totten, July 11, 1845, NA, RG 77, Ltrs. Recd., Chief Engineer.

Because this was a "closing operation," all arrangements must be made with this in view.[94]

By mid-November, Lieutenant Benham had closed the projects at Forts Mifflin, McHenry, and Severn, and was ready to return to St. Augustine. Before doing so, he dropped by the Department to discuss the seawall with Chief Engineer Totten. He reported that friends in St. Augustine had written that nothing had been done to implement the agreement to mark out a street paralleling the seawall, south of the public square. He feared that if the United States first made the fill, the citizens might renege.[95]

Secreatry of War William L. Marcy agreed with Benham, and directed that no more public funds be expended on fill behind the seawall, while the land remained in private ownership, or was liable to be fenced off from public use. No consideration justified any part of this appropriation being applied to improvement of private property, unless a public road was first laid out by the city authorities.

Lieutenant Benham would limit operations to completion of the seawall and securing its foundations on the harbor side.[96]

On November 22, Lieutenant Benham returned to St. Augustine. He found that there had been a change in administration and the new mayor, Benjamin Putnam, had seen that the desired street was

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94. Totten to Benham, Sept. 9, 1845, NA, RG 77, Ltrs. Sent, Chief Engineer.

95. Benham to Totten, Nov. 15, 1845, NA, RG 77, Ltrs. Recd., Chief Engineer.

96. Totten to Benham, Nov. 15, 1845, NA, RG 77, Ltrs. Sent, Chief Engineer.

laid out. The landowners had likewise relinquished to the municipality their claim to the subject frontage.[97]

4. Filling in and Landscaping Behind the Wall

In late May 1845, to expedite early completion of the seawall, Lieutenant Benham had contracted with Edwin Wilmer of Fort Deposit, Maryland, for 1,750 running feet of coping.[98]

Upon reaching St. Augustine in late November, Benham hired a number of carpenters and laborers and put them to work building three large scows. When completed, these vessels, along with two rented craft and one on loan from the Quartermaster Department, were employed to transport sand and earth from the channel shore, two miles distant, for filling behind the seawall.

Beginning in early December and continuing through mid-April 1846, 26 to 30 hands were employed shoveling over the wall and spreading 10,800 cubic yards of earth and sand. This was sufficient to raise the level of the ground between the basins and from 60 to 130 feet across, to a height three feet below the elevation of the granite coping. From there it sloped "to about 15 inches lower at the distance of 60 feet." The remainder of the area filled was at the latter level, being between 4'3" and 4'6" below the coping. The basin coping was 3 inches lower than that on the section of the seawall between the market basin and the fort.

The filled area was "slightly graded." Benham closed the sluiceways in the basin walls with two smooth live oak sticks that could be easily removed to form culverts to drain the area, should it become

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97. Benham to Totten, Nov. 22, 1845, NA, RG 77, Ltrs. Recd., Chief Engineer.

98. Benham to Totten, May 24, 1845, and Welcker to Benham, June 17, 1845, NA, RG 77, Ltrs. Recd. & Sent, Chief Engineer.

inundated during storms, and the water not be carried off with sufficient rapidity by filtration.[99]

5. Coping 1,750 Feet of Wall

A severe winter which caused the lower Susquehanna to freeze over in December delayed shipment of the Fort Deposit granite coping until mid-March. Two cargos were received and unloaded at the beginning of April, and the final 400 running feet in the first week of May.

The coping was set as rapidly as possible, "and every necessary convenience of steps, etc., placed for the accommodation of the citizens."[100]

6. Securing the Project

By March 30, 1846, Benham could see the "light at the end of the tunnel." To secure guidance in closing operations he wrote the Department. He wished to know if he were to secure receipts from the officer in charge of St. Francis Barracks or the post quartermaster for property turned over to their commands.

Some of the public property could be sold at auction, but he feared it would be at great sacrifice to the United States. To avoid this, he had written Capt. Alexander H. Bowman, superintending engineer at Charleston, providing him with an inventory of what was available for transfer.[101]

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99. Benham to Totten, May 31, 1846, NA, RG 77, Ltrs. Recd., Chief Engineer.

100. Benham to Totten, March 3 & 30, May 4 & 31, 1846, NA, RG 77, Ltrs. Recd., Chief Engineer.

101. Benham to Totten, March 30, 1846, NA, RG 77, Ltrs. Recd., Chief Engineer.

Benham was directed to sell or transfer to Captain Bowman all the public property Bowman desired. The scows were to be retained for use at the fortifications planned for Cumberland Island or until such time as the fate of that appropriation was known.

A letter had been addressed by Chief Engineer Totten to Quartermaster General Jesup, proposing that the quarries and such public property as could not be sold at a reasonable price be turned over to Jesup's department to be used, until such time as there was a resumption of Engineer operation in or around St. Augustine.[102]

On May 11, word reached St. Augustine of the attack by the Mexicans on and capture of Capt. Seth Thornton's patrol near the Rio Grande, 16 days before. Lieutenant Benham was eager for action. At 6:00 a.m., the next morning, he wrote the Department, asking that he be ordered to duty with Brig. Gen. Zachary Taylor's army at the earliest opportunity.

His tasks at St. Augustine, he added, would not intrude because work on the seawall would be completed during the week.[103]

Orders to proceed to Fort Washington, Maryland, instead were received. By the end of the month, Benham had secured the project. Such of the property as commanded one-half its "actual value" was sold by private sale. All items remaining, likely to be useful on the Charleston defenses and readily transported, were shipped to Captain Bowman. The remainder, except the trio of scows, was stored in the Fort Marion casemates. The scows were positioned on piles near the barracks, from where they could be sent to Cumberland Island if called for.[104]

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102. Totten to Benham, April 13, 1846, NA, RG 77, Ltrs. Sent, Chief Engineer.

103. Benham to Totten, May 12, 1846, NA, RG 77, Ltrs. Recd., Chief Engineer.

104. Benham to Totten, May 4 & 31, 1846, NA, RG 77, Ltrs. Recd., Chief Engineer.

V. BENHAM REBUILDS THE WATER BATTERY

A. Benham Describes and Calls for the Fort's Repair

1. His October 1839 Report

a. Condition of the Fort

On October 19, 1839, Lieutenant Benham informed the Department that Fort Marion had been neglected, while its outworks were in a very dilapidated and even ruinous condition. Several cracks, extending from the bottom of the ditch to the top of the parapet, had opened in the exterior slopes of the bastions. The fort's interior was also in "very bad condition from neglect, or want of care, and as it would seem in some instances even wanton injury." It would not, however, require very extensive repairs, if it were to be fitted up as it had been under the Spanish.

Some changes in the fabric were dictated through adoption by the Ordnance Department of the "high garrison carriages." If the fort were to be provided with modern armament, it would be necessary to fill up the embrasures on the fronts where they were found, and to raise the parapet on the seafront to the "ordinary height" to form a barbette battery on the terreplein.

The walls of the covered way were at some points demolished, and at others "very much broken, and falling down." The glacis was cut up, and in "some parts almost entirely destroyed."

b. Condition of Water Battery

In worse condition and requiring "immediate and thorough repair" was the water battery. It was little more than a ruin. The three salient angles had been undermined by the sea and had collapsed. At one point, the tides surged through the broken masonry, "bidding fair to destroy" the entire counterscarp, thereby exposing the fort to eventual destruction. An estimate had been prepared for reconstruction of the water battery.

To accomplish this, Benham called for:

removing 14,000 cubic yards of earth and masonry at 50¢	$ 7,000
quarrying the Stone & laying 70,000 cubic feet of masonry at 30¢	21,000
transportation of 7,000 cubic yards of earth at 50¢	3,500
coping 700 feet at $3	2,100
contingencies	400
Total	$34,000[1]

c. Justifying the Cost of Repair

No estimate was submitted for repair of other portions of the outworks and the fort, Benham explained, because the need was not so pressing. He believed, however, this figure would be considerably less than the sum required for rebuilding the water battery.

To justify the work's repair, Benham informed the Department that Fort Marion, independent of its significance as an outstanding example of "military architecture," was the only defense and safeguard for St. Augustine. In event of war, the city, from its position could be expected to serve the Nation as an important military depot. Should this come to pass, the fort, garrisoned by a handful of militia, could defend the city and harbor against a strong enemy force.[2]

The Department acknowledged without comment the receipt of Benham's report.

2. His March 1840 Memoir

a. A Proposal and Estimates for Repair of the Fort

Some five months later on March 26, 1840, Lieutenant Benham mailed to the Department a drawing he had prepared titled,

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1. Annual Report for Year Ending Sept. 30, 1839, found in Benham to Totten, Oct. 19, 1839, NA, RG 77, Ltrs. Recd., Chief Engineer.

2. Ibid.

"Horizontal Section of Fort Marion; with the principal Vertical Sections and Elevations," and a memoir describing the structure.[3]

Although the fort was well planned, Benham found it to be defective in several particulars. These could be corrected by recommended repairs. First, the fort was too constricted for its mission, i.e., the curtains were too "short in comparison with the relief." Consequently, it was impossible to adequately protect the ditches opposite the curtains by artillery firing from the flanks. The only remedy was to partially fill the ditch fronting these points.

Second, the glacis was too steep, so much so that its foot could barely be seen from above the "mask wall and a great many men lie down at the lower part of it." There, they could not be reached by small-arms fire by men posted on the terreplein, unless these sharpshooters dangerously exposed themselves. Benham proposed to correct this defect by extending the glacis to the north and west for at least "double the distance in a horizontal direction."

The third, and most critical defect, involved many of the casemates. Those on the north and west fronts and a number of the ones on the south front were not bombproof, because they had only about three feet of masonry above the crown of the arch. This weakness could be "obviated" by raising the masonry of the terreplein to the height of the banquettes (about 2 feet). Since such protection was not required for the terreplein of the bastions, it would save about one-half the expense to omit elevating it in these areas, and there raise only the traverse circles of the guns to that height.

To prepare the epaulements for the high gun carriages now being supplied mandated filling in the embrasures and raising the barbette guns to their proper elevation.[4]

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3. Copies of the subject drawing and memoir are on file at Castillo de San Marcos NM.

4. Benham to Totten, March 26, 1840, NA, RG 77, Ltrs. Recd., Chief Engineer.

Benham estimated the cost of these projects at:

For fitting the casemates for occupying by troops, building up embrasures and barbette batteries, repair of walls and covered way, and glacis according to original plans.	
Lumber 75,000 feet at 2 1/2¢ per foot	$ 1,875
Carpentry work 750 days at $2	1,500
Masonry 18,000 cubic feet at $36 per foot	6,480
Transportation of 200 cubic yards of earth at 50¢	1,000
Contingencies	645
Total	$11,500
In addition to above for raising terrepleins of the batteries behind curtain 2 feet to render casemates bombproof and for raising the whole of mask wall that additional height and for filling the bastions with earth to that height.	
Masonry 42,000 cubic yards at 30¢	$15,480
Transportation of 2,040 cubic yards of earth at 50¢	1,020
Total	$16,500
In addition to the above, for the proposed extension of the glacis to double the distance in authorized horizontal direction on the north and south fronts.	
Transportation of 27,000 cubic yards of earth at 33 1/3¢ per yard	$ 9,000
Grand Total	$37,000[5]

b. Advantage of Coquina, Stuccoing, & Repair of Cracks in the Scarp

Turning next to the attributes of coquina as a building material, Benham praised its merits. Examining Fort Marion, he saw where it had been struck by projectiles during the siege of 1740. These, when hitting the walls, had made nearly cylindrical impressions, and even when striking within a few inches of a joint had not fractured the coquina.

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5. Ibid.

The practice had been to stucco the masonry, but Benham was unable to see any advantage thereby accrued in resisting weathering, provided the joints were well pointed. Fort Marion, he advised the Department, had apparently been at one time entirely covered with stucco, though most of it had fallen off, except on the north curtain, the only exterior wall never exposed to the sun's rays.

Three or four cracks had opened in the bastions of the west front. These were one to two inches in width and extended from the foundation to the top of the wall, and could be repaired at little expense.[6]

c. Status of Glacis and Covered Way

For a number of years before Benham's assignment to St. Augustine, nobody had overseen preservation of the outworks. Consequently, they had been much injured. The covered way was broken down in a number of places, and roadways and paths meandered across the glacis. A section of the glacis, north of the fort, had served the community as a potters' field.[7]

d. Revising the Estimates for Repair of the Water Battery

Surf had undermined and broken down the three salient angles of the water battery. The long face, south of the middle salient, was undercut at several places to a distance of six or eight feet above the foundations, while the long face north of the subject salient had bulged outward. Instead of a batter of 1 to 6, it was now nearly vertical. The north and south salients had large openings on their terrepleins, extending from the salient angles almost to the counterscarp.

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6. Ibid.

7. Ibid.

When and if the water battery were rebuilt, Benham suggested that, to provide for its better security, the exterior slope to a height of five feet be faced with granite. The latter stone offered better resistance to the surf than coquina. If this were done, one thousand dollars should be added to the estimate of the cost of this project, as submitted on October 19, 1839.[8]

e. Terreplein, Embrasures, and NE Bastion Casemates

Until 1812 embrasures, Benham informed Chief Engineer Totten, had been cut into the parapets of the three land fronts. In that year, when an attack was momentarily expected, the garrison, to give their guns greater range, cut down the merlons of the north and west fronts. Benham questioned this action, because it resulted in epaulements only two feet in height, greatly exposing the troops at these points.

The break in the terreplein of the northeast bastion had occurred, he explained, in 1834 disclosing for the first time since at least 1821, three cells, marked A, A', and A" on the drawing. According to long-time residents, these had been employed as a prison. Before the cession, his informants continued, the passage (B') had been walled up. Casemate A' was the only one in the fort not arched. Benham, upon investigating, found that it had been "covered by planks supported by joists on which was laid a quantity of beton or terrace . . . and it was by the decay of these joints" giving way that the cells were discovered by Lieutenant Tuttle.[9]

f. Recommended Repairs to and Use of Casemates

The manner in which the casemates were to be repaired and fitted up would be mandated by the use to be made of the structure--whether it was to be a stronghold in event of war or a

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8. Ibid.

9. Ibid.

permanently garrisoned post. For a number of years, it had been ungarrisoned, to which its present "ruinous condition" could be attributed.

Part of the fort was still used as a territorial prison, and consequently there was free ingress and egress by civilians having little interest in its preservation.

Benham suggested that the casemates be rehablitated as quarters for the troops stationed at St. Francis Barracks. To do so, they would have to be made watertight, be lathed and plastered throughout, and floors laid in the casemates where needed. Doors and windows would also be replaced.[10]

B. Plans are Prepared, Refined, and Approved

1. Funds Become Available

No action was taken by the Department to implement any of Benham's recommendations until the late summer of 1841. Then, on September 9, Chief Engineer Totten notified Lieutenant Benham that the "Fortification Bill" signed into law by President John Tyler that day appropriated $5,000 for continuing the St. Augustine seawall. After referring Benham to his March 16 letter, Totten urged that this sum be used to "extend the protection of a new wall along the whole sea front of the fort."

When operations were resumed, Benham was to confine his attention to the "Southern portion" of the seawall, but not to spend any of the subject $5,000 in that area.[11]

Replying, Benham assured the Department that none of the $5,000 would be needed to complete the seawall, as he had outlined in his

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10. Ibid.

11. Totten to Benham, Sept. 9, 1841, NA, RG 77, Ltrs. Sent, Chief Engineer.

letter of April 26. This $5,000, however, was insufficient to rebuild the exterior slopes of the Fort Marion water battery, even if the proposed granite facing were eliminated.[12]

2. Benham Documents the Need for a Granite Facing

When more than seven weeks slipped by and no instructions were forthcoming from Washington as to how he was to proceed, Benham wrote Chief Engineer Totten. Since his return from Connecticut, Benham had been studying the seawall fronting the water battery. What he saw led to the conclusion that there were three reasons for the deterioration and destruction of this structure. They were: (a) the "gradual wearing away of the slightly adhering particles of this shell stone from the continued abrasive action" of the surf; (b) the "impulsive force or momentum" of the sea during violent storms, which often threw down large masses of masonry; and (c) the corrosive action of ocean water upon coquina. The latter caused it to lose its strength and firmness and decay.

The lower courses, from a point about midway between high and low water marks, were much more eroded than those above. These same courses were worn in horizontal furrows to the depth of two or three inches, corresponding to the original quarry strata, along the face. Where the mortar had fallen out, the joints were enlarged. In addition, the hardness of the lower stones had been affected, and it was possible to drive a steel spike about double the distance with the same force as in the stones above.

Local residents were aware of the adverse effect of the sea upon coquina, and had discussed this with Lieutenant Tuttle in 1833-34.

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12. Benham to Totten, Sept.15, 1841, NA, RG 77, Ltrs. Recd., Chief Engineer.

The corrosion of the stonework was also noticeable on the exterior slope of the lower courses of the fort's eastern front, though not to the same degree.

All that he had seen reinforced Benham's opinion of the "absolute necessity" for a granite facing about five feet in height, on the water battery's exterior slope to "insure its permanent secruity."

It would not be necessary to wait for a shipment of granite to begin repair of Fort Marion, because the first project that should be undertaken was reconstructon of the counterscarp. This was necessary to prevent passage of "the large body of water that at present flows into the ditch with each tide." The rise and fall of the tides, Benham cautioned, would greatly obstruct and perhaps make it impossible to lay masonry.

Work could be commenced on the counterscarp wall as soon as the Department saw fit.[13]

3. Colonel Totten Provides Detailed Instructions for Reconstruction of the Water Battery

a. Departmental Drawing

One month later, on December 9, 1841, Chief Engineer Totten transmitted to Lieutenant Benham a drawing titled, "Plan of East Front of Fort Marion, St. Augustine, E.F., Showing Mode of Arranging the Advance Battery."[14]

b. Required Realignments to the Scarp

In a lengthy covering letter, Colonel Totten provided construction details. Referring to the drawings, he noted that the

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13. Benham to Totten, Nov. 8, 1841, NA, RG 77, Ltrs. Recd., Chief Engineer.

14. A copy of this drawing is on file at Castillo de San Marcos NM.

defense work on the "outside of the ditch of the east front is for the greater part a mere coverface," a function "very imperfectly performed owing to its small elevation, and the thinness of the parapet." To secure space for the water battery, and "give the parapet adequate resistance," it would be necessary to utilize part of the ditch as a terreplein, employing the coverface as a parapet. The counterscarp wall would, in general, serve as a breast-height wall. The present scarp, repaired and modified, would constitute the new scarp on the north. Its north and south extremities, to protect the wall and to give an array of cannon bearing up and down the bay, would be altered in position and direction, "removing from the salients, in one case to the northern extremity of the new sea wall, and in the other to the northern extremity of the old sea wall."

The scarp or seawall, except as forementioned, was to retain its present position--its footing being 6 inches within the footing of the new facing. Wherever the exterior slope or batter was greater than 1-1/2 inch to the foot, it was to be reduced to that. Wherever it was less, it would remain as it was, or be slightly modified. The "body" of the wall would not be taken down, but its elevation would be reduced and given a new facing. The lower part of the facing, to a height of 2'3" above the ditch, would be granite, and the remainder of the facing would be coquina to within 1-foot of the concrete.[15]

c. Repairing, Refacing, and Reconstructing the Scarp

To repair the wall, an excavation 1'6" wide and 1' deep would be extended below low water to receive the concrete. As the excavation was made, planks were to be sunk on each side to serve as a lining. Short strips, extending from one plank to another, would keep them apart until the excavation was filled with concrete, which should be laid gently. The top was to be levelled after the concrete had been pushed, not rammed, into a compact mass. Upon the mass of concrete

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15. Totten to Benham, Dec. 9, 1841, NA, RG 77, Ltrs. Sent, Chief Engineer.

would be laid, setting back 6 inches, a course of granite stretchers 18 inches high and 18 inches broad. Behind the stretchers, the voids were to be filled with well rammed concrete.

It would then be necessary to remove the old wall as far as "line 2" to permit the 1st course of the superstructure (setting back 6 inches farther), consisting of alternate headers and stretchers, to be laid.

At the sites for the headers, it would be necessary for Benham to excavate a portion of wall for their reception. All voids behind these stones were likewise to be filled with concrete rammed in 6-inch horizontal layers. As soon as this course was laid, all sand that had been removed from in front of the wall was to be replaced. This operation was to be continued to the lines marked 3, 4, 5, 6, and 7. Under no circumstances was the granite to be carried higher than 2' 3' above the ditch, the remainder of the face to within 1'2" of the top was to be formed of coquina, salvaged from the sections of the old wall.

The coping was to be concrete, and "formed on the wall itself in boxes or moulds of the proper size and form." If one of these concrete blocks were made before the adjoining one was well set, a sheet of zinc or a tarpaulin must be interposed between them.

The batter of this section of the wall was to be 1'3".[16]

Where the old wall was standing but had been undermined, additions to the foundations were to be laid as heretofore directed. The superstructure would be carried up in the "same manner, and of the same materials, except that larger quantities of concrete will be required for the backing."

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16. Ibid.

New walls required for the scarp, "to the northern and southern branches of the battery," were to have the same mass of concrete under the foundations as those to be repaired. Upon this mass, the foundation course of granite, 18 inches in height, was to be laid. But, instead of being composed of stretchers only, it was to include alternate headers and stretchers. Any sand disturbed in laying this course and the concrete mass was to be replaced, and in the rear wall rammed in horizontal 6-inch layers.

Next, there would be laid the first granite course of the superstructure, also as alternate headers and stretchers. At a distance of 7 feet from the foot of the course, a thick plank was to be set upon edge and kept in position by heaping sand against its back, and propping it in front with cross pieces. Concrete would then be laid in 6-inch layers and rammed, until the height of the course was obtained. A second course of granite would then be laid, and backed with concrete. This process would be continued to the top of the granite facings. The rubble facings of the coquina would be backed with concrete. Finally, the wall would be coped with concrete masses.

Granite for all walls, independent of the foundation course, was to reach a height of 5'9". To take advantage of economy afforded by purchasing courses of different heights, these courses might be 1'4", 1'2", 1'1", and 11". The stretchers of the foundation course of the old wall could be of any length, but not less than 4 feet. All other stretchers could vary from 4 to 8 feet. Headers for the old wall were to be 3 feet long, while for the new wall one-third must be 2 feet long, one-third 3 feet, and one-third 4 feet. Short headers of one course were to be laid over the long headers of the preceding. Stretchers were to have as much bed as rise, and their beds, tops, ends, and faces were to be rough-hammered straight. Headers were also to be rough-hammered straight.

While the seawall was under construction, coquina for the rubble work was to be secured by taking the top off the old scarp

and counterscarp, and "by entirely removing such portions as would interfere with the terreplein. The depth to which these walls were to be broken up for materials was to be left to Benham's judgment. Cost was to be the determining factor.[17]

d. Forming the Breast-Height Wall, Platforms, Banquette, etc.

The counterscarp wall of the coverface, having its superior slope reduced to reference 7'6" above the ditch, would become the breast-height wall for the water battery. Wherever this wall departed from the line of the interior slope of the proposed parapet, it must be removed "to as great a depth as may be necessary or expedient; and the remainder of the new parapet along such face . . . must be faced with a new wall having the same batter." The breast-height wall of the north and south faces of the battery and of the two short central faces was to have a different profile. The top of the entire breast-height wall was to be inclined parallel, or nearly so, to the scarp's superior slope, and be crowned for "a height of 18 inches with a slope of 6" by 18" faced with shingles nailed to frames inserted in the parapet."

The terreplein proper was to have a width of 20 feet, and was to be 5'6" below the crest of the parapet at the foot of the breast-height wall, and 6 feet below in the rear. The line at the rear of the terreplein was to be 8 feet above assumed low-water.

The battery was to mount 20 guns en barbette. Although plans called for granite pintle blocks and traverse stones, Colonel Totten trusted that, in the interest of economy, coquina from the Anastasia Island quarries would suffice. Although the traverse circle stones were drawn at 12 inches, they could be one-half that thick, if laid in two courses.

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17. Ibid.

In front of each gun there was to be a small platform for the artillerists to mount when sponging or ramming. Between every two guns there would be a banquette. Both these features were to be wood.

All timbers in these platforms and banquettes, as well as the interior revetment of the parapets, were to be kyanized. To secure authority to apply this process, Lieutenant Benham must obtain a license from F. & D. Samuels of Philadelphia.[18]

e. Establishing Priorities

Benham was to give priority to repair of such portions of the seawall as were in danger of collapsing. He was to connect in a "safe and cheap manner the new work thus laid with the sound parts of the old walls." From this mandate were excepted, the north and south walls, which were to be replaced by corresponding new walls. This would be one of the first projects implemented. While this work was underway, Benham was to make necessary changes to the interior of the battery, take off the tops of the scarp and counterscarp walls, construct new breast-height wall, and prepare the terreplein to receive the traverse circles and centers. Nothing, however, was to be undertaken that would obligate funds surplus to those appropriated.[19]

f. Mixing Concrete

The concrete was to consist of mortar and fragments of bricks, shells, clean gravel, or coquina. Aggregate was to be screened. Mortar was to be of two kinds: that to be used below normal high-water and that to be employed above. The first type, with some additional sand, was to be used for pointing.

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18. Ibid.

19. Ibid.

The formulas were:

1st mortar(5 barrels of hydraulic cement in powder.
(1 barrel of lime in paste, rather stiff.
(Sand equal in bulk to twice the bulk of
(paste, rather stiff resulting from the
(mixture of the cement and lime.

1st cement(1 bulk of the above mortar.
(2 bulks of fragments, gravel or shells.

2d mortar (1 barrel of hydraulic lime in powder.
(1 barrel of lime in paste, rather stiff.
(Sand equal in bulk to twice the bulk of paste rather
(stiff resulting from the mixture of the above
(cement and lime.

1 bulk of the above mortar
2 bulks of fragments, gravel, or shells.

The lime was to be slaked by being sprinkled with its own bulk of water. After being covered from the weather for two or three days, the lime was to be reduced to a paste by gradual addition of water, being carefully worked all the time, so as to break down the lumps. Next, the cement would be mixed with the lime, and sand added.[20]

g. Securing Traverse Irons

Colonel Totten likewise provided guidance for securing traverse irons. The holes through these plates were to be 3-1/3 inches wide and 3/8-inch thick. They could consist of one, two, or three pieces. They should be countersunk, and elongated to allow for contraction and expansion of the plates. Fastening screws were to be placed in the middle of the hole and were to be 3-1/2 inches long and 1/2-inch in diameter. Corresponding holes in the traverse stones were to be drilled about 16 inches apart, 4 inches deep, and from 3/4- to 1-inch in diameter. When the plates were laid, the holes were to be filled with molten copper and the screws inserted.

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20. Ibid.

The traverse stones were to rest on a concrete bed. This concrete was to be composed of:

clean oyster shells or fragments of stone or brick, not larger than 5 ounces, each	100 parts
a mixture of fine and course sand	50 parts
powdered hydraulic cement	20 parts
lime in a stiff paste	6 parts

The lime, after being slaked and reduced to a thick paste, was to be mixed first with the cement and then the sand. The resulting mortar to be "quite stiff and rather incoherent." The aggregate, whether shells or fragments, was to be mixed with mortar by "turning over the mass two or three times with a shovel."

After a pit had been dug and boxed, concrete would be thrown in and rammed in 6-inch thick, horizontal layers. All masses of concrete were to be covered with earth or straw as soon as formed, and kept wet for several days.[21]

h. Adjusting Grade of Ditch

Benham was to level the ground around the fort, and prepare a drawing at a scale of 1 inch to 25 feet. On his plan, he was to exhibit "horizontal lines on the surface of every foot of altitude above the water including the ditch, covert way and glacis." The fort, itself, to be shown in outline.

Sand for the project, Colonel Totten believed, could be secured by lowering "the middle of the ditch on the N, W, and South fronts 1-1/2 or 2 feet," and making a regular slope from the scarp and

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21. Ibid.; Totten to Mansfield, Nov. 30, 1841, NA, RG 77, Ltrs. Sent, Chief Engineer.

counterscarp to a lower line in the middle portion of the north ditch. This would provide better drainage.[22]

4. Benham Raises Questions

a. As to Priorities

After receiving the drawings and Totten's monograph, Lieutenant Benham raised a number of questions. The first item troubling him was the matter of priorities. Giving precedence to laying-up the scarp wall would prevent the workmen from accomplishing anything this season. This was because it was too late to contract for and receive any granite before late spring or early summer. By then the masons would be clamoring to return to their homes in the North to escape the "sickly season." Moreover, the Totten plan obviated need for much work on the counterscarp wall, because filling up the ditch to form the battery's terreplein will nullify extensive repair of the rectilinear portion of that wall.

Consequently, all the masons could accomplish this season was to complete the seawall. The laborers, however, would be able to quarry and transport to the reservation sufficient coquina for reconstruction of the water battery.

The only construction activity that could be prosecuted at Fort Marion, until receipt of the granite, would be to take up the circular walls of the counterscarp, remove the face and top of the scarp wall, and cut through the coverface opposite "the circular walls and on the eastern lines."[23]

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22. Totten to Benham, Dec. 9, 1841, NA, RG 77, Ltrs. Sent, Chief Engineer.

23. Benham to Totten, Jan. 22, 1842, NA, RG 77, Ltrs. Recd., Chief Engineer.

b. He Finds the Instructions Seemingly Contradictory

Benham next turned to the 4th paragraph of Totten's instructions, which appeared to be contradictory. At one point, Totten seemed to say that some portions of the scarp wall were to remain and at another that all of the subject structure was to be refaced. The latter seemed to be the wisest course.

If this interpretation were correct, derricks could be positioned and the stones removed and stored in the ditch, where they would be conveniently placed for "raising" onto the fort to repair the parapet. Coquina for facing the exterior slope of the water battery, above the granite, would be boated over from the quarries. Men on duty there would be instructed to cut stone of larger size than those now in the wall.[24]

c. As to Use of Concrete

Benham had had problems with the use of concrete. If the Catholic Church's claim to St. Francis Barracks were sustained, or if the Department decided the cost of their repair or reconstruction were excessive, he recommended that the coping under contract for the seawall in that area be transferred to Fort Marion. It could be used instead of concrete coping on the water battery's superior slope.

As for the parapet's concrete core, Benham believed considerable money might be saved by "pounding in with each layer large pieces" of coquina. He did not think that coquina had value as an aggregate, because the blows of rammers reduced "small portions" of it into masses of shell sand.[25]

d. He Recommends a Coquina Superior Slope

Benham questioned the decision to have a sod superior slope interposed between the concrete coping and the shingled

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24. Ibid.

25. Ibid.

section of the breast-height wall. Spray from the sea would make it difficult, if not impossible, to maintain a stand of grass. Moreover, he doubted whether shingles, even if kyanized, would long survive in such a hostile environment.

He recommended substitution of coquina for sod and shingles. Unlike masonry, it did not fracture when struck by a projectile, but was reduced to a shell sand. It would therefore provide a durable facing, without having the disadvantages common to brick, granite, etc.[26]

e. He Seeks to Change Level of Ditch

Earth for formation of the terreplein would have to be boated a considerable distance, as there was no convenient source near the fort or about the city. This was because of public dread of stagnant water.

The present level of the Fort Marion ditch was below the elevation that could be tolerated, and Benham feared a public outcry if he sought to remove earth for fill for the sides as suggested by Colonel Totten. As for the ditch's east side, it might have its lowest level at reference 5 feet, though he preferred a difference of 6 feet, even at additional cost. This was especially true, if the Department approved his proposal regarding drains.[27]

f. He Calls for Dry Ditch and Culverts

Benham urged that the drains, because of health reasons, in the north and south faces be dispensed with, and the ditch, if possible, kept dry. To do this, culverts should be constructed in these faces, at some point near the middle of each. The culverts would

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26. Ibid.

27. Ibid.

be closed by masonry under both the scarp and counterscarp walls. Then, if it became necessary, they could be reopened.

There was no need to maintain the present culvert at G, except perhaps as a drain to the sink under the ramp of the main work. There was an opening in the east curtain leading from the subject sink, opposite drain G, and a small channel extending a few feet from the scarp. It was so broken up, however, that Benham was unable to discover whether it terminated in the ditch or was connected with drain G.[28]

5. Totten Takes Issue with Benham

Chief Engineer Totten, after reviewing the correspondence and plans, answered Benham's letter. He challenged the proposal to remove the facing from the scarp of the coverface, place the stones in the ditch to be utilized in repair of the fort, and quarrying stone necessary to complete the repairs. This was inconsistent with Totten's instructions, directing that no expenditures be made on any parts of Fort Marion, other than the water battery and its "immediate conexions."[29]

Benham's complaint of inability to reconcile certain of Totten's instructions was difficult to comprehend. Perhaps, Totten inquired, you have confounded "the batter or talus of the wall, with the facings of the wall." These were diverse subjects. In the first instance, Benham had been advised what the batter was to be under various circumstances, and in the other he had been instructed to give it a new facing.

It was injudicious to disturb the facings of the coverface until they were about to be replaced. Benham would defer this operation until mandatory to afford room for new facings.

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28. Ibid.

29. Totten to Benham, Feb. 4, 1842, NA, RG 77, Ltrs. Sent, Chief Engineer.

The granite coping prepared for the southern portion of the seawall would not be diverted from that object.

Colonel Totten questioned Benham's statement that coquina stone laid in concrete mortar would be less expensive than concrete backing. Experience had demonstrated that "simple concrete, properly prepared and laid, is very materially cheaper than the roughest kind of rubble masonry."

If the superior slope of the water battery were exposed to the "spray of the sea constantly dashing over it," Totten agreed that the grass would be killed.[30]

Totten was unable to understand from available data why the ditch could not be lowered as detailed in the sketch. The ditch was now 5 feet above low-water. Even if it were only 3 feet at the lowest point, which was at the mouth of the drain discharging at a still lower point, all water flooding the ditch on a rising tide would escape with the ebb, leaving none to stagnate. It would be inadvisable to let the flood tides through culverts, and they were to be provided with gates opening outward. Under this arrangement, no water could enter the ditch except by filtration, and all could escape through the 2-1/2-foot diameter culverts.[31]

The Chief Engineer still believed that coquina would suffice for pintle-blocks, the lower one being underground "and out of the reach of violence." Benham might also employ larger blocks.[32]

Totten urged Benham, while awaiting the granite, to begin "forming the exterior of the battery for a very considerable

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30. Ibid.

31. Ibid.

32. Ibid.

extent." He would under no circumstance break through the scarp. The breast-height wall could be finished at least between the "points about opposite the salients of the bastions." The terreplein could be completed within these parameters, and foundations for the traverse circles laid. On forming the top of the parapet, the existing stone parapet must not be disturbed. Inside the parapet, however, all existing coquina was to be taken off down to the proper level.[33]

6. Benham Holds His Ground

a. He Takes Issue on Level of Ditch

Benham was a contentious young officer, and, when he replied to Chief Engineer Totten's letter, he challenged Totten upon almost every point.

Taking up the ditch first, he reviewed for the Department the question of providing proper drainage. The present drain, although much higher than those proposed, was constantly clogged with sand, and was useless. Tidal waters passed under the water battery's north and south salients, and he feared that the proposed drains would fare no better.

He did not believe it advisable to make the ditch any deeper than indicated on the plan, because the foundations of the fort's east front were currently only 2-1/2 feet below the level of the ditch, and 6 inches below the lowest line now proposed for the moat.[34]

He had recommended use of coquina removed from the scarp wall to repair and raise the merlons of the east front as an economy and defensive measure.[35]

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33. Ibid.

34. Benham to Totten, Feb. 28, 1842, NA, RG 77, Ltrs. Recd., Chief Engineer.

35. Ibid.

b. He Defends His Interpretation of Batter vs. Facings

Benham had not confused the "batter or talus of the wall, with the facings of the wall." He was aware that they were "two very different matters." Quoting from Totten's instructions of December 9, Benham wrote:

> whenever the exterior slope or batter is greater than 1-1/2 inch to 1 foot it will be reduced to that; whenever it is less it will remain as it now is or be slightly modified according as it lies in one plan or can be brought into one by changes not involving expense; a little warp may be disregarded, and again . . . on 6th page says "the batter of the new wall in the section we have been considering is 1'3" because the old batter is greater--If the old wall should in any case be less the 1'3" it should be conformed to as before directed."

After reviewing the subject paragraphs and examining the water battery, Benham was unable to reconcile Colonel Totten's words with the "general tenor of the letter," calling for a new facing for the work. He could only conclude that they were prepared under the impression that various parts of the scarp wall had a different batter, and it might be possible to retain some of the facing.

It seemed to Benham that, in taking down the wall for a new facing, the batter, whether greater or less than that proposed, could not be taken advantage of in any way to give it any other batter than the one proposed.[36]

c. He Recommends Early Removal of Facings

Because the fort would not be needed for defense in the near future, Benham saw no reason not to immediately remove the facing of the scarp wall. Until this was done, it would be impossible to determine how much of the structure would have to be "entirely" taken down. Equally important, they would be unable to ascertain the extent of the counterscarp that could be retained for the projected breast-height wall.

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36. Ibid.

At present, Benham did not know whether the space between the walls of the coverface and scarp were filled with stones laid in mortar or loose stones. As the walls inclined outward, he was of the opinion that the core consisted of the latter. It would be injudicious, he cautioned, to attempt repair of the counterscarp wall until it was learned how much of the fabric could be incorporated into the breast-height wall.[37]

d. He Continues to Champion Coquina in Preference to Concrete

Next, focusing on his recommendation that a backing of coquina masonry be substituted for the concrete core, Benham asserted that its advantage was based on his personal experience with that fabric. He was confident that his expertise with coquina was superior to that of any officer in the Corps. Although Benham's experience with concrete was limited, his master mason had been employed at various times during the past decade at Forts Warren, Adams, and Pulaski, where that fabric had been used. What his mason said about concrete satisfied Benham that coquina masonry, besides being much less expensive than concrete, was its equal in strength.

Other factors were also involved. The choice, Benham noted, was between purchasing and shipping in cement and lime; carting sand one-fourth mile; and bringing down workmen from the North to insure that the concrete was laid properly or teaching blacks to work it; opposed to utilizing local stone. The latter could be cut into regular blocks at the quarries, transported across the Matanzas River, and laid-up by the same laborers at less cost than concrete could be prepared after the materials were assembled.[38] Benham likewise suggested that coquina be used for the terreplein, gun platforms, and lower pintle-

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37. Ibid.

38. Ibid.

blocks. He, however, questioned its use as blocks to support the traverse irons.[39]

e. He Questions One of the Plan's Dimensions

Enclosed with Benham's letter was the "Plan of East Front of Fort Marion," forwarded by the Department on December 9. Regarding the plan, he had one question: Was there an error in the figure listing the "large chord" of the third traverse circle from the salient, on the north face, at 14'4"? On measuring it, he found that the distance was the same as those delinated 11'4".[40]

7. Totten's Vigorous Response

a. He Gives Conditional Approval for Not Lowering the Ditch's Level

Chief Engineer Totten was capable but autocratic. He disposed of Benham's questions regarding drainage of the ditch in a few words. "If a good and sufficient culvert (or two) cannot be so placed as to be kept open or . . . if drainage is to depend on filtration," Benham must not lower the ditch.[41]

b. He Has Sharp Words for Benham

Once again, Totten chided Benham for confusing the batter or talus of the wall with the facings. The principle governing his instructions was that the "thickness of the wall should not be lessened on account of stability." The subject wall need not be materially increased in breadth because it was stable, while it would be folly to incur expenses of any magnitude in striving everywhere for an equal batter, or in freeing such a wall from warp.

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39. Ibid.

40. Ibid.

41. Totten to Benham, March 15, 1842, NA, RG 77, Ltrs. Sent, Chief Engineer.

On reviewing this matter, Totten called attention to Benham's letter of February 28, in which he quoted the Chief Engineer's words in a manner "that may have been meant to have a sneering or caustic air." Totten, however, chose not to adopt this interpretation, because he was unwilling to suppose that disrespect was intended.[42]

c. He Provides Additional Guidance

The outer extremities of the battery's two long faces, Totten continued, if broken off and standing abruptly out from the rest of the wall, might have to be rebuilt, but not because they had separated from the body of the coverface behind them and had lost much of their batter.

Totten reiterated that Benham was not to remove the scarp facing, until it became necessary to replace it. He was also troubled by Benham's reference to removal of part of the counterscarp wall, because there was a warp in its surface. He reminded Benham that he was repairing an old fort, and, consequently, "it must be brought into condition for service as soon as the means will allow, and at the smallest possible expense." Except where its direction was changed, the counterscarp must serve as the breast-height wall.[43]

d. He Orders Use of Concrete for Backing

Totten found Benham's method of laying masonry similar to that practiced by civilian contractors, where the quality of workmanship was a matter of small consequence compared with profits. He was disappointed to learn that the backing of "a wall could be abandoned to common laborers, not masons." Such masonry, though cheap, did not meet the standards called for in the Department's instructions. Totten, therefore, had no alternative, but to order his superintending engineer to conform to orders. Benham would employ

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42. Ibid.

43. Ibid.

"concrete very generally for the backing and especially in filling behind and around the stones introduced into the new facings, where the most expert masons most often fail in making good works."

Concrete, Totten reminded Benham, is a better backing than stone, even if laid by masons, and cheaper. A backing of masonry laid by black and white laborers would not be considered. Only if local stone could not be fragmented for aggregate, or if shells and gravel were too costly could a proposition to substitute masonry for concrete backing be entertained.

Totten also asked Benham to explain what he meant by "tearing down the north and south mask walls." If it meant breaking through the coverface at those points, he was contravening the orders of February 4.[44]

8. Benham Defends Himself

Benham was hurt and perplexed by Colonel Totten's words. He could not believe that he had made himself liable to censure, and must disclaim such intention. "In the present instance," he wrote the Department, "the acts have not been committed, the feelings have not been entertained, and nothing is left me but sorrow and regret that such suspicion should arise."

He failed to see how he could be charged with "a disposition to adhere to prejudices or to carry out opinions of my own in opposition to my . . . instructions." His only feelings in this respect were a desire to obey to the best of his ability the instructions received from the Department.

If, however, he were to discharge his mission, it should be expected that he be permitted to voice his "opinions or convictions."

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44. Ibid.

For example, he had recommended to the Department construction of the basins and use of granite facings in the water battery. Both of which had been, with Colonel Totten's approval, incorporated into the projects.[45]

Benham trusted that Chief Engineer Totten will be satisfied that "these deep and galling wounds upon one who would claim to be one of the proudest of his officers have been unmerited."[46]

9. Totten States His Views and Urges Benham to Get on with the Project

Colonel Totten did not have time to go into detail as to the tenor of his letters which had pained and grieved Benham. All he could say was that they had been extracted from the lieutenant's, and he had "never used an expression of a nature to pain you that has not given me much pain to write." He trusted that he would never be called on to address any officer of the Corps in words other than those which expressed "confidence and encouragement."

As Totten presumed that the views of the Department were now understood, he was anxious that Benham carry them "out in a way that will most preferably subserve the public interest, and reflect" credit on yourself.[47]

10. Benham Makes a Final Pitch for Coquina Backing

Again, in June 1842, Benham was called upon to bring to the Department's attention the advantages of coquina over concrete as a construction material in the subtropics. The interior stonework, recently

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45. Benham to Totten, March 28, 1842, NA, RG 77, Ltrs. Recd., Chief Engineer.

46. Ibid.

47. Totten to Benham, May 25, 1842, NA, RG 77, Ltrs. Sent, Chief Engineer.

uncovered in the salients, he would not hesitate to say, compared "favorably in every requisite for compactness, solidity and strength, with any rubble masonry" he had seen in northern United States forts, as well as several British works visited. Its use at St. Augustine would be economical, because it could be laid as backing by laborers at wages very little below those paid slaves.

Benham questioned whether the concrete championed by Chief Engineer Totten could be worked into as compact a mass with the local shells to be used as aggregate. This shell concrete (tabby), although it had been used for military construction at a number of defenses visited by Benham, was inferior in strength and durabiity to coquina.[48]

Although Benham agreed that concrete made with the cement proposed by Chief Engineer Totten would be superior to tabby, it would be more expensive. He reminded the Department that "a fair estimate of any work at the South was the double of the cost at the North."

At St. Augustine, in computing cost, Benham noted, to the purchase price of hydraulic cement must be added transportation charges. Sand could be obtained by his labor force at distances of one-fourth to one-half mile from the fort. Shells could be gathered from oyster beds. After adding labor expenses, he concluded that it would cost 35 cents per cubic foot to lay concrete at the water battery, a figure two-thirds in excess of that at Fort Adams. Cost of a mass of coquina rubble masonry, equally good in all respects, would be less than half that of concrete.[49]

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48. Benham to Totten, June 1842, NA, RG 77, Ltrs. Recd., Chief Engineer. Among the tabby fabric fortifications visited were: the old battery at Smithville, N.C.; old Fort Caroline at Beaufort, S.C.; the Tybee Island Martello tower, and Fort Fredrica.

49. Ibid.

Chief Engineer Totten again rejected Benham's arguments. If Benham followed instructions, he would find concrete more economical than masonry.[50]

C. Launching the Project

1. Quarrying, Transporting, and Stockpiling Coquina

On the last day of February 1842, Benham notified the Department that workmen were cutting and transporting the stone remaining in the quarries opened for the seawall. The last of this stone should be cut and landed by March 31. This would forestall bailing the pits when operations were resumed in the autumn.[51]

The Department was disturbed by this action. Benham was reminded that the extent to which quarrying was necessary was dependent on the need for materials to meet the program outlined in its December 9 letter. Benham was in serious error, if he were transporting more stone than needed for the water battery. Moreover, it would be a mistake to encumber the ground with large quantities of stone.[52]

Benham, on March 28, notified the Department that all quarrying had ceased on the 15th. All hands employed at the site had been either laid off or transferred to the fort project, except six or eight men retained to haul or boat stone.

The flatboat, currently engaged in landing a shipment of granite coping, would now be employed to transport earth for the water

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50. Totten to Benham, July 15, 1842, NA, RG 77, Ltrs. Sent, Chief Engineer.

51. Benham to Totten, Feb. 28, 1842, NA, RG 77, Ltrs. Recd., Chief Engineer. A large part of the expense of quarrying consisted of discovering new strata and removing the overburden.

52. Totten to Benham, March 15, 1842, NA, RG 77, Ltrs. Sent, Chief Engineer.

battery's terreplein. Benham hoped to charter a second craft to assist in this operation.

As of the 25th, when transportation of coquina had been suspended, in accordance with the Department's orders, 20 boat loads of stone had been ferried across from Anastasia Island to Fort Marion. According to Benham's estimates, this was sufficient to rebuild the water battery.[53]

2. Contracting for Delivery of Granite Facings

Lieutenant Benham employed several metropolitan New England newspapers to invite proposals for supplying the project with granite for facing the water battery. John P. Austin of Boston wrote offering to furnish the stone, but with certain modifications which might reduce the cost to the government. The first called for the stretchers to have an average width equal to the rise, rather than a uniform width. Second, the company wished to supply the superstructure in four courses, having rises of 1'8", 1'6", 1'5" and 1'4". The final change requested provided that the bed of the foundation course be of undressed stone.[54]

Benham referred this correspondence to the Department. Upon studying it, Chief Engineer Totten found the proposal that the stretchers have an average width equal to the rise reasonable. But it would be wise, he cautioned, "to provide that the narrowest part be not less than 5/6 of the average width." If there would be a "material saving," Benham was to allow the average bed to be not less than 5/6th of the rise, "provided there be not more than four courses in the height

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53. Benham to Totten, March 28, 1842, NA, RG 77, Ltrs. Recd., Chief Engineer.

54. Benham to Totten, April 30, 1842, NA, RG 77, Ltrs. Recd., Chief Engineer.

of 5 feet 9 inches." The bed of the foundation course was to be "rough hammered straight."[55]

In accordance with these guidelines, Benham contracted with Austin for delivery of the granite.[56]

3. Progress During the 1842 Construction Season

a. Filling and Leveling Terreplein as a Ditch

On May 5, 1842, Lieutenant Benham notified the Department that by the end of June, his workmen would have accomplished all the projects that were feasible pending receipt of the granite facings. It was anticipated that during the next eight weeks, there would be transported and thrown into the ditch, on the fort's east front, all the earth required for the water battery terreplein.

The earth could then be graded to "nearly the slope it is to retain permanently." Benham theorized that this would be desirable because the summer rains would settle and compact the soil before the masonry of the platforms, traverse circles, etc., was laid.

Little else could be accomplished because the walls had been taken down as far as permitted by his instructions.

Consequently, there would remain to be accomplished in the third quarter of 1842 only the care of the public property. For this mission, the services of two people were required--one to oversee the fort and property stored therein as well as that in the city, and another to look after the Anastasia Island quarries, buildings, and horses.[57]

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55. Totten to Benham, May 25, 1842, & Benham to Totten, June 21, 1842, NA, RG 77, Ltrs. Sent and Recd., Chief Engineer.

56. Welcker to Benham, June 30 & July 27, 1842, NA, RG 77, Ltrs. Sent, Chief Engineer.

57. Benham to Totten, May 5, 1842, NA, RG 77, Ltrs. Recd., Chief Engineer.

Benham's letter caused problems. Calling his superintending engineer's attention to the February 4 correspondence, Colonel Totten reminded that he was to begin work upon the battery's interior, as soon as the seawall was completed. The object was to "bring the battery into as advanced a state as possible, while awaiting . . . the granite."

If the coverface walls had been taken down as directed, Totten continued, Benham should have them finished, pointed, the top adjusted to the proper slope, and plastered. Benham was to observe that the "operations directed will entirely finish the interior of the battery, with the exception . . . of laying the traverse circles and pintle blocks."

Construction was to be prosecuted with the goal of reaching this stage before it was closed down. Only then was he to reduce his force, pending receipt of the granite, to the minimum.[58]

Late in June, Lieutenant Benham wrote the Department that filling in the ditch was nearly completed. The sand and earth, he confessed, had not been deposited in "thoroughly rammed 6-inch layers" as was the usual practice, because it would have required a larger workforce than then employed. Instead, the earth had been thrown over the coverface--the small parapet having been previously removed--at several of the more accessible points near the outer salients. It had then been removed and leveled. He believed that the summer rains, following by "a good ramming of the immediate beds of masonry when laid, would give all the solidity and firmness desirable."[59]

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58. Totten to Benham, May 25, 1842, NA, RG 77, Ltrs. Sent, Chief Engineer.

59. Benham to Totten, June 1842, NA, RG 77, Ltrs. Recd., Chief Engineer. The sand was obtained from the embankment of the old ditch (Cubo Line) west of Fort Marion.

b. Removing Counterscarp Facings

Besides the "near completion" of the terreplein and dismantling of the small parapet, Benham's workmen had removed the facings from the counterscarp, opposite the three salients, because it was believed the interiors of these salients were a solid mass of masonry. The salients' terreplein had not been lowered, as Benham felt that the fabric would be useful for surfacing the new terreplein.

Since the salients seemed to be a solid mass, Benham suggested that there was no need to build a new breast-height wall in the middle salient or on the rectilinear portions of the counterscarp through the other two salients. Instead, he could hew these structures to the proper batter, and then plaster them to make "a very strong and perfect wall."

Turning next to the superior slope of the battery, he recommended that the counterscarp wall be retained as it is. If this were done, they would have a much more durable breast-height wall than one topped by shingles. Being of masonry, it would crumble instead of shattering if struck by shot, and there would be no wounds from flying splinters.[60]

Colonel Totten was disappointed to learn that the earth for the battery's terreplein had not been placed in the required 6-inch layers, because it was inconvenient. When the beach sand was thrown over the coverface, he inquired, "Why hadn't the laborers carried it out in thin layers?" Because it had not been rammed, it would be necessary, after excavating places for the traverse circles and centers, to thoroughly ram the foundations.[61]

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60. Ibid.

61. Totten to Benham, July 15, 1842, NA, RG 77, Ltrs. Sent, Chief Engineer.

c. Totten Reiterates His Call for a Shingled Slope

If the old masses of the advanced battery, when cut away to the proper form, sufficed for a breast-height wall, Colonel Totten responded, there was no need to erect a new wall and plastering of the "hewn surface may answer."

Totten, however, rejected Benham's proposal "to carry this wall up to the crest." Nothing, he continued, could be worse than to have masonry thus exposed, because "a shot striking on top of the parapet within 2 or 3 feet of the crest will carry in amongst the men bushels of fragments." It would be worse than "a solid masonry parapet from which only a portion would be torn out, whereas in a thin breast-height wall a considerable length would be pushed over." The best fabric for a superior slope, Totten lectured, was sod. It, however, was difficult to maintain, except at an extreme large angle. The next best was a shingled slope "through which a shot will pass without splinters of any consequence." If kyanized, shingles would last for years.[62]

d. Workmen Find They are Unable to Hew the Salient Masses

Benham soon found that he was unable to utilize the masses in the salients by hewing them to constitute breast-height walls. This was a result of their "strange and irregular construction." The counterscarp opposite the salients varied from 8 to 10 or 12 feet in thickness. The upper part of it at places, to a depth of several feet, extended over a still larger portion. The other interstices were filled with sand.[63]

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62. Ibid.

63. Benham to Totten, Aug. 18, 1842, NA, RG 77, Ltrs. Recd., Chief Engineer.

e. Work on Breast-Height Walls and Banquettes Begins

During July and August a small force was employed leveling and grading the terreplein and the slopes to its rear, collecting shells for concrete, and removing earth from the salients for foundations of the new breast-height walls, banquettes, etc. They had completed, before being laid-off, about one-half the masonry that would be executed before receipt of the granite facings, i.e., 55 feet of breast-height wall in the south salient, 35 feet on the south face of the middle salient, and five banquettes on the south long face. Four of the latter were 26 feet long and the other 19 feet. Each banquette had a breadth of 3 feet and a height of 1'6".[64]

D. Money Shortage Leads to Suspension of Work

1. Departmental Circulars of July 14 & 28, 1842

On July 14, 1842, Colonel Totten notified his superintending engineers that Treasury reserves were so depleted that they must materially reduce their scope of operations. After reserving a sum sufficient to maintain one or two fort keepers till July 1, 1844, they were to apply the balance "to a system of operations such as will spare the Treasury as much as possible." The extent of the reduction would be left to their judgment.[65]

Replying, Lieutenant Benham reported that, as of July 1, the work force at Fort Marion had been reduced to one clerk-overseer and 10 to 12 laborers. On October 1 he planned to increase this force to some 50 to 60 hands, and complete the water battery during the ensuring construction season.

Should further reductions in operations be mandated, he must suspend work, as the number now engaged was the minimum that

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64. Benham to Tollen, Sept. 30, 1842, NA, RG 77, Ltrs. Recd. Chief Engineer.

65. Circular Letter, July 14, 1842, NA, RG 77, Ltrs. Sent, Chief Engineer.

could be employed to advantage. A suspension would also be necessary in the autumn after receiving the granite, unless it was decided to permit him to reinforce his present force as planned.[66]

Two weeks after the initial bombshell came a second. Secretary of War John C. Spencer, by circular letter, advised the superintending engineers that the state of the Treasury was such as to "require a discontinuation in the objects of expenditure, so that the indispensible branches of the public service may not suffer." While existing contracts were to be honored so far as available means will allow, no new engagements were to be made, except in emergencies and under the direction of the Department. The number of employees was to be slashed, and expenditures were to be "diminished within the narrowest practicable limits."[67]

2. Benham Proposes to Continue Operations on a Reduced Scale

When he replied, Benham urged that work be continued at Fort Marion, because the small force employed was the pick of more than 100. In addition, though most were artisans, they, being blacks, were paid as laborers. If laid off, they would be difficult to replace. Should they be retained, he planned to use them to lay the banquettes, collect shells, and position foundations, particularly at the salient angles.[68]

After studying the correspondence, the Department ordered operations suspended. He was to retain sufficient hands, on a when actually employed basis, to receive the granite upon its arrival.[69]

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66. Benham to Totten, Aug. 1, 1842, NA, RG 77, Ltrs. Recd., Chief Engineer.

67. Circular Letter, July 28, 1842, NA, RG 77, Ltrs. Sent, Chief Engineer.

68. Benham to Totten, Aug. 11, 1842, NA, RG 77, Ltrs. Recd., Chief Engineer.

69. Welcker to Benham, Aug. 13, 1842, NA, RG 77, Ltrs. Sent, Chief Engineer.

3. Closing Down the Project

Because of delays in securing a mason, Benham explained, laying-up of the new breast-height walls had only recently commenced. Now he had been compelled to discharge the mason, along with the laborers.

The only people kept and charged against the fort appropriation were the clerk-overseer and five blacks--a carpenter, blacksmith, caulker, and two laborers. They had been retained to repair and refit the flatboats to be ready to receive and discharge the granite. After this had been accomplished, two hands would be retained to take care of the public horses and property. At other times, they could with the addition of a black mason, lay-up banquettes.[70]

The tools, machines, materials, etc., belonging to the seawall project, which was also closed, were transferred to the Fort Marion account.[71]

E. Management, Labor, and Wages

1. Supervising the Project in 1842

On March 2, 1842, the Department notified Benham that he was to limit the project to one clerk at moderate wages. According to his estimates, he was paying nearly $4,000 annually for assistants. This was far too much in view of the limited St. Augustine appropriation.[72]

Replying, Benham explained that if there had been an error, it was because there was too little supervision not too much. The Department's concern had undoubtedly surfaced, because of the form in

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70. Benham to Totten, Aug. 27, 1842, NA, RG 77, Ltrs. Recd., Chief Engineer.

71. Totten to Benham, Sept. 6, 1842, NA, RG 77, Ltrs. Sent, Chief Engineer.

72. Totten to Benham, March 2, 1842, NA, RG 77, Ltrs. Sent, Chief Engineer.

which he had submitted his estimates. Most of the labor force being slaves and divided into small groups, it was necessary to assign an overseer to each work team. This man habitually worked alongside the men he was supervising. Estimates for this labor had been placed under the heading overseer.

In addition, slaveowners fretted about the possible loss of their chattel, especially when they were boating stone or earth, if there was no white man in charge.[73]

The only supervisory personnel on the projects not falling into this category was the clerk. His compensation was divided between the appropriations for the seawall and repair of Fort Marion, and totalled $70 per month, a salary similar to that paid their clerks by the St. Francis Barracks paymaster and quartermaster. Benham was satisfied that his clerk's duties were more complex and time consuming.

The overseer carried at $60 per month was in charge of the quarries. During the past winter, his workforce had numbered from 25 to 45 hands and 8 horses. In addition, he was responsible for issuing them provisions and forage, as well as looking after the Anastasia Island property.[74]

Upon reviewing Benham's explanation, Chief Engineer Totten declined to say whether the number of clerks and overseers were too many or their pay too great. This was Benham's responsibility. But, Totten cautioned, economy was the watchword. Benham was to

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73. Benham to Totten, March 21, 1842, NA, RG 77, Ltrs. Recd., Chief Engineer. The flatboats were each manned by a white laborer (flatman) and 4 or 5 blacks.

74. Ibid.

employ no more than were indispensible and lay them off whenever it was feasible.[75]

Benham pared expenditures for supervisory personnel by selecting several capable blacks and placing them in charge of the others. As of April 1, he was down to two white overseers, one at the fort and the other on the seawall, and his clerk.[76]

2. Benham Proves Himself a Racist

Upon submitting monthly report on June 30, 1842, Benham noted that most of the work was done by blacks, whites only being employed as overseers, suboverseers, mechanics, etc. The standard ten-hour day was observed on the project.

The most favorable work season was from November 1 to May 15. At other times, it was too hot and humid "to carry on any other operations to good advantage except the most common work by negroes." He had found that mechanics recruited in the North were unwilling to remain in St. Augustine after May 31.[77]

This communication, in conjunction with a second written by Benham to defend his proposal to employ laborers to lay-up masonry, triggered another sharp exchange with Colonel Totten. In his second letter, Benham had advised the Department that blacks would be principally employed for this work, the usual practice in the South. At the Pensacola forts, he reminded Totten, Contractor Strong had earned a

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75. Totten to Benham, April 4, 1842, NA, RG 77, Ltrs. Sent, Chief Engineer.

76. Benham to Totten, April 23, 1842, NA, RG 77, Ltrs. Recd., Chief Engineer.

77. Benham to Totten, June 30, 1842, NA, RG 77, Ltrs. Recd., Chief Engineer.

reputation for the caliber of the workmanship of his black masons, whom he had purchased and given on the job training.[78]

Colonel Totten had not dreamed that Benham was referring to black masons. Moreover, he did not believe "colour of the skin" made any difference, and he agreed that "there are no better brick masons than many of Mr. Strong's negroes." But, when Benham had written of blacks "being too stupid (proverbially) to be relied on to apply concrete," and then had proposed to use them in laying masonry," Totten had objected.[79]

Benham defended his statement that blacks were "proverbially dull," which Totten had taken out of context. It was merely an opinion, long entertained with which few differed. He found that the "aptitudes of the black is not at all equal to that of the white man." Although a black might learn "one or two things by constant drilling and attention, he cannot turn to others generally." If detailed to one kind of work for a long time, he might do it tolerably, but if assigned to another task, a great amount of time and care was required for instruction.

For example, he hesitated to assign several of the blacks, who had been laying and hewing stone for the last six years, to mixing and pouring concrete, though this required less skill. If this were done, Benham feared these blacks would be unable for a long time to lay the concrete "in the neat and prefect manner" he had seen in the North.[80]

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78. Benham to Totten, June 1842, NA, RG 77, Ltrs. Recd., Chief Engineer.

79. Totten to Benham, July 15, 1842, NA, RG 77, Ltrs. Sent, Chief Engineer.

80. Benham to Totten, Aug. 18, 1842, NA, RG 77, Ltrs. Recd., Chief Engineer.

Besides exposing himself as a racist, Benham failed to change Totten's preference for concrete over masonry for backing.

3. 1843 Wage Scale

During the 1843 construction season, Lieutenant Benham established these wage rates for his workforce:

Clerk, no prerequisites, $70 per month.

Master mason, no prerequisites, $4 per working day.

White or free black masons, $1.90 to $2.50 per 10-hour day. Overtime at same scale.

Master carpenter, none employed.

Overseer of laborers, $50 per month and one ration.

Captain of lighters, one suboverseer at $35 per month and one ration.

White laborers, two employed, one a half-carpenter at $27 per month and a ration, and one at $15 per month and a ration.

Black masons (slaves), one at $20 per month and a ration, and one at $15 and a ration.

Black laborers (slaves) from $8 to $12 per month and their rations.[81]

F. Fort and the Ordnance Department

1. Fort's Armament in 1842

In September 1842, Lieutenant Benham, at the request of the Chief of Ordnance, made an inspection of the Fort Marion armament. He found neither carriages nor any gunners' equipment. The 21 guns had been dismantled a number of years before, and the tubes were positioned on scantling on the south curtain's terreplein. All these cannon, except three, had been condemned.[82]

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81. Benham to Totten, May 13, 1843, NA, RG 77, Ltrs. Recd., Chief Engineer.

82. Benham to Totten, Sept. 16, 1842, NA, RG 77, Ltrs. Recd., Chief Engineer.

2. Ordnance Department Searches for Better Storage Facilities

Then, in mid-November, the Department called on Benham to provide the Chief of Ordnance with data on the suitability of certain St. Augustine public buildings for storage of powder and other ordnance stores.[83]

This request was triggered by reports that the Fort Marion casemates were too damp for this purpose. Benham agreed. He informed Chief Engineer Totten that the casemates from the imperfect construction of their roofs, together with the use of salt sand in construction of the fort, were liable to dampness and consequently unfit as ordnance storerooms. The southwest bastion magazine, although well adapted for this purpose and deemed a good room, was deficient in arrangements for its ventilation.

Other possible facilities for storage of powder and ordnance stores were the magazine on the tract at the southern approaches to the city, the old magazine lot or governor's garden, and the dragoon barracks. Of these, the first was by far the most eligible and desirable.[84]

G. It is Decided to Add a Course of Masonry at the Salients

On August 18, 1842, Benham wrote the Department that he hoped to secure enough shells to form a foundation of shell concrete under the "body" of each salient angle for some 20 or 30 feet back from the point. This would, he expected, compensate for settlement caused by the bed of quicksand on which the salients presumably rested.

Soundings taken under different parts of the exterior wall, at the junction of the seawall with the fort and at some places in the interior

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83. Totten to Benham, Nov. 16, 1842, NA, RG 77, Ltrs. Sent, Chief Engineer.

84. Benham to Totten, Dec., 5, 1842, NA, RG 77, Ltrs. Recd., Chief Engineer.

angles, had pinpointed traces of wooden grillages. This documented that the Spanish had not been satisfied with the bed on which the scarp of the water battery rested.

Because Benham was haunted by similar fears, he proposed to form "a bed or floor" of shell-concrete at each salient, extending about 20 feet back from the middle one and from 30 to 45 feet at the flanking two, and to include the intermediate space between the lines of the faces. Such a broad offset would provide a firm and secure bed, and give him an opportunity to raise these points and impart to the entire foundation "such a general level that the granite" can be most advantageously placed. Otherwise, the sinking of the earth would be such that the granite facings could not extend above highwater mark, while parts of the re-entrant angles, to a height of 1 to 3 feet, would be covered with sand.

As an alternative, he might lay-up the masonry in steps, or with more courses at the exterior angles as the Spanish had done.[85]

Colonel Totten vetoed the proposal to lay beds of concrete at the salients. If the earth were lower at the salients than at the re-entrant angles, Benham could change the plan of his masonry to make it conform thereto, i.e., his masonry to extend lower by one additional course on the salients than contemplated. The lower course could be omitted in the re-entrant angles. The additional course was to extend along each face about 20 to 25 feet from the middle salient, and about 30 to 40 feet from each of the outer salients. This additional course "should not give an additional effect in the foundation." Granite for this course would be supplied from the course dispensed with about the re-entrant angles.[86]

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85. Benham to Totten, Aug. 18, 1842, NA, RG 77, Ltrs. Recd., Chief Engineer.

86. Totten to Benham, Sept. 2, 1842, NA, RG 77, Ltrs. Sent, Chief Engineer.

During the winter of 1842-43, there became available sufficient granite for the additional course. One of the vessels transporting granite facings from Boston to St. Augustine had foundered crossing the bar. The marine insurance people were willing to dispose of this stone, much of which had been salvaged, for one-half the contract price. Upon securing the Department's approval, Benham purchased 300 running feet of this granite.[87]

H. Fort Marion Drains

1. City Presses the Corps to Drain the Ditch

In late August 1842, the St. Augustine Board of Health examined the Fort Marion ditch and found that it was likely to injure the health of the populous. Consequently, Mayor E.B. Gould and the City Council called on Lieutenant Benham to open sluiceways to carry off rainwater trapped in the ditch. They also asked that the rank growth of weeds be removed from the glacis.[88]

Referring a copy of Mayor Gould's communication to the Department, Benham reminded Chief Engineer Totten that he had urged the importance of excluding salt water from the ditch and, if possible, all standing water. While culverts could be left in the north and south water battery faces, they must be closed at both extremities until it is mandatory to open them. If left open, the drain might admit more water into the ditch than they could carry off.

On dismantling the circular coverface walls at the north and south salients, he had discovered that the culverts were closed. This documented his opinion that the culvert at G, in the re-entrant angle of the coverface, was a drain from the sinks under the ramp, and was not connected with the ditch dry, and the water flowing into it

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87. Benham to Totten, Feb. 3, 1843, & Totten to Benham, Feb. 13, 1843, NA, RG 77, Ltrs. Recd. & Sent, Chief Engineer.

88. Gould to Benham, Aug. 27, 1842, NA, RG 77, Ltrs. Recd., Chief Engineer.

came through "breaks in the ruins" and not, as previously believed, through sluiceways.

When workmen began filling the east ditch, the earth was thrown against the circular walls, and no drains left for water through the breaks. It had proved impossible, however, to keep the ditch free of water from filtration.

Mayor Gould and the City Council had lost no time in complaining about the failure to provide drainage. And Benham had retorted, "if at any time the fresh water should be found standing in the ditch after the rains, one-half as long as they allowed it to remain in the streets of the city," he would immediately open the drains, allowing it to escape into the sea.

The city fathers were apparently satisfied by Benham's proposal. As the weeks passed, the situation improved. Even at flood tide, no brackish water seeped into the ditch. Run-off from heavy summer downpours never remained in the ditch more than 60 hours. The same could not be said of the city streets. The city square was worse. After severe rains, it was usually inundated for from one to three weeks.

Notwithstanding this, Mayor Gould and the City Council had seen fit to place their complaint in writing. Satisfied that compliance with the request would increase, rather than alleviate the health hazard to the city, Benham urged the Department to reject it.[89]

As for weeds, there were a few growing on the glacis fronting the southwest bastion. These could not be deemed a nuisance, Benham explained to the Department, because there was at this season

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89. Benham to Totten, Sept. 9, 1842, NA, RG 77, Ltrs. Recd., Chief Engineer.

scarcely a yard or garden of 100 feet square in the city that does not have more weeds than the entire glacis.[90]

2. Totten Agrees to Construction of Two Culverts

Chief Engineer Totten concurred that it was proper to keep brackish water from entering the ditch directly or by infiltration, because: (a) a dry ditch was necessary to the defense; and (b) it was probable that the brackish water by mixing with rain water, after heavy downpours, might be dangerous to the health. On the latter point, he would be governed by studies not theories.

At the same time, Totten agreed that it might be advisable to clear the ditch of excess fresh water, especially as this would not constitute much of a problem. To accomplish this, two culverts were to be placed through the wall of the water battery, one in the long northern branch, opposite the northeast bastion's salient, and the other in the southern short face. Connected with each culvert, somewhere near the northeast and southeast salients, was to be a tight drain leading to points in the ditch convenient for drainage. The ditch would throw all water into the two points selected. The tight drains, together with the culverts, were to have a fall of 1'6". On the outside of the scarp, the culverts were to be 3 feet above low-water.

Totten was unprepared to provide details for the culvert gates, though they were to be simple and inexpensive. They were to operate on the principle that the gate, when closed, was to rest against "a surface inclined from the verticle." The upper edge was to constitute the hinge. Water was to discharge itself from within by pushing open the lower edge, while a force from without, added to the weight of the gate, would keep it shut.

To prepare details Totten asked Benham for this data: How low can we safely take the points in the ditch convenient for

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90. Ibid.

drainage to be secure from spring tides? Is 6 inches a sufficient rise or must it be a foot or more?

Inasmuch as Totten could ascertain, there was no reason for having the weeds removed from the glacis. This was especially true when parts of St. Augustine over which the City Council had jurisdiction were overgrown. As the citizens were using a portion of Fort Marion as a jail, Totten believed that they must attend to this problem.[91]

3. Benham Provides Necessary Data

October storms caused water to stand in the ditch for as long as three weeks. This reinforced the belief that arrangements for draining it were mandatory, and Benham found the plan for the drains advanced by the Department appropriate.

To answer the Chief Engineer's questions, Benham pointed out that the drains should not be lower than 4'6", to insure that they were not choked by sand deposited by the ebb and flow of the tides.

As for the proposed variation of level in the ditch, Benham noted, the present gradient drained it tolerable well. The ditch, fronting the west curtain, was 1 or 2 inches above the point of reference, the upper surface of the foundation; while the ditch on the east front was 2 or 3 inches lower than this reference. This variation did not appear to be sufficiently regular to have been "formed so originally." He suspected that it had settled. Benham believed that a slope of 9 inches from reference 5'3" at the mid-point of the west curtain would be satisfactory.[92]

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91. Totten to Benham, Nov. 2, 1842, NA, RG 77, Ltrs. Sent, Chief Engineer.

92. Benham to Totten, Nov. 24, 1842, NA, RG 77, Ltrs. Recd., Chief Engineer.

4. Benham Recommends that a Culvert be Positioned to Correspond with Drain G

Benham recommended a culvert be positioned, corresponding to drain G on the plan of the fort, to drain the ramp sinks. This drain should commence at reference (5'), near the bottom of the sinks, and about 12 feet north from the south re-entrant angle of the east curtain, and run to a point about 20 feet south of the re-entrant angle of the middle salient of the water battery. It should extend some 20 feet outward from the scarp and discharge about 1-foot above low-water.[93]

On December 30, 1842, Chief Engineer Totten wrote Benham that a drain at G would be difficult to keep open. But, if Benham thought it necessary, he could open it through the scarp and foundation of the breast-height wall. It would be carried no farther, however. It was to be filled with sand, and the exterior opening closed by a brick wall, 1-foot thick, flush with the granite facing. If needed in the future, it could be easily reopened and extended in both directions. The bottom was to be adjusted to allow a maximum slope from the bottom of the sinks to the outer mouth of the drain.

The drain was to be built of bricks, laid in good cement mortar. The portion to be constructed was to be continuous, extending from the outside of the scarp to inside the foundations of the breast-height wall. The outside opening was to be made by cutting through the granite to leave and oval opening 2'6" by 1'8". The brickwork was to begin behind the granite.[94]

5. Department Sends Plans and Specifications

Some six weeks later, on February 10, 1843, Colonel Totten transmitted to Benham a sheet of drawings, containing plans,

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93. Ibid.

94. Totten to Benham, Dec. 30, 1842, NA, RG 77, Ltrs. Sent, Chief Engineer.

sections, and elevations of the drains. A sketch of the land front of Fort Marion had also been prepared to depict a change in the mode of draining that front. In making this change, 4'6" had been assumed as the proper height of the ditch at the mouth of the drain. If it were not, Benham was to make the necessary alterations in the plans, keeping the bottom of the drain outlet at 3 feet, as in the drawings.

The outlet was to be faced with granite and to project 2 inches from the face of the wall. Benham's attention was called to a second gate chamber under the breast-height wall. Its bed stones should also be granite, but the sides and top could be some other fabric. Durable freestone would suffice. Between the two gates, the drain was to be of high grade brick, laid in superior hydraulic mortar.

The section of the drains under the parapet would be built immediately, while Benham was facing the exterior wall, and would be integrated with that facing.

The gates were to be secured in three places by composition gun metal bolts and nuts. The bolts to be secured in their seats by a wedge of the same metal, the interstices being filled with sulphur. Only the lower portion of the gate was to be moveable, and it should be heavier than water so as not to be opened by its buoyancy when immersed.

To prevent accumulations of sand under the outer gate, the lower part of the drain was to be rounded, and a 2-inch hole pierced through the wall at a 35 degree angle. A second gate was to be placed for greater security against the influx of tides.

Under the terreplein, the drain was to consist of brickwork, and under the interior slope of the terreplein it was to be of brick with stone lintels. Local stone would suffice for the lintels, cesspools, and the stonework at the mouth of the drains. The gratings at the drain mouth were to be cast iron, and the gates were to be of

cross-lapped yellow pine fastened together by composition or copper rivets.[95]

6. Dimensions of Available Stones Dictate a Change Order

Upon studying the drawings, Benham questioned whether he would be able to secure stone of sufficient size to answer for the gateway sills and lintels. There was no granite on hand that would "work more than 18 inches, except in length."

The only way it could be done was to use foundation course headers and clamp them together for sills and lintels, or employ foundation stretchers at the top. If the latter were the answer, they must be laid side-by-side, one behind the other, and the bolts of the gate above let about 3 inches into the back stone.[96]

If Benham did not have stones of sufficient size to conform to the drawing details, Chief Engineer Totten recommended use of more headers than shown. All joints were to have dowels of iron or composition, not clamps, he added.[97]

After copying the drawings, Benham returned them to the Washington office. On doing so, he noted that if they used stone on hand for the drains, it would necessitate a reduction of 1 inch in the width of the border at top and bottom.[98]

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95. Totten to Benham, Feb. 10, 1843, NA, RG 77, Ltrs. Sent, Chief Engineer. A copy of the subject drawings titled, "Plan, Sections and Elevations of Drains Proposed to be Made Through the Coverface of the Waterfront of Fort Marion," is on file at Castillo de San Marcos NM.

96. Benham to Totten, March 3, 1843, NA, RG 77, Ltrs. Recd., Chief Engineer.

97. Totten to Benham, March 15, 1843, NA, RG 77, Ltrs. Sent, Chief Engineer.

98. Benham to Totten, March 21, 1843, NA, RG 77, Ltrs. Recd., Chief Engineer.

On the last day of March, Lieutenant Benham advised the Department that by the time its mid-month letter rached St. Augustine, the masons had laid the new facings around the debouch of the north drain. Desirous of positioning as much granite as feasible, he had prepared and submitted a plan for the drain openings, designed to provide a sound bond with the bricks.

The facing stones, already laid, were cut in such a manner as to allow them to answer for either this plan or the one forwarded by Chief Engineer Totten, on February 10, with little additional labor. The stone proposed for the site was 23-1/2 inches broad and quite full on the back, upper, and lower beds. Consequently, after it was given the same batter as the wall, it would "give full 10 inches back from the resting point of the lower part of the gate." With good headers above and below, Benham believed this would suffice.

Referring to his sketch, Benham noted that the header (a) supported the broad sill stone (b), setting 10 inches back from the gate recess. Above that, the headers (c c) and the lintel (d d), were firmly bonded by a good header (f).[99]

Chief Engineer Totten reviewed Benham's plan. Although he had no objection, he held that 3 headers at the top of the arch were more satisfactory than a single lintel.[100]

Replying, Benham noted that he would strengthen the lintel by doweling it to the header and stretchers of the course above.[101]

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99. Benham to Totten, March 31, 1843, NA, RG 77, Ltrs. Recd., Chief Engineer. A copy of Benham's sketch is filed with his letter of March 31 to Totten.

100. Totten to Benham, May 26, 1843, NA, RG 77, Ltrs. Sent, Chief Engineer.

101. Benham to Totten, June 17, 1843, NA, RG 77, Ltrs. Recd., Chief Engineer.

I. Department Orders a Resumption of Work

1. Benham Seeks to Gain Time

On December 30, 1842, less than five months after the project was closed down, the Department notified Lieutenant Benham that Secretary of War Bell had approved resumption of work on the scarp of the water battery. Between now and June 1, an expenditure of $8,000 was to be allowed, to be budgeted at a rate of $1,600 per month.

This sum was to be applied to "repair of such parts of the old coverface (or water battery . . .) as are to be repaired, and to contruction of the proposed new portions." Chief Engineer Totten recommended beginning with those parts most "in need of repair and finishing them at least to the height of the top of the granite." The old facings were to be disturbed no faster than "to give place to the new." The less of the old facing removed in inserting the new, "the more skillful, judicious, and economical" the engineer, Totten admonished.[102]

Some two weeks before Totten's letter reached St. Augustine, Benham had written the Department, inquiring into the possibility of money being made available to permit resumption of construction this winter. But, should the Department reply in the affirmative, it would be difficult to secure any supplies or skilled masons from the North before March 1. If there were no prospects of an early end to the construction freeze, he was desirous of obtaining a furlough to visit friends and relatives in the North.[103]

During the late autumn of 1842, laborers had been turned out to receive and land the granite being shipped from Boston to St. Augustine. All the stone would have been received by the date specified in the contract but for two unfortunate accidents. One of the vessels

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102. Totten to Benham, Dec. 30, 1842, NA, RG 77, Ltrs. Sent, Chief Engineer.

103. Benham to Totten, Jan. 2, 1843, NA, RG 77, Ltrs. Recd., Chief Engineer.

had been wrecked as she crossed the St. Augustine bar, and a second was compelled to jettison part of her cargo in a storm.[104]

2. Benham Submits His Program

Upon receipt of Colonel Totten's December 30 communication, Benham reiterated his apprehensions concerning the lateness of the construction season and the limiting of expenditures to about one-half the unobligated appropriated monies. Again, he reminded the Department that, because of the climate, "the best and proper working season" at St. Augustine was from November 1 to May 1. If resumption of work could be delayed until autumn and the entire appropriation made available, he could complete repair of the water battery between October 1843 and June 1844.

If the Department insisted on its orders being adhered to, Benham would, during the current season, lay-up the granite facings of the new north wall, the "old North long face," both faces of the middle salient, and about half the south long face. He also would complete the terreplein in rear of the new north wall, and perhaps the breast-height wall.

Because the north salient was the most delapidated, Benham's people would commence there, and work in both directions, "inwards on the new wall and southward along the North long face."

To insure that there would be no delay in obtaining the means for resuming operations, Benham forwarded, through the Department, orders on merchants for supplies and to his master mason to

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104. Ibid.

recruit and bring South a team of mechanics. Also enclosed was his $3,200 estimate to fund operations in February.[105]

Because of the isolated location of the city and the beleagured state of the area because of the Second Seminole War, Benham explained, it was impossible to secure "even the ordinary supplies common to all other or almost all other cities." Consequently, it was necessary to obtain machinery, subsistence stores, most materials, etc., from the North, principally New York City.[106]

3. Totten Approves the Program

Colonel Totten, after studying Benham's arguments, held to his opinion that operations must be resumed at the earliest date practicable. In this respect, he pointed out, Benham was not obligated to spend the entire $8,000 during the first five months of the year. In addition, the rate of expenditure was the maximum, and should Benham adopt a slower disbursement, the $8,000 would carry him into the summer. If, however, he did not deem it advisable to work the men during the sickly season, he could suspend operations. The $8,000

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105. Benham to Totten, Jan. 14, 1843, NA, RG 77, Ltrs. Recd., Chief Engineer. His estimate called for:

Items	Measure	Number	Cost
Machinery, traverse circle plates, tools, etc.			$ 350
Cement	barrels	700	225
Pork	barrels	35	350
Flour	barrels	50	300
Hay	tons	4	100
Corn, forage	bushels	150	150
Charter of vessel			400
Clerk & overseer			100
Labor	days	300	130
Contingencies			95
			$3,200

106. Benham to Totten, June 30, 1842, NA, RG 77, Ltrs. Recd., Chief Engineer.

ceiling had been established to keep Benham's engagements within limits the Treasury could accommodate.

Finally, Totten wanted Benham, even under the most restricted program, to build the two drains this spring. As to other projected operations, the Department would not interfere.[107]

J. Corps Assumes Responsibility for Fort Marion

The Seminole War having finally come to an end, the conditions used to justify retention of administrative control of the fort by the garrison commander cited by Colonel Crane were no longer valid. Lieutenant Benham accordingly called upon Chief Engineer Totten to intercede wth the War Department to see if Fort Marion could be turned over to the Corps of Engineers until such time as its repair was completed. To support his request, he noted that the casemates were needed for storerooms, workshops, etc., while the parade and glacis (the latter having been fenced) were occupied by mortar and lime houses and building materials. Moreover, the post quartermaster had assured Benham that he had no use for Fort Marion as quarters.[108]

The War Department, recognizing the merit in Benham's arguments and the emergency having passed, ordered responsibility for the fort turned over to the Engineers.[109]

K. Reconstructing and Refacing the Scarp

1. Securing the North Salient's Foundations

In late February 1843, upon resuming work on the water battery, Lieutenant Benham discovered that the character of the substrata

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107. Totten to Benham, Jan. 23, 1843, NA, RG 77, Ltrs. Sent, Chief Engineer.

108. Benham to Totten, March 20, 1843, NA, RG 77, Ltrs. Recd., Chief Engineer.

109. Woodbury to Benham, April 7, 1843, NA, RG 77, Ltrs. Sent, Chief Engineer.

at the north salient was of such doubtful condition as to strength and solidity "that he questioned the wisdom of laying the additional course of granite as approved by the Department.

After removing about one foot of soft mud, workmen had encountered a "pretty compact clayey kind of mud," which extended downward about two feet. Below this strata was a bed of quicksand. Benham accordingly decided not to disturb the clay, about one foot of which would have to be removed for concrete, if the extra course were laid. Instead, at the angle, the laborers positioned an 18-inch bed of shell concrete. This brought the bed of the first course of granite above the old surface at that point.

By adopting this mode, Benham would be able to place the foundation here in good condition by laying a facing of "rotten stone" salvaged from the old masonry around the salient angle. This would raise the surface above the concrete, thus affording needed security.

Near the mid-point of the north face of this angle, Benham identified another "bad foundation to lay upon." Here, the stratum sloped upward into the area to be occupied by the concrete and granite foundation course. Beneath this "hard mud" was a layer of soft mud and then quicksand. The laborers had filled this "space two or three feet down to the quicksand with shells well rammed." A layer of concrete was then laid upon the shells.[110]

Totten found Benham's scheme for securing the water battery's foundations judicious.[111]

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110. Benham to Totten, March 2, 1843, NA, RG 77, Ltrs. Recd., Chief Engineer.

111. Totten to Benham, March 15, 1843, NA, RG 77, Ltrs. Sent, Chief Engineer.

2. Reconstructing and Repairing the Backing

Upon taking down the coquina facings, Benham discovered that the amount of materials and labor required for repair of the water battery would be much greater than anticipated. It now seemed that "an entire new wall will be necessary up to the height of the granite" for the entire length of the Spanish battery.

The old scarp, he informed Colonel Totten, consisted principally of a facing from 18 inches to 2 feet in thickness of large stones, with very few headers. This was backed by a "mass of small flattish shell stones about 3 or 4 inches thick and of one or two feet surface." The mortar, not being hydraulic, had dissolved and had been washed away by the surf to a distance of 3 or 4 feet from the exterior slope, and extending upward as high as the upper course of the proposed granite facing.

Benham was satisfied that a new wall was required from the mouth of the drain in the north long face to the salient angle. South of the subject drain, a new wall must be carried up to at least 7 feet above the foundation. Above that height, it would be "joined to some portion of the parapet, which appears to extend . . . through to the counterscarp or new breast-height wall."[112]

Colonel Totten did not agree that, because the old mortar had been destroyed, it was "advisable to make work." The longevity of the extant mass was proof of its stability. The new work, to be erected as a facing, he reminded Benham, would protect the msonry "to the rear, screening it from all violence, so that the stability which it imparts to the entire mass cannot be impaired." The old work serves as a dry wall, while the new facings shielded it from "all abrasions & rotting."[113]

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112. Benham to Totten, March 21, 1843, NA, RG 77, Ltrs. Recd., Chief Engineer.

113. Totten to Benham, April 1, 1843, NA, RG 77, Ltrs. Sent, Chief Engineer.

Acknowledging this letter, Benham informed the Department that heretofore all instructions had led to the conclusion that a good 7-foot thick scarp was to front the battery. He had therefore proceeded to remove and replace by new work, to this aforementioned thickness, all "portions not cemented by tolerably good mortar." He believed, despite Totten's recent letter, that he had "still met the views of the Department essentially," because they had removed but little of the old mass that could stand alone, after the facing was taken down.

From point A at the north salient to B, a distance of about 70 feet, the upper portion of the wall fell the moment the facing was removed. Beyond this area, the upper part stood, though badly cracked at several places. The backing in these areas was a mass of loose rubble stone, much of which would have toppled upon removal of the earth for the foundations. As they approached the middle salient, mortar was found behind the facings, but it lacked strength. Here, Benham had his laborers take out the lower courses to a depth of 2 or 3 feet for a distance of 40 feet. Larger stones that seemed to be embedded were allowed to remain, because they formed excellent ties, as well as saving the replacing of the equivalent masses."[114]

Near the re-entrant angle, most of the mortar was in position, and larger and better stones constituted the backing. At the middle salient much of the wall must be rebuilt, because the lower courses to within 3 feet of the superior slope had been swept away by the surf for some 10 to 15 feet on either side of the salient angle.[115]

Chief Engineer Totten was dismayed to learn that Benham "from the instructions" had "formed the idea that it was wished that there should be a good wall laid the whole extent, at least 7 feet thick." To

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114. Benham to Totten, April 17, 1843, NA, RG 77, Ltrs. Recd., Chief Engineer.

115. Ibid.

show Benham how mistaken he was, Totten referred him to the Department's letter of December 9, 1841, as well as subsequent correspondence. On reviewing them, Benham would see that Totten from the first had taken "pains to guard against the construction of anything more than a mere facing to the wall in question." If these instructions had been misconstrued, Totten "must hereafter dispair of being able to make my reasoning intelligible."[116]

Benham defended himself against the Department's censure. He denied that Colonel Totten's instructions had been "unread, unstudied or forgotten." A faulty choice of words on his part had resulted in this unfortunate misunderstanding. He had not intended to imply that the "old scarp wall should be relaid throughout to the extent of seven feet." What he ought to have written was that "there should be a good" 7-foot wall throughout.

This being the thickness mandated for the new wall, he had presumed that the old and more exposed faces must be as strong, when they were refaced. Consequently, wherever the old wall was in danger of falling, he had "replaced it by new masonry not greater than 7 feet in thickness."

Benham believed that this was the only reasonable interpretation of Totten's instructions. To have done otherwise would have "deserved censure."[117]

3. Use of Clamps to Secure Granite Facings

On March 31, 1843, Benham called attention to exposure of the north salient to pounding surf during nor'easters. Consequently, iron clamps had been employed to secure the granite facings for a

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116. Totten to Benham, May 25, 1843, NA, RG 77, Ltrs. Sent, Chief Engineer.

117. Benham to Totten, June 17, 1843, NA, RG 77, Ltrs. Recd., Chief Engineer.

distance of 50 feet on the "foundation course of the long branch" and for 30 feet on the "short branch" of the subject salient. These clamps were from 12 to 14 inches long by 1-inch square, and set in molten sulphur.[118]

Chief Engineer Totten chided that if the masonry were "good", there was no need for clamps except, perhaps, for the stones at the angles.[119]

Benham explained that he had used the clamps at the salient angles, because of the manner in which the Spanish masonry had been broken at the corners. For example, at the middle salient, there was a large fissure extending across it, at the junction of the near breast-height wall. This angle was "quite small and weak (68°) and projecting . . . into and across the full force of the current," hence he had not hesitated to employ clamps. Although a large number of clamps had been employed to secure the granite facings of the north and middle salients, only a few had been used for this purpose at the south salient.[120]

4. Totten Agrees to Substitute Coquina Coping for Concrete Blocks

On April 18, 1843, Lieutenant Benham complained that the Department's instructions regarding certain details pertaining to manufacture of concrete coping were vague. In addition, the only aggregate available locally were shells, and these yielded a substandard concrete.

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118. Benham to Totten, March 31, 1843, NA, RG 77, Ltrs. Recd., Chief Engineer.

119. Totten to Benham, May 25, 1843, NA, RG 77, Ltrs. Sent, Chief Engineer.

120. Benham to Totten, June 17, 1843, NA, RG 77, Ltrs. Recd., Chief Engineer.

At risk of further censure, he again urged that the coping be coquina. There was on hand a large number of coquina blocks salvaged from the Spanish battery's water table. These were firm and strong enough for the outer edge of the thick mask wall.[121]

If there were on-site "good stone" for coping, Chief Engineer Totten replied, he was agreeable to its substitution for concrete blocks. If these stones were less than 9 inches in height, they were to be bolted to the course underneath and clamped to each other.[122]

Benham was delighted because he was certain that coquina was superior to the highly regarded red sandstone as coping. When plastered with cement mortar, he forecast, the coquina would possess all the desirable qualities of coping manufactured from concrete.

As for bolting down the thinner coping stones, Benham did not believe this necessary because of the manner in which mortar adhered to coquina. He did not think it possible to raise a block of coquina once the mortar had set without breaking it into pieces.[123]

Chief Engineer Totten vetoed one of Benham's recommendations. Under no circumstances was coquina to be plastered.[124]

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121. Benham to Totten, April 6, 1843, NA, RG 77, Ltrs. Recd., Chief Engineer.

122. Totten to Benham, May 25, 1843, NA, RG 77, Ltrs. Sent, Chief Engineer.

123. Benham to Totten, June 17, 1843, NA, RG 77, Ltrs. Recd., Chief Engineer.

124. Totten to Benham, July 11, 1843, NA, RG 77, Ltrs. Sent, Chief Engineer.

5. Progress and Programming: February-May 1843

On March 23, 1843, the Department notified Benham that, if it were advantageous, he could calculate on drawing from the Treasury $1,600 for June. He was to forward for review a budget and program for expenditure of the $11,050 remaining on the books during the period May 1, 1843, to June 30, 1844. On doing so, he was to reserve a sum sufficient to provide suitable supervision over the Engineer property during fiscal year 1845, should Congress fail to make a further appropriation.[125]

This communication reached Benham during the second week of April. By that time the workforce (10 masons and 50 laborers) had refaced the scarp to the height intended, except for the coping on the "short (west) branch" of the north salient. On the other face of this salient and for a distance of 75 feet along its "long branch," the wall had been completed to the height of the granite facing. An opening had been left for the north drain. Thus in six weeks, the men had completed about one-fifth the work programmed for the water battery.[126] They had accomplished this despite a number of stormy days.

Benham accordingly was satisfied that, with a slight increase in manpower, he would be able to complete the project by late July. This was contingent, however, on a monthly expenditure at the current rate. Such a program, though extending the undertaking into the hot, humid months, would not carry over into the sickly season, which usually began in late August.[127]

Priority would be given to laying-up the masonry of the scarp wall. After this was finished, the labor force would turn its

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125. Totten to Benham, March 23, 1843, NA, RG 77, Ltrs. Sent, Chief Engineer.

126. Benham to Totten, April 10, 1843, NA, RG 77, Ltrs. Recd., Chief Engineer.

127. Ibid.

attention upon the breast-height wall, drains, banquettes, traverse circles, and platforms.[128]

Should the Congress refuse to make an appropriation for further repair of Fort Marion, a "faithful and competent person could be hired for $50 per month to care for Fort Marion and to look after the public property in fiscal years 1844 and 45.[129]

After studying Benham's letter and reviewing the Corps' nation-wide responsibilities, Colonel Totten approved expenditure of $1,600 each in July and August, and the priorities assigned to the construction schedule--the "mask wall," then the breast-height wall, drains, etc.[130]

Upon completing the water battery, with the July and August allotments, Benham was to secure a fort keeper at $50 per month.[131]

6. Work on the Scarp, Drains, and Ditch Through July 1843

On July 3 Benham advised the Department that repair of the water battery was expected to be completed by or nearly so by the end of the month. The masonry of the scarp wall had been laid, except for areas some 15 or 20 feet across at the drains. Work on these was underway, the masonry of the south drain had been positioned under the wall and its front gateway set; the granite of the sink drain had been laid and the brick arch commenced; and the stones of the outer gateway of the north drain cut and ready for setting.

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128. Ibid.

129. Ibid.

130. Totten to Benham, May 25, 1843, NA, RG 77, Ltrs. Sent, Chief Engineer.

131. Ibid.

About one-half the coquina coping had been laid. Yet to be finished were about 300 running feet of breast-height wall, the banquettes, traverse circles, and superior slope.[132]

By the end of July, the drains were completed, except for setting the inner (iron) gateways. The next project to be undertaken would be "Regulation of the main ditch." Benham planned to lower the middle of the ditch to the required level by ramming, as he did not wish to disturb the marsh grass which covered much of that area.[133]

L. Condition of Scarp and Terreplein as of August 23, 1843

On August 23, 1843, Lieutenant Benham, the sickly season at hand, closed down the project. Since beginning work on February 23, workmen had laid, upon a foundation of shell concrete, a course of granite 1'6" in height. And above that a "new wall" 10 feet high and 6 to 7 feet thick, with a batter of 1/8, had been constructed upon the north and south short branches, and wherever the scarp of the other faces had given way. The facings throughout the length of the battery, about 750 feet, were of rough dressed granite to a height of about 8'9" above the foundation course. Above the granite were several courses of coquina, totaling 3'3"; above which was the coping course of coquina, varying from 9 to 12 inches in thickness, "the thinner ones varied up to the required height." The entire course of coping, contrary to the Department's instruction, to give it a regular appearance was plastered with cement.[134]

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132. Benham to Totten, July 3, 1843, NA, RG 77, Ltrs. Recd., Chief Engineer.

133. Benham to Totten, July 29, 1843, NA, RG 77, Ltrs. Recd. Chief Engineer.

134. Benham to Totten, Oct. 11, 1843, RG 77, Ltrs. Recd., Chief Engineer.

The terreplein and its slopes had been graded and planted in Bermuda. This greensward gave promise of preserving the form given the surfaces.[135]

During the six months, February 23-August 23, there had been laid 2,100 cubic yards of masonry. There had been disbursed in the year ending September 30, 1843, including the money paid for granite facing stone, traverses, and pintle-blocks, $18,265.67. Appropriated funds unexpended totaled $4,309.13.

Yet to be completed, Benham reported, were these features: (a) setting the pintle-blocks; (b) construction of platforms and banquettes; (c) plastering face of breast-height wall; and (d) surfacing the superior slope.[136]

M. Benham Takes Four Months' Leave

Since Benham planned to close down the project before the sickly season, he asked the Department to be allowed to take advantage of this situation to travel to Hillsborough, New Hampshire, and attend to certain private affairs. No injury, he assured Chief Engineer Totten, would occur to the battery by delaying the "forming of the revetment" until the pintle-blocks were positioned. Before taking passage, he would see that arrangements were perfected for proper care of Fort Marion and the public property for which he was responsible.[137]

Acknowledging Benham's application, Chief Engineer Totten promised that, after operations were secured and measures taken to

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135. Ibid.

136. Ibid.

137. Benham to Totten, July 3, 1843, NA, RG 77, Ltrs. Recd., Chief Engineer.

provide for protection of the public property, Benham's application for leave would be considered.[138]

Meanwhile, on July 15, Benham had recommended that operations be suspended on August 15 because of the sickly season. Already, a number of workmen were ill, and some of his best northern masons had left for their homes. By the date named, provided most of the mechanics remained another four weeks, the essential portions of the water battery would be completed. Moreover, heavy rains, which had set in, could be expected to continue.[139]

On July 27 Benham forwarded to the Department his application for furlough to extend until November 30. This would permit him to return to St. Augustine in time to take advantage of the most favorable months of the construction season.[140]

Secretary of War James M. Porter approved Benham's leave to begin August 18 and terminate on November 30.[141] It was the 23d before Benham was able to secure the project, place a fort keeper in charge of the public property, and board a Charleston-bound packet.

Early in November from Hillsborough, where he was spending his leave, Benham notified the Department that a vessel with supplies would be sailing from New York City for St. Augustine about the 25th. Perhaps, he reasoned, the Ordnance Department would take advantage of

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138. Totten to Benham, July 18, 1843, NA, RG 77, Ltrs. Sent, Chief Engineer.

139. Totten to Benham, July 15, 1843, NA, RG 77, Ltrs. Sent, Chief Engineer.

140. Benham to Totten, July 27, 1843, NA, RG 77, Ltrs. Recd. Chief Engineer.

141. Woodbury to Benham, Aug. 15, 1843, NA, RG 77, Ltrs. Sent, Chief Engineer.

this opportunity to ship to Fort Marion the ironwork needed for the platforms.[142]

Benham left Hillsborough on the 16th for New York City. He reached St. Augustine on December 10, the vessel on which he had taken passage, having been detained for several days at Charleston.[143]

N. Water Battery is Completed

1. Work Resumed

The 1843-44 construction season at hand, Chief Engineer Totten notified Lieutenant Benham that he was to complete the water battery. Involved would be setting the pintle-blocks, construction of the gunners' platforms and banquettes between the pintle-centres, and completing the parapet's superior slope. He would not plaster the face of the breast-height wall. In an old defense, such as Fort Marion, "a piece of descent masonry wall pointed up" looked good enough for the breast-height wall. Grass was to be cultivated on the terreplein and slopes. Frequent mowings were calculated to compact the sward. Livestock was to be kept off the sodded areas.[144]

During the second week of December, the materials and supplies shipped south from New York City were landed and stockpiled on the reservation. As soon as Benham had organized his workforce construction was resumed.[145]

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142. Benham to Totten, Nov. 9, 1842, NA, RG 77, Ltrs. Recd., Chief Engineer.

143. Benham to Totten, Nov. 16 & Dec. 10, 1843, NA, RG 77, Ltrs. Recd., Chief Engineer.

144. Totten to Benham, Nov. 13, 1843, NA, RG 77, Ltrs. Sent, Chief Engineer.

145. Benham to Totten, Oct. 16, 1844, NA, RG 77, Ltrs. Recd., Chief Engineer.

2. Project Nearly Loses Some of its Funding

On January 4, 1844, the Department notified its superintending engineers that all unobligated monies from previous appropriations remaining in the Treasury had reverted to the general fund. If not rescinded, this order would cost the Fort Marion project $750, a sum Lieutenant Benham planned to requisition to cover his February expenditures.

Calling this subject to Chief Engineer Totten's attention, Benham noted that, although funds on hand would suffice to underwrite programmed work, the monies in the Treasury were needed for additional projects that may be suggested, and certainly for pay of a keeper to oversee protection of the public property in Fiscal Year 1845.[146]

The Department, Colonel Totten reassured Benham, was striving to keep the balance of the Fort Maron appropriation from reverting to the general fund. Until success of these efforts was known, Benham was to make no commitments based on these monies.[147]

The Treasury, in response to the Department's request, released to Benham the $750.[148]

3. Benham Wins His Argument for a Masonry Superior Slope

In mid-April 1843, Benham again questioned the Department's decision to revet the interior slope of the breast-height wall with shingles. He held that the shingles could be eliminated and the breast-height wall raised to 5½ feet, and, with Chief Engineer Totten's approval, he would fill in the section of the superior slope intended to

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146. Benham to Totten, Jan. 14, 1844, NA, RG 77, Ltrs. Recd., Chief Engineer.

147. Totten to Benham, Feb. 5, 1844, NA, RG 77, Ltrs. Sent, Chief Engineer.

148. Benham to Totten, Feb. 20, 1844, NA, RG 77, Ltrs. Recd. Chief Engineer.

receive earth with broken fragments from the old circular counterscarp wall. Such a surface would be durable and not require repairs like a shingled revetment.

Experiments with coquina, he reiterated, demonstrated that the danger from flying fragments thrown about by projectiles striking the superior slope had been exaggerated.[149]

Not receiving an answer to his communication, Benham, in late May, informed the Department that the exterior face and interior slope of the battery, excepting the coping and revetting, had been completed to within 80 feet of the angle of the south salient. The upper part of the parapet from the north drain to the south salient angle, except for some 20 feet above the old sink drain, was found to be solid masonry. There was little space for sod fill, while if he were to provide the parapet with the slope called for in the drawings, considerable masonry must be cut away.

For the entire distance on the long branches, Benham explained, "the surface of the old passage-way is . . . within 6 inches of the height of the proposed crest." On the short branches, its height corresponded with that of the coping stone removed on the long branches. To a depth of 8 or 9 inches, this consisted of a course of rammed tapia, and below this a layer of coquina rubble masonry which could not be fractured by blows from a sledge.

If he were to revet the interior slope with shingles, it would be mandatory to cut into the masonry to a depth of 2 feet every four feet for the frames necessary to support the shingled slope. The shingled slope in turn would backstop a small crest of earth.

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149. Benham to Totten, April 10, 1843, NA, RG 77, Ltrs. Recd., Chief Engineer.

Benham feared that surf crashing against the "mask wall," during storms, would wash away the 8 to 9 inches of sod covering the superior slope. This could be alleviated, he informed the Department, by utilizing masonry salvaged from the Spanish walls to surface the superior slope.[150]

If the upper part of the parapet were solid masonry, Chief Engineer Totten replied, it would be more "excusable to have a crest of masonry." Thus, with great reluctance, he authorized Benham to construct the parapet of salvaged materials. The interior and exterior edges of the parapet were to be of large stones, those for the interior crest to be not less than 12 inches deep, and nowhere smaller than 8 inches. The "best finish" would be obtained through laying "good large stones on the interior and exterior edges, their greatest dimension transverse to the wall, and forming the intermediate surface, with concrete. The masses to be about 2 feet wide, separated by dry joints, as formerly directed for concrete coping. There should not be less than one such joint in the width of the parapet. The shingled slope dispensed with, there was no need to make the "small surmounting slope."

The inner face of the breast-height wall was to be carried up to the crest in one plane, except that every corner of the crest must be replaced by a curve drawn with a 3-inch radius to be tangential both to the inner and upper surfaces of the parapet. Because of muzzle blasts from cannon, the principal reliance must be on the inertia of the masses, not on the "supposed remarkable adhesion of your stones to mortar."[151]

Benham was delighted by this turn of events. Writing the Department, he announced that he was almost willing to pledge his commission that

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150. Benham to Totten, May 27, 1843, NA, RG 77, Ltrs. Recd., Chief Engineer.

151. Totten to Benham, July 11, 1843, NA, RG 77, Ltrs. Sent, Chief Engineer.

this method of completing the work will prove by far the most superior not only in appearance and in strength and durability but also in its non-liability to give or to receive injury, as well as certainly in its eventual if not . . . in its immediate economy.[152]

4. Readying the Gun Platforms

a. Positioning the Pintle-Blocks and Traverse Stones

The suspension of construction from August 1842 to February 1843 was advantageous in permitting a delay in positioning the traverse circles and pintle-blocks until the earth of the terreplein had been compacted by late summer and autumn rains. Upon learning that work was to be resumed, Benham asked the Department for guidance on procedures to be followed in requisitioning from the Ordnance Department pintles and pintle-plates.[153]

Chief Engineer Totten responded that no action would be taken on this matter for the present.[154]

Some eight weeks later, on April 10, Benham advised that, if the water battery were to be completed by July, additional instructions were necessary in reference to the pintle-centres, pintles, and pintle-plates. The approved drawings did not give the dimensions of the pintles, but represented them to be larger than Benham had been led to believe.

A 2-inch drill had been sent to be employed in preparing the blocks. He had ordered the upper blocks to be 2-foot cubes, because this give the greatest mass and the least expense of

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152. Benham to Totten, July 24, 1843, NA, RG 77, Ltrs. Recd., Chief Engineer.

153. Benham to Totten, Feb. 3, 1843, NA, RG 77, Ltrs. Recd., Chief Engineer.

154. Totten to Benham, Feb. 13, 1843, NA, RG 77, Ltrs. Sent, Chief Engineer.

cutting. He proposed that the lower blocks be coquina, 4 feet square and from 18 to 24 inches thick.[155]

When he replied, Chief Engineer Totten failed to answer these questions. He did write, however, that the wooden banquettes and platforms around the pintle-centres were to be omitted.[156]

Continued rapid progress goaded Benham into reiterating his call for addition data. On May 27 he reminded the Department that he had on hand stones for the pintle-blocks, as well as ironwork for the traverse circles. The former would soon be ready to be positioned. Masons were drilling 2-inch pintle holes. He, however, lacked information on the dimensions and location of the holes to be used in securing the pintle-plates.[157]

Chief Engineer Totten wrote Benham that drilling of holes for pintles and bolts was to be deferred until the ironwork was on hand. Connecting the lower ends of the bolts by flat iron bars would be judicious, because of the softness of coquina.

Because it would be some months before the Ordnance Department shipped the pintle-plates and bolts, Benham was to postpone laying the centres until autumn. Work on the banquettes could also be delayed.

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155. Benham to Totten, April 10, 1843, NA, RG 77, Ltrs. Recd., Chief Engineer.

156. Totten to Benham, May 25, 1843, NA, RG 77, Ltrs. Sent, Chief Engineer.

157. Totten to Benham, May 27, 1843, NA, RG 77, Ltrs. Recd., Chief Engineer.

To assist the Department to make requisitions upon the Chief of Ordnance, Benham was to provide dimensions of the upper and lower pintle stones.[158]

b. Requisitioning Pintle-Plates, Bolts, etc.

Benham responded with the desired information. The dimensions of the pintle-blocks were:

> Upper block (granite), 2 foot square and 15¼ inches thick. Lower blocks (coquina), regular masses, each from 3½ to 4 feet wide, from 4½ to 5 feet long, and varying from 2 to 2½ feet thick.

If the smaller bolts were to be of uniform length, i.e., 3 feet 6 inches, channels could be cut in the bottoms of the thicker ones, for the proposed flat bars. He had purchased a number of 1-inch bolts, which would answer for this purpose. Pintles and pintle-plates, however, must be received from the Ordnance Deprtment.[159]

The 20 pintle-plates and sets of bolts, requisitioned from the Ordnance Department, were received at Fort Marion in late November 1843. Upon inspecting them, Benham found the diameter of the plates to be 25¼ inches. They would thus overlap the 2-foot square upper pintle-block. As the entire platform was to be masonry, it could be brought up to the level of the blocks' upper surfaces.

The pintles seemed to be quite small, tapering from 1-3/4 to 1-1/4 inches. Wedges of iron, however, would strength them.[160]

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158. Totten to Benham, July 11 & 18, 1843, NA, RG 77, Ltrs. Sent, Chief Engineer.

159. Benham to Totten, July 29, 1843, NA, RG 77, Ltrs. Recd., Chief Engineer.

160. Benham to Totten, Nov. 25, 1843, NA, RG 77, Ltrs. Recd., Chief Engineer.

c. Totten Provides Directions for Forming Platforms

In setting the pintle-centres, Benham was to fasten the plate to the upper block and the upper block to the lower by four bolts, passing through them. Heads of these bolts were to be countersunk into the top of the plate, and the lower ends, as well as the lower end of the pintle bolt, secured by nuts and washers. The upper block was to be set vertically with its face next the breast-height wall, corresponding with the same face of the lower block. Concrete would be rammed against the ends and in front of the lower block so that the concrete bed would be 8 feet long next the breast-height wall, the bottom of the bed being on the same plane as the bottom of the lower stone. The sand upon which the stone and concrete were laid would be previously tamped with a "small sharp rammer."

Whenever the lower stone was as much as 5 feet long on the back edge, the side of the concrete was to extend to that edge; whenever the stones were shorter, there was to be laid a small quantity of concrete against the ends of the stones, making the rear edge of the "joint mass five feet long." The concrete brought to the level of the top of the lower stone, the two stones forming the sides of the gunners' platform would be positioned. These were to be of coquina, and in "form the size of your lower blocks." They should be at least 15 inches across, although 18 inches would suffice. One-inch holes would be drilled into the coquina blocks after they were laid, and 1-inch iron bolts, 15 inches long, dropped therein. The upper part of the hole was to be filled with concrete. A third stone, shaped like a quadrilateral, would then be placed. The remainder of the platform would be concrete.

Stones constituting the sides of the platform were to be cut straight on the top, on the face, and a short distance down the back. The "quad stone" must be cut to insure an accurate fit. All stones were to be sloped to permit water to drain off the platforms. Surfaces of the stones and of the walls, with which concrete was to come in contact, were to be "smeared with a rather dilute mortar just before the concrete" was applied.

All ironwork, before being inserted, was to be copiously coated with coal tar.

Pintle-centers, Chief Engineer Totten assured Benham, placed and sustained by such platforms would be "immovable under any firing."

The banquettes were to be wooden benches 3 feet broad, the top on the same plane as the pintle-plate. They were to be built of roughly planed, strongly fastened, kyanized-treated timbers.[161]

d. "South Long Branch" Banquettes

On January 14, 1844, Benham took up with the Department its decision to build wooden banquettes. This caused problems, because there were at St. Augustine no facilities for kyanizing timbers. Unless this were done, the banquettes would have to be renewed every five or six years.

The banquettes on the "south long branch" having been commenced using coquina, Benham requested authority to continue work on them, employing this material, provided there was sufficient funds. It was his understanding that the banquettes were to extend along the entire interior slope of the parapets, except for about 11 feet opposite each gun.[162]

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161. Totten to Benham, Nov. 13, 1843, NA, RG 77, Ltrs. Sent, Chief Engineer.

162. Benham to Totten, Jan. 14, 1844, NA, RG 77, Ltrs. Recd., Chief Engineer.

Colonel Totten could not recall having given Benham authority to begin the "south long branch" banquettes. As he remembered, Benham had been instructed to "make both platform and banquet of wood." Then, Benham had been directed not to do anything to them until further orders were received. Finally, when directions for arranging the centres were transmitted, Totten had requested that Benham either omit the banquettes, or if he were prepared to kyanize them, to construct them of wood.[163]

Benham, however, was satisfied in his mind that the Department had authorized use of stone for the platforms, and had also given him the option of employing coquina for the banquettes. This he had done because of its superior qualities, the coquina banquettes of Fort Marion being more than 100 years old and still in "good order."[164]

Totten chided Benham that "whatever contruction certain phrases may have received," the Department never intended to sanction construction of masonry banquettes in the water battery. His objection to use of coquina for the banquettes was cost. All that was needed was a step on which officers might stand briefly to observe the effects of the cannons' fire. A wooden bench would have answered this purpose.[165]

Benham accordingly agreed that in the water battery, unlike Fort Marion, masonry banquettes for observing fire were uncalled for. He, however, had looked upon them as necessary for "the real defense of this part of the work," as the foot of its scarp was exposed at ebb tide. The banquette had been built to defend the battery against

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163. Totten to Benham, Feb. 5, 1844, NA, RG 77, Ltrs. Sent, Chief Engineer.

164. Benham to Totten, Feb. 26, 1844, NA, RG 77, Ltrs. Recd., Chief Engineer.

165. Totten to Benham, March 6, 1844, NA, RG 77, Ltrs. Sent, Chief Engineer.

escalade, because the "south long branch" was the "only portion of the outwork, not tolerably well flanked by the main work."[166]

Because the "south long branch" banquette had been formed, the Chief Engineer responded, it would be retained and the subject dropped.[167]

5. Project is Finished

On March 3, 1844, Lieutenant Benham notified the Department that work on the water battery would be finished about the 20th. Since there would be about $1,000 still on hand from the appropriation, he wished to know what to do with these monies.[168]

Colonel Totten planned a visit to St. Augustine in the near future, and until he had examined Fort Marion and the seawall, he did not feel at liberty to provide instructions on how to spend the balance of the appropriation. Meanwhile, Benham was to complete the approved projects, and reduce his force to a fort keeper charged with providing security for the public property.[169]

In accordance with Totten's orders, Benham, the workmen having completed the water battery, closed down the project and discharged the hands on March 31. A keeper was engaged to look after the fort and public property.[170]

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166. Benham to Totten, March 25, 1844, NA, RG 77, Ltrs. Recd., Chief Engineer.

167. Totten to Benham, April 6, 1844, NA, RG 77, Ltrs. Sent, Chief Engineer.

168. Benham to Totten, March 3, 1844, NA, RG 77, Ltrs. Recd., Chief Engineer.

169. Totten to Benham, March 13, 1844, NA, RG 77, Ltrs. Sent, Chief Engineer.

170. Benham to Totten, Oct. 14, 1844, NA, RG 77, Ltrs. Recd., Chief Engineer.

6. Construction of Shot Furnace and Plastering the Breast-Height Wall

Among other work undertaken at the battery during the winter was construction of a 7-foot shot furnace opposite the centre point of the east curtain.

Laborers, despite the Department's orders, had plastered the breast-height wall with "mortar cement."[171]

7. Benham's Plan of Completed Battery

On April 22, 1844, Benham transmitted to the Department a drawing of the water battery, as completed, titled, "Plan, Sections, etc., of the water battery of Fort Marion, St. Augustine, Fla., completed March 1844, by H.W. Benham, Lieut. of Engrs."[172]

O. Totten's May 1844 Inspection

Chief Engineer Totten spent several days in St. Augustine at the end of the third week of May. After making a "minute inspection" of the public works, he complimented Lieutenant Benham on "their good condition in general, and of the satisfactory manner in which . . . [the projects] have been executed."

Totten was delighted with the water battery, and the "measures taken to maintain it." It was mandatory, however, that its parapet, terreplein, etc., be kept from becoming a public resort. If there were no other ill-effects, the "abrading" consequences of human feet upon the uncoped portion of the seawall was proof of this necessity.

He approved Benham's suggestion to wall up the arched openings into the shot furnace. But, before doing so, the inner irons were to be lacquered.

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171. Benham to Totten, Oct. 14, 1844, NA, RG 77, Ltrs. Recd., Chief Engineer.

172. Benham to Totten, April 22, 1844, NA, RG 77, Ltrs. Recd., Chief Engineer. A copy of the subject drawing is on file at Castillo de San Marcos NM.

The fort keeper was to eradicate the weeds within the battery, and see to the cultivation of grass upon the terreplein and slopes. Should heavy rains cause the slopes to erode, he was to fill and ram the washes. Where Bermuda did not take hold, it was to be given attention and new roots set out.

All the public monies that "could be obtained for fortifications," Totten informed Benham, were required for construction of defenses at more important harbors. This made it necessary to defer expenditures for repair of Fort Marion. Nevertheless, Totten made notes on the condition of the fort, and with the drawings Lieutenant Benham had supplied, he could give "minute instructions" for its repair, whenever money became available.

Meanwhile, those portions of the fort in charge of the Corps were to remain the responsibility of the fort keeper. It seemed to Colonel Totten that the casemate used by Benham as a storeroom, being furred, might better be employed as a magazine. He suggested that an exchange be made.

Items charged to the St. Augustine account and not needed for completion of the seawall could be transferred to either Capt. Alexander H. Bowman at Charleston or Capt. Joseph K.F. Mansfield at Cockspur Island.

Lieutenant Benham was to hold himself ready for transfer to duty farther north.[173]

P. Work is Secured on the Fort and Grounds

1. Benham is Ordered to Annapolis

As the projects had been secured and Benham was to be reassigned, there would be the problem of unauthorized people taking stone from the public quarries. Benham suggested placing a man there

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173. Totten to Benham, May 20, 1844, NA, RG 77, Ltrs. Sent, Chief Engineer.

and permitting him to sell coquina, in lieu of the government paying him a salary. Totten felt this was illegal. It might, however, be permissable to permit such stone to be taken for private use as was not well-suited for the public works, charging for it a cheap rate, merely sufficient to cover expenses and to reimburse the person hired as a guard.[174]

Upon returning to Washington and questioning several other War Department officers, Totten determined to forget about maintaining a person at the quarries. They were to be closed and the fort keeper directed to visit them frequently to ward off trespassers. Should his warnings be ignored, the keeper was to seek assistance of local law enforcement officers.[175]

Some four weeks after Totten's visit, the Department issued orders for Benham to close down operations at St. Augustine and then proceed to Annapolis and assume charge of the repairs needed to place Fort Severn in an efficient state.[176]

Before boarding the vessel that was to take him North, Benham issued orders closing the water battery as a public promenade. As to be anticipated this caused a public outcry. The Department, however, backed its superintending engineer, because if this prohibition were removed, "deterioration and dilapidation will begin forthwith." If persisted in, opposition to this policy was expected to fade away.[177]

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174. Totten to Benham, May 19, 1844, NA, RG 77, Ltrs. Sent, Chief Engineer.

175. Totten to Benham, June 18, 1844, NA, RG 77, Ltrs. Sent, Chief Engineer.

176. Ibid.

177. Welcker to Benham, Aug. 24, 1844, NA, RG 77, Ltrs. Sent, Chief Engineer.

Benham sailed from St. Augustine in late June and reached his new duty station on July 16, 1844.[178]

2. Benham's Difficulties with General Worth

In August 1844, Brig. Gen. William S. Worth, commander of the Ninth Department, headquartered at St. Francis Barracks, notified Chief Engineer Totten that he was agreeable to detailing a noncommissioned officer to act as fort keeper at Fort Marion and to take charge of the public property. This would enable Lieutenant Benham to lay off Keeper L. J. Legai. The Department was delighted with this proposal and wrote Benham to contact Legai and direct him to turn over all public property, written instructions, and books to the noncommissioned officer detailed as his replacement.

As Benham was personally responsible for the public property and quarries belonging to the Corps, it was mandatory that the keeper be accountable and receive his instructions from him.[179]

Benham welcomed the proposal as worthwhile and economical, provided the man detailed was "faithful, honest, and intelligent." No time was lost by Benham in writing General Worth and Keeper Legai. He suggested to the general that the noncommissioned officer enter on duty immediately, and meet with the keeper. A small detail of troops from St. Francis Barracks would also be useful for storing the Engineer property in as few casemates as possible. A copy of instructions for the noncommissioned officer guidance was forwarded to the general.[180]

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178. Benham to Totten, July 14, 1844, NA, RG 77, Ltrs. Recd., Chief Engineer.

179. Welcker to Benham, Aug. 21 & 24, 1844, NA, RG 77, Ltrs. Sent, Chief Engineer.

180. Benham to Totten, Aug. 26, 1844, & Benham to Worth, Aug. 25 & 31, 1844, NA, RG 77, Ltrs. Recd., Chief Engineer.

On September 12 General Worth changed his mind. Instead of detailing a noncommissioned officer, he proposed to have Ordnance-Storekeeper J. R. Hanham relieve Keeper Legai. This caused Benham to explode. Writing the Department, he protested that he knew Captain Hanham, and had no confidence in him. Consequently, he had written Keeper Legui, through the Department, to retain responsibility for the public property.[181]

The Department refused to transmit Benham's letter to Keeper Legui. If Ordnance-Storekeeper Hanham were agreeable to taking charge of the property, without expense to the Corps and would receipt to Benham and become responsible to him for it, the Department saw no reason to doubt its security.[182]

The letter informing Benham of this decision went astray, and he learned of it upon receipt of a copy of an order from General Worth to Captain Hanham directing him to take charge of Fort Marion and the Engineer property and to receipt for it to Lieutenant Benham. Benham protested that if the subject property were transferred from an agent of his choice without reference to him, the Department must relieve him of all responsibility.[183]

Replying, the Department chided that this arrangement was complete, insofar as it could be carried on between the Chief Engineer and General Worth. All that remained was for Benham to obtain a receipt form Storekeeper Hanham. As soon as proper receipts were secured, Keeper Legui was to be discharged.[184]

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181. Welcker to Benham, Sept. 12, 1844; Benham to Totten & Benham to Legui, Sept. 19, 1844, NA, RG 77, Ltrs. Sent & Recd., Chief Engineer.

182. Welcker to Benham, Sept. 24, 1844, NA, RG 77, Ltrs. Sent, Chief Engineer.

183. Benham to Totten, Oct. 3, 1844, NA, RG 77, Ltrs. Recd., Chief Engineer.

184. Welcker to Benham, Oct. 7, 1844, NA, RG 77, Ltrs. Sent, Chief Engineer.

On October 1, unknown to Lieutenant Benham, Keeper Legui had surrendered to Captain Hanham responsibility for all Engineer properly for which he was charged, except the quarries and three horses turned out to pasture on Anastasia Island. The latter were receipted for on October 29.[185]

In the autumn of 1845, Lieutenant Benham returned to St. Augustine from Maryland to oversee additional work on the seawall. Upon examining his desk and a tin box containing the Engineer records and drawings belonging to the project, he saw that the locks and seals had been broken. He asked Ordnance-Storekeeper Hanham about this.

Hanham explained that General Worth had ordered him "to examine every drawing" and "read every letter" found in the desk and boxes. The reason given for doing so was a desire by the general to know what caliber of guns the water battery traverse circles would mount. This was strange reasoning, because the Ordnance Department had repeatedly assured General Worth that the traverse circles were designed for "any of the Ordinary garrison guns now in use."

Benham, in protesting this action, noted that, according to Engineer Regulations, officers of the Corps were not to furnish "copies of either books or papers, or portions of either" or "of their notes or drawings or allow copies to be taken, without special permission from the chief engineer."[186]

The Department had little solace for its superintending engineer. On December 9 Chief Engineer Totten wrote that, because Fort Marion was under General Worth's command and the papers related to it and the seawall, it was his privilege to have them examined.[187]

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185. Benham to Totten, Nov. 12, 1844, NA, RG 77, Ltrs. Recd., Chief Engineer.

186. Benham to Totten, Dec. 1, 1845, NA, RG 77, Ltrs. Recd., Chief Engineer.

187. Totten to Benham, Dec. 9, 1845, NA, RG 77, Ltrs. Sent, Chief Engineer.

Colonel Totten should have known better. Benham questioned the statement that General Worth was in command. According to the order issued by the Adjutant General on April 6, 1843, Fort Marion had been placed in charge of the Engineer Department. Then, in the summer of 1844, when General Worth had ordered a noncommissioned officer to take charge of the fort and public property, Chief Engineer Totten had declined to turn the fort over to him.

Moreover, during the past three years, there had been no troops posted in the fort, nor any necessity for such occupation.

This led Benham to conclude that he, under the Chief Engineer, was the commandant of Fort Marion, and General Worth was in charge of the troops garrisoning St. Francis Barracks.[188]

No officer, Colonel Totten assured Benham, was "more jealous of inroads upon the rights of the Corps, or more ready to engage in their defense" than he. But, he could not forget there were other rights and responsibilities which, under certain circumstances, became paramount. In this instance, there was no doubt that custom would hold that a general officer, commanding a military department, was justified in breaking open any trunk presumed to contain papers important to the defense in his sphere of authority. Consequently, Totten did not believe it circumspect to bring Benham's complaint before Secretary of War Marcy.[189]

Q. Sheeting Outer Drain Gates with Copper

Benham saw, on examining Fort Marion, that the arrangements made for drainage of the ditch were defective. The outer doors to the

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188. Benham to Totten, Dec. 29, 1845, NA, RG 77, Ltrs. Recd., Chief Engineer.

189. Totten to Benham, Jan. 7, 1846, NA, RG 77, Ltrs. Sent, Chief Engineer.

drains, although of seasoned yellow pine, were badly decayed on the lower movable part. So much so indeed as to prevent free passage of water into the drains and ditch on a flood tide.

In the drains under the parapet, large numbers of oysters were pinpointed. Fears were voiced that they would increase in number and eventually obstruct the drains.

To cope with this situation, Benham suggested that hollow copper swinging doors, of proper specific gravity, were the answer. Another alternative would be to seal the drains at each end with a thin brick wall, which in a crisis could be removed in short order.[190]

Colonel Totten, upon reviewing the alternatives, preferred substitution of a copper valve for those of wood.[191]

Before ordering four copper valves from Charleston, Benham took a closer look at the gates. He now concluded that the damage had been caused by teredoes not rot. To cope with the teredoes, he suggested that the gates be unhung, the damaged wood replaced, and the gates sheathed with locally purchased copper. Such a solution was more economical, and the gates would be nearly as durable.[192]

The Department was agreeable to use of sheet copper. By late May, the gates had been repaired, sheeted, and rehung.[193]

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190. Benham to Totten, March 9, 1846, NA, RG 77, Ltrs. Recd., Chief Engineer.

191. Totten to Benham, March 18, 1846, NA, RG 77, Ltrs. Sent, Chief Engineer.

192. Benham to Totten, April 6, 1846, NA, RG 77, Ltrs. Recd., Chief Engineer.

193. Totten to Benham, April 14, 1846; & Benham to Totten, May 31, 1846, NA, RG 77, Ltrs. Recd. & Sent, Chief Engineer.

R. Corps Tidies up the Structure and Grounds and Turns Fort Marion Over to the Troops

On March 9, 1846, Lieutenant Benham notified the Department that the water battery, except for the gates to the drains, was in "perfect order. The only defects in the masonry were a few areas where the pointing in the granite facings had loosened.[194]

Five weeks later, Chief Engineer Totten advised the War Department that the water battery was "complete in all its defensive arrangements" and was ready to be turned over to the troops.[195]

Before securing operations at St. Augustine, on May 31, Benham had his workmen weed the glacis and the water battery's terreplein, and reinforce the fencing designed to keep the water battery from becoming a thoroughfare. The ironwork of the drains, traverse circles, and shot furnace was tarred.[196] The post commander at St. Francis Barracks, then relieved the Corps of Engineers of responsibility for maintenance and protection of Fort Marion.

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194. Benham to Totten, March 9, 1846, NA, RG 77, Ltrs. Recd., Chief Engineer.

195. Totten to Benham, April 13, 1846, NA, RG 77, Ltrs. Sent, Chief Engineer.

196. Benham to Totten, May 31, 1846, NA, RG 77, Ltrs. Recd., Chief Engineer.

VI. MAINTENANCE AND REPAIR OF THE FORT AND SEAWALL: 1846-65

A. 1849-50 Construction and Repairs

1. October 1846 Hurricane

In the late spring of 1846, the Quartermaster Department became responsible for maintenance and protection of Fort Marion. James R. Hanham was placed in charge of the fort, with the title of Military Storekeeper.

That October a hurricane hammered the area, doing considerable damage to War Department property. At Fort Marion, surging tides eroded the glacis north of the water battery for a distance of 100 feet and to a depth of 20 feet. The fence along the south boundary of the reservation was flattened, and the three flatboats, positioned on piles by Lieutenant Benham, "worked off." Two of them drifted ashore, while the third was pounded to pieces.[1]

2. General Totten & Lieutenant Gilmer Visit St. Augustine

During the next several years the beach erosion north of the water battery continued. Coincident with this development, a section of the seawall between the two basins collapsed. Florida, having become a state in 1845, now had more clout in Congress, and her legislators pressed their colleagues for an appropriation to correct this situation. They were successful, and on March 3, 1849, President James K. Polk signed into law an act passed by the 2d Session of the 30th Congress, appropriating $5,000 for repair of the seawall and water battery at St. Augustine.[2]

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1. Hanham to Stanton, Oct. 24, 1846, NA, RG 92, Consolidated Correspondence File.

2. Statutes at Large and Treaties of the United States of America from December 1, 1845, to March 3, 1851, Vol. IX, p. 374.

General Totten accordingly decided to see what was involved. On April 6 he reached Savannah from Washington, and met with the superintending engineer stationed there, Lt. Jeremy F. Gilmer. A North Carolinian, Gilmer had graduated from the U.S. Military Academy as No. 4 in the Class of 1839. Commissioned a 2d lieutenant in the Corps of Engineers, he remained at West Point until June 1840 as assistant professor of engineering. Gilmer served as assistant engineer for construction of Fort Schuyler, New York, from 1840 to 1844, when he was called to Washington as an assistant to Chief Engineer Totten. Promoted 1st lieutenant on December 29, 1845, Gilmer, in 1846, was named chief engineer of the Army of the West and campaigned in New Mexico. Lieutenant Gilmer was recalled to Washington in 1847 for another tour of duty as assistant to the chief engineer. He was ordered to Mexico in 1848 to assist in surveying the battlefields in and around Mexico City. On his return to the states, Gilmer was named superintending engineer for repair of Forts Washington and Madison, Maryland. He had been ordered to Savannah early in 1849.[3]

Totten asked Gilmer to accompany him to St. Augustine, where they would examine the condition of Fort Marion and the seawall.

While at St. Augustine, Totten gave Gilmer instructions regarding necessary repairs, and Storekeeper Hanham transferred to Gilmer the Engineer papers and property belonging to the works.

Gilmer then returned to Savannah, where he was to maintain his duty station, and General Totten headed for Washington. Gilmer was given authority to visit the Florida city as often as necessary to insure "proper execution" of the repairs.[4]

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3. Cullum, Biographical Register, I, p. 574; Ezra J. Warner, Generals in Gray: Lives of the Confederate Commanders (Baton Rouge, 1959), p. 105. Totten had been named a brevet brigadier general on March 29, 1847.

4. Totten to Gilmer, April 6, 1849, NA, RG 77, Ltrs. Sent, Chief Engineer.

3. Gilmer's Program is Submitted and Approved

On May 14, 1849, Lieutenant Gilmer submitted his report. To provide for better security of the water battery's masonry and the fort's glacis against the sea, he recommended construction of a seawall to extend north from the battery. This wall should extend for about 115 feet and be about 5 feet in height. It could be built of either coquina or tabia, with a "slight enrockment of the same material, laid outside, for the protection of the foundaton."[5]

The water battery, itself, was in good condition. He suggested construction of masonry banquettes along the "northern branch," between the guns, to correspond with those built by Lieutenant Benham along the interior face of the southern branch.

He suggested that the slope of the glacis be regulated and Bermuda seeded where the sod was bare. Drains should be flushed and cleaned.[6]

As for the seawall fronting St. Augustine, Gilmer proposed to close the opening in the masonry that had been made between the basins. This breach would be sealed by removing some of the defective stones and inserting new ones in their stead. To provide greater stability at this point, he recommended construction of a thin wall, resting against the inner surface of the seawall, and extending a sufficient distance to lap at each end upon solid portions of masonry. The foundations of this inner wall were to the sunk to the same depth as those of the seawall. Coping stones were to be reset.

To shield the seawall foundations, he proposed to extend the enrockment of shell stones, which had been commenced near the St. Francis Barracks basin.

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5. Gilmer to Totten, May 14, 1849, NA, RG 77, Ltrs. Recd., Chief Engineer.

6. Ibid.

To provide a proper grade to the street paralleling the seawall and insure proper drainage of water from behind the seawall would require a considerable amount of fill. Gilmer proposed to slope this fill to direct the water into the small boat basins, rather than opening culverts through the seawall at intermediate points. This would be effected by grading and filling the street from near Fort Marion to provide a gentle slope toward the market basin. To drain the ground between the basins, the street was to be raised at its mid-point, and sloped to the north and south. Because the surface of the street was sandy, it might be necessary to pave it with coquina.[7]

General Totten approved Gilmer's plan for construction of a seawall north of the water battery. His only injunction was to restrict its length and height to a degree consistent with "needed protection." He also sanctioned the work described within the battery and the repair of the breach in the city seawall.

A "minute inspection" would be made at ebb tide to ascertain if the seawall foundations were anywhere endangered by the wash of the sea. Such places should be "fortified by a deposit of stone." A southward extension of the seawall was uncalled for.

Totten, in general, agreed with Gilmer's proposal for filling and grading behind the seawall, subject to certain modifications. Drainage into the basins was probably the best plan. It was also the Corps' duty to position fill to encourage the run-off of water, and to preclude its accumulation in stagnant pools. But here, he cautioned, our duty ends and that of the city authorities begins. It was their responsibility to "see that this drainage remains undisturbed."

There was, Totten continued, a desire on the part of the citizens to have the area within the seawall landscaped by the United

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7. Ibid.

States, "but the grant for the repairs of the Sea Wall at St. Augustine could not have been intended to be bestowed on the filling up and regulation of the Street behind" the structure.[8]

4. Program is Implemented

While at St. Augustine, Lieutenant Gilmer had made arrangements with a Mr. Hurlbert for repair of the two surviving scows placed on piles at the time Lieutenant Benham closed down operations in May 1846, and for delivery of coquina to be used for construction of the seawall north of the water battery and the banquettes.[9]

On July 16 Gilmer left Savannah for St. Augustine. While in Florida, he inspected and paid for the stone delivered by Hurlbert. Only one of the scows had been repaired, because the labor and materials needed to make the second craft seaworthy exceeded the value.

Experience having demonstrated that the sickly season and the period when tropical storms could be expected coincided, Gilmer, with the Department's approval, waited until November 1, before engaging and turning out a workforce. As his duty station was Savannah, Gilmer hired William Rankin as agent-superintendent at St. Augustine.[10]

No difficulties were encountered, and by June 30, 1850, masons and laborers had: (a) extended the seawall north of the water battery and had constructed the north branch banquettes; (b) repaired the large breach in the seawall; (c) positioned an enrockment for protection of the seawall's foundations; (d) embanked earth and filled behind the seawall; (e) constructed sluices for escape of rainwater

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8. Totten to Gilmer, May 22, 1849, NA, RG 77, Ltrs. Sent, Chief Engineer.

9. Gilmer to Totten, May 14, 1849, NA, RG 77, Ltrs. Recd., Chief Engineer.

10. Gilmer to Totten, July 10 & Oct. 8, 1849; & Totten to Gilmer, July 16, 1849, NA, RG 77, Ltrs. Recd. & Sent, Chief Engineer.

trapped in rear of the seawall; and (f) repointed, where necessary, the masonry of the battery and seawall.

When he submitted his annual report for the year ending September 30, 1850, Lieutenant Gilmer noted that the water battery and seawall were in good condition, and no new appropriation was needed. The small sum remaining from the 1849 appropriation was deemed sufficient for required supervision and making minor repairs.[11]

Upon securing construction, Gilmer employed John Master to look after the public property.[12]

Then, on December 6, 1850, responsibility for the project was transferred from Lieutenant Gilmer to Bvt. Lt. Col. James L. Mason. Colonel Mason, in October, had been ordered to St. Marys, Georgia, and placed in charge of the fortifications to be erected for defense of Cumberland Sound. To avoid the $10 a month charge for Master's pay, Totten called for transfer of the public property to the Quartermaster Department.[13]

B. 1853-54 Repair of the Seawall

1. Congress Appropriates $3,000

The Florida congressional delegation soon succeeded in getting additional federal money for the area. On August 30, 1852, President Millard Fillmore signed into law legislation enacted by the 1st Session of the 32d Congress appropriating $3,000 for filling in behind the St. Augustine seawall, $10,000 for improvements to navigation on the St. Johns, and $5,000 for connecting the waters of Indian River and Mosquito

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11. Gilmer to Totten, Oct. 7, 1850, NA, RG 77, Ltrs. Recd., Chief Engineer.

12. Gilmer to Totten, March 25, 1851, NA, RG 77, Ltrs. Recd., Chief Engineer.

13. Totten to Mason, Feb. 26, 1851, NA, RG 77, Ltrs. Sent, Chief Engineer.

Lagoon at the haulover. Congress at the same time failed to include any funds for construction at Fort Jefferson in the Fortifications Bill for fiscal year 1853.

To provide work for Lt. Horatio G. Wright, the Fort Jefferson superintending engineer, General Totten issued orders assigning these projects to him.[14]

Wright, born in Clinton, Connecticut, in December 1820, had graduated from the U.S. Military Academy as No. 2 in the class of 1841. Commissioned a 2d lieutenant in the Corps of Engineers, he was ordered to duty as an assistant to the Board of Engineers. From August 1842 to July 1844, Wright was on the faculty of the Military Academy. He then returned to duty with the Board, where he served, except for an assignment to the office of the Secretary of War, until ordered to the Dry Tortugas in 1846.[15]

2. Department's Plan to Have Work Done by Contract Fails

Upon visiting St. Augustine and discussing the situation with a number of local people, Lieutenant Wright was satisfied that the best way to handle filling in behind the seawall was by contract, provided a fair offer could be secured. He was warned that the number of interested parties was limited.

Advertisements calling for proposals were published in the St. Augustine and Jacksonville newspapers. In response to these only two proposals were received--one from William G. Rankin for 29 cents per cubic yard and the other for 48 cents a cubic yard from Canova & Micklee.

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14. Totten to Wright, Oct. 10, 1853, NA, RG 77, Ltrs. Sent, Chief Engineer.

15. Cullum, Biographical Register, Vol. II, p. 5; Ezra J. Warner, Generals in Blue: Lives of the Union Commanders (Baton Rouge, 1964), p. 575.

On January 6, 1853, Wright forwarded to the Department for approval a copy of the contract entered into with Rankin.[16]

Reviewing the draft of the contract, General Totten found that the fill was to be 80 feet wide , wherever the street would "permit so great a width." Referring to the plan, he saw that there were places where, if the fill were no wider than 80 feet, hollows would be left between the new embankment and the general level of the parallel street.

If the contract, as drawn, would provide against such sinks, Wright could consider it approved. But, if this were not the case, the contract must be amended to eliminate this objection. The project should be regulated so as to accomplish the three-fold mission of shutting out tidal waters, leading off accumulations after heavy rains, and for land drainage.[17]

Rankin, on receipt of the amended contract, traveled to Mayport Mills to discuss the situation with Lieutenant Wright. He told Wright that he could not accept the amendment, and considered the contract null and void.

Continuing, Rankin explained that the January 16 nor'easter, besides washing out large quantities of sand from behind the seawall, had increased leakage through the basin walls. Consequently, positioning fill to the height previously agreed upon would require much more earth than had been estimated for, while the "filling up of places required by the amended contract, though but little in itself, would increase the whole amount so much that he doubted whether he could do it without serious loss."

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16. Wright to Totten, Jan. 6, 1853, NA, RG 77, Ltrs. Recd., Chief Engineer.

17. Totten to Wright, Jan. 29, 1853, NA, RG 77, Ltrs. Sent, Chief Engineer.

Rankin also called attention to another serious problem. The 1849-50 seawall, north of the water battery, was already being undermined by surf, and, if this were permitted to continue, it was in danger of collapsing.

Although Rankin was unwilling to be the contractor, he would be glad to be project supervisor in event the Corps of Engineers determined to do the work. As he had been employed by Lieutenant Gilmer to superintend repair of the seawall in 1849-50, he was familiar with the Corps' mode of operations.[18]

Lieutenant Wright accordingly recommended to the Department that he be allowed to organize a force to undertake the project. Needed were a superintendent, an overseer, and as many men as could be worked to advantage. He also called for authority to repair such portions of the seawall as seemed to require it.[19]

Chief Engineer Totten, although disappointed, authorized Wright to "take such measures for the execution of this work as you shall find best." He, however, urged that another attempt be made to locate a reliable person to undertake the project on contract.[20]

3. Lieutenant Wright Describes the Needs

Upon visiting in St. Augustine in late March, Wright was unable to find any responsible person willing to contract for filling behind the seawall. Moreover, he was not satisfied that this was the best manner of accomplishing the work, because the seawall required repairs at a number of points to insure its safety.

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18. Rankin to Wright, Feb. 20, 1853; & Wright to Totten, March 1, 1853, NA, RG 77, Ltrs. Recd., Chief Engineer.

19. Wright to Totten, March 1, 1853, NA, RG 77, Ltrs. Recd., Chief Engineer.

20. Totten to Wright, March 10, 1853, NA, RG 77, Ltrs. Sent, Chief Engineer.

Since his December inspection, Wright saw that the fill in rear of the wall had "settled considerably at many points." He found a number of areas, where the foundation had separated from the wall, "leaving crevices varying in height from a mere crack to six inches, and in length along the face of the wall as great in one instance as 15 feet." These resulted in the superstructure at these places having inadequate support, besides permitting the back fill to wash out.

Wright was uncertain whether these cracks resulted from settling of the foundations or the washing out of the mortar. But, as they were a threat to the wall's security, they should be repaired at once.

As for the fill, Wright saw no advantage in executing it to the extent proposed by the Department. For example, the street paralleling the wall was above ordinary high tides, and was generally dry. No water reached it, except during storms, and then it drained off as rapidly as the culverts in the basin walls would permit. Some grading would improve the situation by filling in a few low places. But whether this was the responsibility of the United States or the municipality was a moot question.

Beyond this grading Wright was unprepared to recommend any fill except immediately behind the seawall, where the surface might be raised to within 18 inches of the top of the wall and sloped off toward the street at an angle of one to six. This would throw water coming over the wall during storms into the street, instead of allowing it to run down the back of the wall and percolate under the foundations.[21]

4. Lieutenant Newton Supervises the Project

Congress now made an appropriation to fund resumption of construction at Fort Jefferson, and the Department ordered Lieutenant

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21. Wright to Totten, March 21 & April 1, 1853, NA, RG 77, Ltrs. Recd., Chief Engineer.

Wright to hold himself ready to return to Dry Tortugas. To replace him as superintending engineer in charge of the East Florida projects, General Totten selected Lt. John Newton, then on duty in far away Augusta, Maine.

Newton, a Virginian, had graduated from the U.S. Military Academy as No. 2 in the Class of 1842. Commissioned a 2d lieutenant in the Corps of Engineers, he was detailed as an assistant to the Board of Engineers. In October 1843 Newton returned to West Point as assistant professor of engineering. Lieutenant Newton remained at the academy until July 1846, when he was named assistant engineer for construction of Fort Wayne, Michigan, and Forts Porter, Niagara and Ontario, New York.[22]

Lieutenant Newton sought to delay his reassignment, protesting that he needed additional time to complete a survey of the Kennebec River, and that he was recovering from a bout with the fever.[23] The Department was unable to accede to Newton's request, and arrangements were made for him to meet with Wright in Washington to effect paperwork incident to a transfer of responsibilities.[24]

After meeting with Lieutenants Newton and Wright, Chief Engineer Totten prepared instructions for the former. Upon reaching St. Augustine, Newton was to give priority to repair of the seawall. This was to include filling existing cracks between the foundation and superstructure by ramming in "fine concrete," by pointing where the cracks were too small to allow concrete to be employed; by pointing up open joints in the face of the wall; and by guarding the foundation against being undermined, where necessary, by an embankment of coquina

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22. Cullum, Biographical Register, Vol. II, pp. 48-9; Warner, Generals in Blue, pp. 334-35.

23. Ibid.

24. Newton to Totten, April 19 & 23, 1853; & Kurtz to Wright & Newton, April 26, 1853, Ltrs. Recd. & Sent, Chief Engineer.

fragments, or by excavating a trench along the face of the foundation and filling in with concrete.

Filling in behind the wall was to be commenced at those places where it was most required, and to be extended to the lesser important areas, until the appropriation was expended. Particular attention was to be given to the section of the wall between and around the basins.[25]

Newton reached St. Augustine in late May. After familiarizing himself with local conditions, he suggested to the Department that work on the seawall be deferred until November 1. His reasons were: the 8- to 12-week rainy season was about to begin, and it would be followed by a period of high tides and gales.[26]

If Newton were satisfied that the public interest would not suffer, General Totten replied, he was authorized to postpone work on the seawall until November 1.[27]

Only slight progress had been made, because of difficulty in securing timber for construction of a scow, before receipt of the orders sanctioning the postponement.[28]

On November 1, 1853, Lieutenant Newton turned out a number of laborers. As soon as a scow was built, the hands began filling behind the seawall. Work was continued until the $3,000-appropriation was exhausted. The embankment was raised to within 1'10"

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25. Totten to Newton, May 16, 1853, NA, RG 77, Ltrs. Sent, Chief Engineer.

26. Newton to Totten, June 22, 1853, NA, RG 77, Ltrs. Recd., Chief Engineer.

27. Totten to Newton, June 30, 1853, NA, RG 77, Ltrs. Sent, Chief Engineer.

28. Newton to Totten, July 1, 1853, NA, RG 77, Ltrs. Recd. Chief Engineer.

of the top of the seawall, and proved to be sufficient to keep out the tides. To raise the entire area, including the street to this level, Newton estimated, would require an additional $2,500. He, however, did not believe this was necessary from a military engineer's view.

Employing the balance of the appropriation, masons and laborers repointed the seawall, filled large cavities and open joints with concrete, and laid 300 to 400 feet of foundation, "exterior to and below the level of the original foundations, in places," where the seawall had been undermined by tidal ebb and flow.[29]

C. Captain Whiting's Years

1. Whiting Relieves Gilmer

On June 17, 1858, the Department notified Captain Gilmer that he was to be transferred to San Francisco, where he was to relieve Bvt. Maj. Zealous B. Tower as superintending engineer at Fort Point. He would start for California as soon as relieved of his present responsibilities by Lt. William H.C. Whiting. The latter was to retain his current duties in addition to those heretofore belonging to Gilmer. Whiting was to take post at either Savannah or Fernandina, as he deemed most appropriate for the public interest.[30]

Whiting, a Mississippian, had graduated from the U.S. Military Academy as No. 1 in the Class of 1845. Commissioned a 2d lieutenant in the Corps of Engineers, he had been ordered to Pensacola as asssistant engineer to Maj. William H. Chase. Three years later, in 1848, Whiting went to Texas as engineer for the Military Department of Texas. He returned to Pensacola as Chase's assistant in 1850. In 1852 he served briefly as assistant engineer at Fort Carroll, Maryland, before

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29. Newton to Totten, Oct. 1, 1854, NA, RG 77, Ltrs. Recd., Chief Engineer.

30. Thayer to Gilmer & Whiting, June 17, 1858, NA, RG 77, Ltrs. Sent, Chief Engineer.

being ordered to Texas to undertake a series of surveys for harbor improvements. Promoted 1st lieutenant on March 16, 1853, Whiting, in July, was ordered to San Francisco as assistant engineer for construction of Fort Point. Whiting from February 1854 to March 1856 was a member of the Board of Engineers for the Pacific Coast Defenses. He returned to the Atlantic Seaboard in the spring of 1856 as superintending engineer for repair of Forts Caswell and Macon, North Carolina, and of improvements to navigation on the Cape Fear River.[31]

2. Whiting's 1859 Inspection

Whiting reached Savannah from Wilmington, on July 13, and formally relieved Gilmer of responsibility for Fort Pulaski and his other Georgia and Florida projects.[32]

Some ten months later, in mid-May 1859, the Department called on Whiting to visit St. Augustine and examine the Fort Marion bridges, which were to be repaired in accordance with Ord.-Sgt. Henry Douglas' estimates. This could be accomplished in June and July, while Whiting was in Florida overseeing his lighthouse duties. The Department believed it would be wise to permit Sergeant Douglas to oversee these projects under Whiting's general supervision.[33]

Whiting left Savannah for Florida at the end of the third week of May. Before reaching St. Augustine, he spent several days at Fort Clinch. Upon inspecting Fort Marion, he saw that the repairs called for by Sergeant Douglas were much needed. He likewise reviewed and approved Douglas' estimates, and found that the sergeant was an ideal choice to oversee the project.

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31. Cullum, Biographical Register, Vol. II, pp. 112-13; Warner, Generals in Gray, p. 334.

32. Whiting to Thayer, July 15, 1858, NA, RG 77, Ltrs. Recd., Chief Engineer.

33. De Russy to Whiting, May 16, 1859, NA, RG 77, Ltrs. Sent, Chief Engineer.

When he made his trip report, Whiting recommended to the Department that measures be taken to prevent further deterioration of Fort Marion, other "than that which times brings on fast enough." The demilune ditch, a portion of the demilune glacis, the ditch, covered way, and fort glacis were accessible to cattle. The outworks were fast being cut and eroded by paths and roads. Stone could be quarried from "the old breast-height and counterscarp walls." The ditches were fast being filled with "accumulated vegetation and decay."

Whiting deemed it a pity that the decay of "so venerable a relic of the most ancient dominion on this continent should, now that it is in our hands, be annihilated for want of care."

He believed that a small sum annually allotted by the Department to either Sergeant Douglas or the superintending engineer would suffice to keep down the weeds and remove the rubbish that accumulated within and without the fort. Priority should be given to erecting a substantial fence to enclose the outworks.

Although the fort's massive ramparts "will still outlast many generations . . . in spite of neglect," Whiting hated to see "so ancient and interesting a relic exposed to other hazards than those of time." His remarks, he noted, should not be taken as criticism of Sergeant Douglas, who has done everything in his power to protect the fort from vandalism. To do so, Douglas kept the entrance to the sallyport locked.[34]

3. Sergeant Douglas Oversees Several Maintenance Projects

The Department's resources were limited, and the best that could be done was to allot $290 from "contingencies." Notifying Whiting of this, Acting Chief Engineer Rene De Russy reminded that cost of

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34. Whiting to De Russy, June 6, 1859, NA, RG 77, Ltrs. Recd., Chief Engineer.

repairing the bridges, in absence of a specific appropriation, could only be funded from contingencies." But, as this money was scarely adequate to meet "expenditures imperatively called for on account of works of greater importance," it was impossible for the Department to annually budget monies for maintenance of the fort.[35]

At the time that Sergeant Douglas oversaw repair of the bridges and fence, he employed a laborer to police and remove weeds from the ditch.[36]

On January 8, 1860, Whiting (who had been promoted to captain on December 13, 1859) notified the Department that 3,000 shingles were needed for repair of the shot furnace. As there were a large number of shingles stored at Fort Marion belonging to the Quartermaster Department, he asked that Ordnance-Sergeant Douglas be authorized to requisition a suitable number and make necessary repairs.

Whiting also requested permission to sell the scows belonging to the seawall appropriation. Some of the proceeds would be used to reimburse Sergeant Douglas for out-of-pocket money expended looking after the craft during gales.[37]

Acting Chief Engineer De Russy forwarded Whiting's communication pertaining to the shingles to Quartermaster General Jesup. At the same time, he authorized Whiting to sell the scows, provided a satisfactory price was received.[38]

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35. De Russy to Whiting, June 11, 1859, NA, RG 77, Ltrs. Sent. Chief Engineer.

36. Douglas to Craig, Nov. 1 & 14, 1859, NA, RG 92, Consolidated Correspondence File. The moat, Sergeant Douglas complained, was used by the citizens as a dump for all kinds of rubbish.

37. Whiting to De Russy, Jan. 8, 1860, NA, RG 77, Ltrs. Recd., Chief Engineer.

38. Wright to Whitney, Jan. 27, 1860, NA, RG 77, Ltrs. Sent, Chief Engineer.

The Quartermaster General approved the transfer and the repairs were made to the shot furnace.[39]

D. Fort and Reservation During the Civil War

1. Secessionists Take Possession

On Saturday, January 5, 1861, five days before his state withdrew from the Union, Governor Madison Perry of Florida ordered the steamer Everglade, under charter to the United States to carry the mail between Fernandina and Savannah, to St. Augustine. There, the vessel was to rendezvous with a force of State Troops. These men were under orders to seize the guns mounted in the Fort Marion water battery, dismount them, and transport them to Fort Clinch.[40]

Consequently, on the morning of the 7th, a company of Florida State Troops took possession of the fort and magazine.[41] During the ensuing weeks, Fort Marion was put into a condition for defense by an artillery company commanded by a Captain Gibbs.

By early May, 12 of the water battery's 32-pounder smoothbores had been dismounted, and the guns and carriages transferred to other defenses deemed to be more significant by Confederate authorities. The four 8-inch siege howitzers had been dismounted and their carriages sent elsewhere.[42]

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39. Jesup to Totten, undated, NA, RG 92, Ltrs. Sent, Quartermaster General.

40. Whiting to Totten, Jan. 7, 1861, NA, RG 77, Ltrs. Recd., Chief Engineer.

41. The War of the Rebellion: A Compilation of the Official Records of the Union and Confederate Armies, (73 vols., 128 parts; Washington, 1880-1901), Series I, Vol. 1, p. 333; hereinafter cited as O.R. At the time of its seizure, there were emplaced in the water battery four 8-inch siege howitzers and sixteen 32-pounder smoothbores. Also at St. Francis Barracks or the fort were six field batteries, each armed with four 6-pounder guns and two 12-pounder howitzers; six "old" 6-pounder iron guns; and 31 foreign guns of various calibers. Ibid., p. 350.

42. Ibid., p. 466.

The 3d Florida Infantry was organized by Col. William S. Dilworth in July 1861 and mustered into Confederate service at Amelia Island on August 10. Two of the companies--Capt. John L. Philips' Blues and Capt. Danial E. Bird's Jefferson Beauregards--were posted at St. Augustine.[43]

2. Federals Occupy St. Augustine and Garrison Fort Marion

In February 1862, the Confederate high command, in view of Union victories at Forts Henry and Donelson, determined to abandon the Georgia Sea Islands and that part of East Florida east of the St. Johns, to concentrate a powerful host to defend the Southern Heartland. Working parties were turned out evacuating the big guns and war material from Amelia Island. On March 4 a combined Federal army-navy expedition landed and took possession of Fernandina, the defenses of Amelia Island, and the evacuated batteries at the southern end of Cumberland Island. The operation was bloodless.[44]

The Yankees, to capitalize on this success, next moved against Jacksonville and St. Augustine. On March 11 Flag-Officer Samuel F. DuPont arrived off St. Augustine bar in his flagship Wabash. DuPont sent Comdr. C.R.P. Rodgers ashore under flag of truce, with a small boat party. As the tars pulled toward the seawall, a white flag was hoisted from one of Fort Marion's bastions. Landing at the wharf, Rodgers was met by the mayor an escorted to the city hall.

Rodgers told the "city fathers that Flag-Officer DuPont had come "to restore the authority of the United States." He explained that so long as they respected the "authority of the Government . . . and acted in good faith, municipal affairs would be left in their hands as far as might be consistent with the exigencies of the times."

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43. Soldiers of Florida in the Seminole Indian-- Civil and Spanish-American Wars (Live Oak, Fla., 1903), pp. 99-100; O.R., Series I, Vol. 1, p. 470.

44. O.R., Series, Vol. VI, p. 96.

The mayor told Rodgers that the Confederate garrison, two companies of the 3d Florida, had evacuated St. Augustine the previous evening, en route to Smyrna.

Rodgers then told the mayor to have the "stars and stripes" displayed from the Fort Marion flagstaff. After this was done, the mayor proposed to turn over to the bluejackets, the five guns (three army 32-pounders and two 8-inch seacoast howitzers) emplaced in the water battery, a number of worthless dismounted cannon at the fort, and a small quantity of munitions.

Commander Rodgers and his sailors returned to Wabash, on the morning of the 12th, and reported to Flag-Officer DuPont.[45]

On March 14 the gunboat Isaac Smith, Lt. Comdr. J.W.A. Nicholson commanding, rendezvoused with the flagship off St. Augustine. Communicating with Nicholson, DuPont directed him to take his vessel across the bar, as soon as practicable, and "hold that harbor and city in the name of the United States." Maj. Isaac T. Doughty was to land with Wabash's Marine detachment and a company from the 4th New Hampshire Infantry.[46]

It was the 15th before there was a flood tide of sufficient depth to enable Isaac Smith to enter the harbor. By the 21st working parties had been turned out and had mounted one of the gunboat's 8-inch guns upon the Fort Marion ramparts, in the northwest bastion, sighting it to command the main road leading into the city from the north.

"Several contrabands" had surrendered to the Yanks or had been arrested by guards posted at the entrance to the city. They

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45. Official Records of the Union and Confederate Navies in the War of the Rebellion (31 Vols.; Washington, 1895-1929), Series I, Vol. 12, pp. 595-97; cited hereinafter as O.R.N.

46. Ibid., p. 602; O.R., Series I, Vol. VI, p. 100.

had fled their masters, and Commander Nicholson had the blacks sent to the fort.

On the 18th Nicholson had the Marines take possession of the post office property and remove it to the gunboat for safe keeping. That evening he also recovered the lens from the local lighthouse.[47]

On Friday, the 21st, the steamer Belvidere reached St. Augustine from Fernandina with two more companies of the 4th New Hampshire Infantry, Lt. Col. Louis Bell commanding.[48] Soon thereafter, Flag-Officer DuPont recalled Major Doughty and his Marines, and Colonel Bell, concerned about the ability of his three companies of soldiers to hold the area upon the Navy's departure, called on his immediate superior--Brig. Gen. Horatio G. Wright--for reinforcements.[49]

General Wright, on March 12, had occupied Jacksonville with a force including a battalion of the 4th New Hampshire. Wright was still there in early April. Meanwhile, Maj. Gen. David Hunter had reached Hilton Head, South Carolina, and, on March 30, had assumed command of the Department of the South. To concentrate his forces for an attack on Fort Pulaski and operations against the Sea Islands southwest of Charleston, Hunter ordered Jacksonville to be evacuated. St. Augustine and Fernandina would be held.

Accordingly, on April 8, General Wright pulled his troops out of Jacksonville. Four companies of the 4th New Hampshire and the regimental quartermaster, along with 60 days' commissary stores and forage and 60,000 rounds of caliber .69 ammunition, boarded the steamer

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47. O.R.N., Series I, Vol. 12, p. 643.

48. Ibid., p. 644.

49. Ibid., p. 756.

Belvidere. Three other companies of the 4th (B, H, and K) took passage on a Fernandina-bound vessel.[50]

Belvidere crossed the bar at the mouth of the St. Johns on the 10th, and the next day she tied-up at the St. Augustine wharf. Upon being notified of the arrival of the reinforcements, Flag-Officer DuPont ordered Commander Nicholson to turn over command of the city's defenses to Colonel Bell, reembark the naval personnel, and proceed with his ship to the mouth of the St. Johns. Adverse winds prevented Isaac Smith from crossing the bar for 11 days. Colonel Bell made good use of this time to mount additional guns, including two 8-inch columbiads captured by the Navy at St. Johns Bluff.[51]

Meanwhile, Brig. Gen. Henry W. Benham was writing DuPont from Hilton Head to have no fears about the Confederates recapturing St. Augustine. Orders had been given to increase the garrison to 600. In addition, his chief engineer (Lt. John A. Tardy) was en route to the Florida city to "repair the fort, mount guns, etc."[52]

3. Strengthening the Fort's Landward Defenses

Upon reaching Fort Marion, Lieutenant Tardy found emplaced two 8-inch seacoast howitzers, one 32-pounder smoothbore, four iron 6-pounders, one brass 6-pounder, one 24-pounder flanking howitzer, and a Wiard rifled gun.[53]

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50. Wright to Bell, April 8, 1862, NA, RG 94, Regimental Papers, 4th New Hampshire Infantry.

51. O. R. N., Series I, Vol. 12, pp. 764-65. Colonel Bell hereinafter would address his reports to Brig. Gen. Henry Benham.

52. Ibid., pp. 765-66; O. R., Series I, Vol. VI, p. 128. Lieutenant Tardy was "to put such repairs as can be conveniently added for its [St. Augustine's] defense, change traverse circles from the water battery to the interior work, etc."

53. O.R., Series I, Vol. XVI, pp. 333-34.

By June 4 Tardy and his people had removed the traverse circles and pintle-blocks from water battery platforms Nos. 16 and 18-20. At least three of these were positioned on the fort's terreplein. Seven heavy guns (two 8-inch columbiads, two 8-inch seacoast howitzers, and three 32-pounders) were mounted "on Fort Marion." The parapets on the land fronts were finished, and "all the masonry of the demi-lune" completed.

Tardy reported the fort

> in a state to make a good defense against every attack, except in the case of breaching batteries, which of course would be able to reduce the work in a very short period as the scarp is exposed on every side.

As soon as he had finished a gate in the demilune and the "demi-lune ditch drawbridge," he announced, his mission at St. Augustine would be completed.[54]

These tasks were soon attended to, and Lieutenant Tardy returned to Hilton Head.

4. In the War's Backwash

In mid-September 1862, the 7th New Hampshire arrived from Beaufort, South Carolina, and relieved Colonel Bell's regiment of its garrison duties. On doing so, four companies were quartered north of the town--Companies A, C, and I in Fort Marion and H on the terreplein of the water battery. The men of Company H, having procured some old lumber, erected comfortable quarters for themselves.

Regimental historian, H.F.W. Little, recorded that in the six months since the Federals had occupied St. Augustine, "the fort had been put in proper trim, and several heavy guns were in position,

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54. Tardy to Ely, June 4, 1862, NA, RG 392, Records Dept. of the South.

mounted en barbette, a few howitzers, and a few light field-pieces were also in position, ready for any emergency."[55]

St. Augustine was occupied by Union forces throughout the remaining months of the Civil War. The garrison usually consisted of a regiment. A succession of units pulled this duty.

In mid-July 1863, reports reached the Confederate commander of the District of East Florida that a small number of Yankees were holding St. Augustine. They, however, had converted Fort Marion into a stronghold. Emplaced at the fort were seven or eight heavy guns and a battery of light artillery, commanding the approaches to the town. Although Brig. Gen. Joseph Finegan was satisfied that he could reduce the fort, such an operation required a siege train, which he did not have, and would involve a considerable expenditure of men and material.[56]

On October 13, 1864, Union Maj. Gen. John G. Foster, while commanding the Department of the South, notified the War Department that he had directed

> improvements to be made in the defenses of St. Augustine, by renewing, manning, and arming the covered way of Fort Marion, and also the grand moat and parapet which cuts across the peninsula.

To this work he devoted the labor of the Department's military prisoners.[57]

5. 1866 Repairs

The Confederacy collapsed and an uneasy peace returned to the Nation in the spring and early summer of 1865. On November 5

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55. H.F.W. Little, The Seventh Regiment New Hampshire Volunteers in the War of the Rebellion (Concord, 1896), pp. 75-7.

56. O.R., Series I, Vol. XXVIII, pt. 2, pp. 240-41.

57. O.R., Series I, Vol. XXXV, pt. I, p. 25.

General Foster, now commanding the District of Florida, wrote Chief Engineer Richard Delafield (who had succeeded to that position on the death of General Totten). Foster, although his letter is missing from the files, apparently urged that measures be taken to make certain repairs to Fort Marion, and to incorporate it into the coastal defense system.

After reviewing the Nation's defensive capabilities and the Corps' responsibilities, Delafield wrote Foster that there were no plans to preserve Fort Marion as a unit in the permanent coastal defense system. But it would be kept "in order" by the Department until "some definite project shall have been adopted" for protection of that part of the coast and the St. Johns River.

The necessity for maintaining a permanent work at St. Augustine, Delafield continued, was related to limitations imposed by the bar on the draft of ocean-going ships entering the harbor, the value of the area to an enemy, and the amount of produce exported therefrom. These would be evaluated and be the deciding factors whether Fort Marion was retained as part of the system.[58]

General Delafield also wrote Superintending Engineer John W. Barlow at Fort Clinch. Barlow was called on to apprise the Department of the character and extent of needed repairs at Fort Marion, keeping in mind that its preservation was "not deemed important as part of a system of Sea Coast defenses."

Its use as a military prison should not be "lost sight of in the contemplated repairs." But, Delafield cautioned, you are not expected to incur any expense on the part of the United States other than those called for.[59]

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58. Delafield to Foster, Dec. 11, 1865, NA, RG 77, Ltrs. Sent, Chief Engineer.

59. Delafield to Foster, Dec. 11, 1865, NA, RG 77, Ltrs. Sent, Chief Engineer.

Although the fort dated to the eighteenth century, General Foster responded, the Department, with occasional small outlays, could maintain it in tolerable repair. As such, it could serve the Army as a depot, prison, or quarters.

If it were completed, the covered way ordered constructed by Foster while commanding the Department of the South, along with the water battery and the fort as a citadel, would constitute a "very strong defensive work." Labor for this project, Foster noted, could be provided by prisoners currently confined in the fort.[60]

Chief Engineer Delafield was not convinced by Foster's reasoning. Replying, Delafield assured him that the St. Augustine defenses would continue to receive the attention of the Corps to the extent of its abilities, "keeping in view the expediency of retaining the interior harbor works as depots, as well as any existing advantages they may present for defense."[61]

Captain Barlow, in accordance with orders, expended on Fort Marion 25 barrels of cement in resurfacing parts of the terreplein for protection of the casemates, repair of the parapets, and reconstruction of the northwest angle sentry box. There were no masons assigned to the garrison, and Barlow was compelled to employ a local artisan for 29 days.

The troops posted at St. Francis Barracks, Barlow notified the Department, would continue the repairs, the Engineers providing necessary cement. He believed it important to continue the repairs,

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60. Foster to Delafield, Jan. 22, 1866, NA, RG 77, Ltrs. Recd., Chief Engineer.

61. Delafield to Foster, March 3, 1866, NA, R 77, Ltrs. Sent, Chief Engineer.

"until the masonry of this interesting work shall be put in condition to resist the influence of the weather."[62]

On June 11, 1866, the Department approved the measures taken and the expenditures made by Barlow for the Fort Marion work. The post commander soon lost interest in the rehabilitation project and little, if anymore, was accomplished.[63]

7. Civil War Period Photographs

During the Civil War years, the fort first became a popular subject for the photographer. Featured in Miller's Photographic History of the Civil War are four views of the fort. These photographs focus on: (a) the sally port and bridge across the ditch; (b) the southeast corner of the parade and the ramp to the terreplein; (c) the north face of the parade; and (d) the water battery, shot furnace, and exterior slopes of the southeast and northeast bastions.[64] These photographs were taken after Lieutenant Tardy had removed several of the water battery platforms, and the troops had pitched tents and raised shebangs on the terreplein of the east and north fronts.

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62. Barlow to Delafield, May 28, 1866, NA, RG 77, Ltrs. Recd., Chief Engineer.

63. Delafield to Barlow, June 11, 1866, NA, RG 77, Ltrs. Sent, Chief Engineer.

64. Francis T. Miller, editor, The Photographic History of The Civil War, 10 Vols., (New York, 1911), Vol. II, pp. 347, 349, 351.

VII. THE LEAN YEARS: 1867-1884

A. Post-Civil War Decade

1. Major Gillmore's May 1869 Report

During the post-Civil War years, Fort Marion was one of a number of Atlantic seaboard forts for which Maj. Quincy A. Gillmore, headquartered in New York City, was responsible. Gillmore, who had distinguished himself during the Civil War was born in Lorain, Ohio, on February 28, 1825. He was educated and taught school for three years in Norwalk and Elyria before receiving an appointment to the U.S. Military Academy. He graduated No. 1 in the class of 1849 and was commissioned a 2d lieutenant in the Corps of Engineers. During the next 11 years he served as an assistant professor at West Point, assistant engineer at Hampton Roads, and as officer in charge of the New York Engineer Depot.

Gillmore was Chief Engineer for the Port Royal Expedition in the late autumn of 1861, which effected a lodgment on the South Carolina coast. He supervised siege operations leading to the quick reduction of Fort Pulaski in April 1862, and was promoted brigadier general of volunteers to rank from April 28, 1862. Fifteen months later, on July 10, 1863, he was made a major general. As commander of the Department of the South and the X Corps, Gillmore commanded operations directed toward the capture of Charleston during the period July 1863-May 1864. He and his corps were then transferred to Virginia and assigned to Maj. Gen. Ben Butler's Army of the James.

At the end of the Civil War, Gillmore resigned his volunteer commission and returned to the Corps of Engineers as a major.[1]

On December 18, 1867, Chief Engineer Andrew A. Humphreys directed Gillmore to travel south and inspect the permanent coastal defenses at Beaufort, the mouth of the Cape Fear, Charleston

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1. Warner, Generals in Blue, pp. 176-77.

Harbor, the mouth of the Savannah River, and Forts Clinch and Marion. The present condition of each was to be noted, along with what was required for: (a) "the preservation of the fortifications, their buildings, and sites from injury and further deterioration"; (b) their re-establishment "in a defensible and serviceable condition, including the restoration of platforms, revetments and whatever may have been injured by military operations, neglect, time or from other causes"; and (c) the "modifications and meliorations that should be effected in each case, to fit the works to use armaments of enlarged calibers, and to enable them to resist such attacks as they will now be liable to from corresponding large guns on enemy vessels." In the latter respect, Gillmore was to include construction of gun platforms for such larger guns, the introduction of traverses and additional magazines, the reinforcing of parapets, and additional cover to magazines, gunrooms, etc. It was not proposed that his studies contemplate use of iron-plate for cover.

In respect to each defense, a conjectural estimate was desired of the probable cost that must be incurred to accomplish the aforementioned results.

Gillmore was to submit a preliminary report immediately following his visit, and a final report upon his return to New York City.

Capt. William Ludlow was to accompany him.[2]

Major Gillmore spent several days in St. Augustine in early February 1868. What he saw satisfied him that it was undesirable to spend public monies on the city's defenses. The area, he wrote the Department, was of

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2. Humphreys to Gillmore, Dec., 18, 1867, NA, RG 77, Ltrs. Sent, Chief Engineer. General Humphreys had been named Chief Engineer to succeed Brig. Gen. Richard Delafield on August 9, 1866.

> very little military importance in its relation to the defense of that portion of the country, and expenditures there should be limited . . . to such ordinary repairs upon Fort Marion, as may be necessary to restore and preserve its original design, and provide magazine room inside the Fort for the service of the water battery.[3]

When month after month slipped by and no report was forthcoming from Gillmore, the Department on May 10, 1869, reminded him that he had failed to make a report on his 1868 inspection of the fort's condition, to include data on what was required to place it in defensible condition.[4]

On May 12 Gillmore responded by transmitting to Chief Engineer Humphreys a 23-page report, describing in detail the condition of Fort Marion and its water battery. A copy of Gillmore's report is found in this study's appendix.

In his covering letter, also included as an appendix, Gillmore reviewed the reasons that placed St. Augustine in the category of ports and harbors possessing little significance to the nation's defense. Consequently, he recommended against "any considerable expenditure" upon its defenses. Fort Marion, as it possessed "many attractions for antiquarians," however, should be preserved. Some funds should be allotted for its general repair, "after others and more important points have received attention."

For the present, repairs should be restricted to water battery platforms Nos. 5, 16, 18, and 20; the woodwork of the two

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3. Gillmore to Humphreys, Feb. 28, 1868, NA, RG 77, Ltrs. Recd., Chief Engineer.

4. Humphreys to Gillmore, May 10, 1869, NA, RG 77, Ltrs. Sent, Chief Engineer.

bridges; the woodwork of the west front casemate magazine; and the sally port gates. An expenditure of $2,500 should suffice to underwrite these projects.[5]

2. Rebuilding Bridges and Arch in Casemate No. 20

In January 1870 the Department allotted $2,000 to fund certain of the repairs recommended by Major Gillmore. No work, however, was to be done to the water battery platforms. Captain Ludlow was to oversee these repairs.[6]

Because his time and energy were engrossed by repair of Fort Pulaski and the Charleston Harbor projects, Ludlow delayed beginning the Fort Marion work.

Not realizing that an allotment had been made, but cognizant of the neglect, United States Senator Thomas W. Osborn of Florida wrote Chief Engineer Humphreys urging him to include an item for five to ten thousand dollars in his fiscal year 1873 estimates for repair of Fort Marion. Osborn was aware that the fort had no value as a unit in the nation's coastal defense system, but he wished it preserved for its "historical value & as a work of great interest, and that it be cleared of the rubbish and dirt & that it be restored as it was when it was completed by the Spanish."[7]

For some unexplained reason, General Humphreys failed to respond to the senator's letter until reminded of it by a communication from Florida's junior senator--Abijah ~~Gibson~~ GILBERT. Soon after the 2d Session

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5. Gillmore to Humphreys, May 12, 1869, NA, RG 77, Ltrs. Recd., Chief Engineer.

6. Casey to Ludlow, Jan. 30, 1870, NA, RG 77, Ltrs. Sent, Chief Engineer.

7. Osborn to Humphreys, May 29, 1871, NA, RG 77, Ltrs. Recd., Chief Engineer.

of the 42d Congress convened in December 1871, Gibson informed the Department that he would be gratified if General Humphreys would ask for a small appropriation for "cleaning and repair of Fort Marion." Although an appropriation bill must originate in the House, Senator Gibson was satisfied that if Humphreys included an estimate, "it would be inserted and granted without opposition."[8]

This time Humphreys replied. On December 21 he explained to the senators that congressional committees had limited line items in the "Fortifications Bill" to major commercial ports. Consequently, the Department had deemed it unwise to ask for a special appropriation for maintenance of Fort Marion. He, however, was not unmindful of the situation and the senators' interest.

Some 13 months before, Humphreys continued, a $2,000 allotment had been made from "Contingencies" for repair of the fort. But, to avoid the extra expense of organization of a working force for this purpose, the project had been postponed.

Work would soon be commenced "in expectation" that, upon its completion, the mechanics and laborers involved could be transferred to Fort Pulaski or the Charleston Harbor defenses.[9]

Another 15 months passed before the Department took steps to spend the $2,000. Major Gillmore spent several days in mid-March 1873 at St. Augustine. While there, he arranged for renewal of the two wooden bridges (the one from the glacis to the demilune and the other from the demilune to the sally port) giving access to Fort Marion. The arch over dark casemate No. 20, in the northeast bastion, would be rebuilt, employing shell concrete.

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8. Gibson to Humphreys, Dec. 18, 1871, NA, RG 77, Ltrs. Recd., Chief Engineer.

9. Humphreys to Osborn & Gibson, Dec. 21, 1871, NA, RG 77, Ltrs. Sent, Chief Engineer.

No other repairs were projected at this time.[10]

Workmen accordingly rebuilt the two bridges and repaired the brick piers. The arch was reconstructed, employing concrete, while the terreplein above was filled up to grade.[11]

Upon filing his annual report for fiscal year 1873, Major Gillmore noted that the masonry of the fort and its demilune was "gradually undergoing decay, but as the position is of no strategic value and as the channel leading up to the harbor is not practicable for even light draught vessels of war," no general repairs were recommended.

Because an ordnance-sergeant was stationed there, Major Gillmore suggested the possibility that several light guns be mounted in the water battery.[12]

3. Landscaping Glacis of the West Front

In the autumn of 1868 Mayor W. W. Van Ness and the St. Augustine City Council petitioned the War Department to remove certain intrusive Civil War earthworks erected within the municipality.[13]

Before taking action on this request, Chief Engineer Humphreys had the files searched. They contained no data concerning the temporary works at Fort Marion. As there was no Engineer officer within several hundred miles of St. Augustine, Humphreys requested that the post commander be asked to provide such data on the subject as

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10. Gillmore to Humphreys, March 17, 1873, NA, RG 77, Ltrs. Recd., Chief Engineer.

11. Gillmore's Annual Report for Fiscal Year 1873, NA, RG 77, Ltrs. Recd., Chief Engineer.

12. Ibid.

13. Van Ness to Schofield, undated, NA, RG 92, Consolidated Correspondence File; Humphreys to Adj. Gen., Dec. 1, 1868, NA, RG 77, Ltrs. Sent. Chief Engineer.

convenient. To assist him, Humphreys mailed to St. Francis Barracks a sketch of the site, upon which was to be delineated the outworks, the country overflowed, and other particulars.[14]

Col. John T. Sprague, the officer in charge at St. Francis Barracks, found that, during the Civil War, a parapet 12 feet wide and 4 feet 3 inches high had been thrown up on the glacis west of the fort. Its object was to protect the scarp from a "land attack in the direction of Jacksonville." The earth for the parapet had been removed from the foot of the glacis, thus leaving a barrow pit in which stagnant water accummulated after heavy rains.

Sprague estimated the cost of leveling the parapet and filling the barrow pit at $250.[15]

There being no Engineer officer in the vicinity of St. Augustine, Chief Engineer Humphreys was agreeable to the post quartermaster overseeing the project.[16]

This was the course taken, After the work was accomplished under the supervision of the post quartermaster, the Corps of Engineers transferred to the Quartermaster General $250.[17]

B. Fort Marion as a Prison for Southern Plains Indians

1. Preparing the Fort for Reception of Prisoners

In the late autumn of 1874, the War Department became interested in employing Fort Marion as a prison for certain plains Indians

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14. Humphreys to Adj. Gen., Dec. 16, 1868, NA, RG 77, Ltrs. Sent, Chief Engineer.

15. Sprague to Adj. Gen., Jan. 12, 1869, NA, RG 92, Consolidated Correspondence File.

16. Humphreys to Meigs, Jan. 30, 1869, NA, RG 77, Ltrs. Sent, Chief Engineer.

17. Sherman to Adj. Gen., March 20, 1869, NA, RG 92, Consolidated Correspondence File.

who had been compelled to surrender to the Army during the summer's campaign. Consequently, on December 10, the Chief Engineer inquired of Colonel Gillmore, "Is Fort Marion in suitable condition to receive 15 or 20 prisoners?" Also needed was information on whether tents could be pitched on the parade, and whether the casemate quarters were in a tolerably habitable condition.[18]

Gillmore answered that the fort would suffice as a prison, provided the inmates were kept off the terreplein by "a barricade across the ramp," and if the main gate were kept closed. Some repairs, however, must first be made to the gate.[19]

The next information on this subject reached the Chief Engineer on March 31, 1875, when Secretary of War William W. Belknap notified General Humphreys that, within several seeks, "some Indian Prisoners" would be sent to St. Augustine for confinement in Fort Marion. Gillmore was to cause such repairs to be effected as to make the fort "secure enough to keep them." The Indians were to occupy the parade so there would be no need to repair the casemates, except so far as may be necessary to prevent escapes.[20]

Whereupon, Gillmore wired the Department, "To what fund will cost of necessary work . . . be charged?"[21]

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18. Casey to Gillmore, Dec. 10, 1874, NA, RG 77, Ltrs. Sent, Chief Engineer. Gillmore had been promoted lieutenant colonel to rank from January 13, 1874.

19. Gillmore to Humphreys, Dec. 10, 1874, NA, RG 77, Ltrs. Recd., Chief Engineer.

20. Townsend to Humphreys, March 31, 1875, NA, RG 77, Ltrs. Sent. Chief Engineer.

21. Gillmoe to Humphreys, April 2, 1875, NA, RG 77, Ltrs. Recd., Chief Engineer.

To contingencies, Chief Engineer Humphreys replied.[22]

Gillmore accordingly directed a letter to Superintending Engineer James C. Post at Charleston. Captain Post, accompanied by one of his mechanics, was to hasten to St. Augustine and ready the fort for reception of the prisoners. Post was to confer with the commander at St. Francis Barracks and perfect with him arrangements for expediting the work.

Gillmore presumed that something would have to be "done to the main gate, and there should . . . be a strong barricade erected with thick planks, across the ramp leading to the terreplein." In addition, it might be necessary to close some of the "casemate loop holes."[23]

Captain Post reached St. Augustine in early April. After examining the fort and meeting with the post commander, it was decided to close all the windows and doors opening on the fort's parade, as well as to barricade the ramp. This would prevent the prisoners from entering the casemates, except at discretion of the officer-in-charge.

The 37 windows were to be closed with 2-inch plank nailed flush with the face of the wall. This would prevent the Indians from

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22. Casey to Gillmore, April 3, 1875, NA, RG 77, Ltrs. Sent, Chief Engineer.

23. Gillmore to Post, April 3, 1875, NA, RG 77, Ltrs. Recd., Chief Engineer. James Post of New York was graduated from the U.S. Military Academy as No. 13 in the Class of 1865. Commissioned a 2d lieutenant, he was assigned to the 5th U.S. Artillery and, in December, ordered to Little Rock. On June 2, 1866, having been promoted 1st lieutenant, he was transferred to the Engineers, and joined the Engineer Company, then posted at Jefferson Barracks, Missouri. After assignments as assistant engineer for improvement of Boston Harbor; assistant engineer for construction of defenses at Portsmouth Harbor; assistant professor of mathematics at West Point; and with the Engineer Battalion at Willetts Point, he was ordered on June 11, 1874, to report to Colonel Gillmore as assistant engineer. Post had been promoted captain on October 10, 1871. Cullum, Biographical Register, Vol. III, pp. 36-7.

using the openings to climb onto the terreplein. The 15 doorways were to be supplied with heavy wooden doors of 2-inch plank.

Heavy planking was also required for the ramp barricade and an inner sally port door.

The casemate, adjoining the sally port to be used as a guardroom, was to be floored.

Captain Post estimated the cost of these improvements at $1,500.[24]

Post turned his workmen to April 10. Within ten days, he reported, the repairs nearly half completed. Provided there were no unforeseen developments, he forecast, the project should be finished by May 8.[25]

On April 20 the War Department notified Colonel Gillmore that 60 Indian prisoners were ready to be transported by rail from Fort Leavenworth to St. Augustine. Information was accordingly required on the status of the repairs and when the fort would be ready to receive them.[26]

Four days later, Captain Post reassured Chief Engineer Humphreys that the workmen would be finished by May 10.[27]

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24. Post to Gillmore, April 20, 1875; & Humphreys to Gillmore, May 29, 1875, NA, RG 77, Ltrs. Recd. & Sent, Chief Engineer.

25. Post to Humphreys, April 10 & 20, 1875, NA, RG 77, Ltrs. Recd., Chief Engineer.

26. Casey to Gillmore, April 20, 1875, NA, RG 77, Ltrs. Sent, Chief Engineer.

27. Post to Humphreys, April 24, 1875, NA, RG 77, Ltrs. Recd., Chief Engineer.

On May 11, one day after the date named, the War Department telegraphed, "Is Fort Marion ready?" It had better be, because 71 Indian prisoners and their guards had left Fort Leavenworth on May 17 and were en route to Florida.[28]

The Indians reached St. Augustine on the 21st and, upon detraining, were escorted to Fort Marion. Lt. Richard H. Pratt, who was in charge of the Indians, noted that the fort

> was strengthened by a moat retained by a wide sea wall on the ocean side and by a heavy embankment on the other sides. This, in the beginning, was arranged to be flooded and its crossing at the entrance protected by a drawbridge, which together with the entrance was further rendered impregnable by an outer fortification [a demilune] covering both the entrance and the drawbridge.

Lieutenant Pratt saw that Captain Post and his men had obstructed the ramp, so that access to the terreplein could only be gained through a "door with lock at its lower entrance." The parade was fronted on four sides by casemates. "On one side was the entrance," Pratt continued:

> facing south and toward town, and the casemates on the side were to be used for storage and kitchen purposes. The only entrance was through a wide hall [sally port] and two massive pitch-pine doors. When these were closed, there was a small door through one of them for individual passage.
>
> The casemates had no windows that could be used for looking outside, and the two inside windows in each casemate looking into the court were irongrated. A heavy door and bolt to each casemate was arranged for padlocking. There were narrow slot openings to the outside near the top of each casemate ten feet above the floor for ventilation. . . . Plank floors had been put into several . . . [casemates] to make them more sanitary. The prisoners slept on the floors.[29]

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28. Casey to Post, May 11, 1875, NA, RG 77, RG 77, Ltrs. Sent, Chief Engineer.

29. Richard H. Pratt, Battlefield and Classroom: Four Decades with the American Indian, 1867-1904, Robert Utley (editor) (New Haven, 1964), pp. 117-18.

2. Construction of Shed on North Front Terreplein

Consequently, Lieutenant Pratt wrote the Adjutant General. He pointed out that, although "only" modest rains had fallen since the Indians' arrival, the roofs and walls of every casemate are dripping with water and in places covered with "a green scum." All of them had a "musty sickening odor." He feared that these conditions would be detrimental to the prisoners' health.

Pratt urged that he either be provided with tents, or that tar be applied to the terreplein to stop seepage into the casemates below. The Indians, he noted, could apply the tar.[30]

Lieutenant Pratt's letter received Chief Engineer Humphreys' prompt attention. A copy was transmitted to Colonel Gillmore, with a request that he investigate and report on measures necessary to make the casemates habitable, and the cost thereof.[31]

Simultaneously, Humphreys explained to Army headquarters that previous instructions had limited repairs by the Corps to those sufficient to secure the fort for confinement of the prisoners. It had been understood that the Indians were to occupy the parade, being quartered in tents, and that the casemates were not to be made habitable. These requirements had been met.[32]

Upon reviewing his files, Gillmore reported that

> the dilapidated concrete or cement terreplein . . . which forms the roof surface over the casemates, has no sufficient slope for drainage and is full of cavities, depressions and holes, so that although a few drainage openings are provided through the coquina parapet, the rainfall does not flow to them, but percolates through into the casemates.

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30. Pratt to Adj. Gen., May 24, 1875, NA, Ltrs., Recd., Adj. Gen., Microcopy M-666.

31. Humphreys to Adj. Gen., June 21, 1875, NA, RG 77, Ltrs. Sent, Chief Engineer.

32. Ibid.

Gillmore suggested two alternatives for coping with this problem. The first was to pave the terreplein with a mixture of Portland cement and sand, "formed into rough surfaces with alternate ridges and valleys falling 1 in 30 toward the parapet." Additional openings for drainage were to be made through the parapet. To pave 50 squares of terreplein in this manner would cost about $1,200.

The second alternative called for erecting "a roof of boards covered with felt over the terreplein, and parade and scarp walls, embracing a sufficient number of casemates" to provide the desired quarters. Cost of this undertaking was placed at between $1,000 and $1,200.

If the work were to be undertaken during the summer, Gillmore recommended the second alternative, because "cement work sometimes fails in unskillful hands if exposed directly to the hot sun while in process of execution."[33]

Since there was an air of urgency, General Humphreys opted for the second alternative. On July 6 Colonel Gillmore was informed of the Department's decision, and that the project was to be funded from contingencies.[34]

Gillmore relayed these instructions to Superintending Engineer Post at Charleston. Returning to St. Augustine, Post met with St. Francis Barracks commander John Hamilton and Lieutenant Pratt. They agreed to position the board and felt cover over the casemates of the north front, extending it the entire length of the parade wall or 110 feet. As the width of the terreplein on this front was 42 feet, the cover

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33. Gillmore to Humphreys, June 22, 1875, NA, RG 77, Ltrs. Recd., Chief Engineer.

34. Humphreys to Gillmore & Gillmore to Humphreys, July 6, 1875, Ltrs. Recd. & Sent, Chief Engineer.

would be 110 by 50 feet. The additional width was necessary to shield both the parade and scarp walls.

The post surgeon now caused a change in plans. He told Post that the casemates, even if protected from rain by a roof of boards and felt, would be unfit as quarters, because of poor ventilation.

Consequently, Post determined to modify the roof covering. He would "make it also available as a shed with large doors at the end and windows at the sides, under which the prisoners could live on the terre-plein." This would present no problems as to security, he explained, because the prisoners were now allowed the privilege of going up onto the terreplein early in the mornings and evenings. Major Hamilton and Lieutenant Pratt were of the opinion that, if permitted to live on the terreplein, none of the Indians would try to escape.[35]

After construction was commenced on the shed, but before news of this change reached Washington, Lt. Gen. Philip H. Sheridan notified Chief Engineer Humphreys that about 150 women and children, the families of the prisoners, were to be sent to St. Augustine. If the facilities would not accomodate that number, Sheridan wished to know how many could be housed. If the post quartermaster had any tents to spare, they could be employed, because Sheridan had no doubt but that the Indians would prefer tents to casemates.[36]

Upon checking with Gillmore, General Humphreys found that there were 14 Fort Marion casemates that could be occupied. The area of these casemates was 9,345 square feet. This was equal to the air space in a well ventilated barracks caluclated to house 222 soldiers. But,

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35. Post to Gillmore, July 21, 1875, NA, RG 77, Ltrs. Recd., Chief Engineer.

36. Sheridan to Humphreys, July 13, 1875, NA, RG 77, Ltrs. Recd., Chief Engineer.

Humphreys cautioned, the casemates, because of the subtropical climate, were intended to house this number only in wartime.

The parade was about 100 feet square, upon part of which tents could be pitched.

Fort Marion, Humphreys continued, was quite ancient, somewhat dilapidated, and the casemates leaked. This, however, was being remedied by installation of a board and felt roof over the terreplein.

Humphreys was of the opinion that it would be injurious to the Indians' health to confine several hundred within such a small work as Fort Marion during the sickly season.[37]

Then, on July 17, Humphreys telegraphed General Sheridan that, under no circumstances, must the number of Indians confined in the fort exceed 100. If the families could not be encamped outside the moat, he suggested that the prisoners be transferred to another facility, possibly Fort Warren or Angel Island.[38]

Replying, Sheridan noted that it was unnecessary to confine the Indians' families to the limits of the fort. They were deemed hostages rather than prisoners. If there were any space in the vicinity of the fort, it would be better to permit them, or most of them, to encamp there and cover their tents with brush, than keep them in the casemates.

It would be inconvenient and expensive, General Sheridan continued, to remove the prisoners to either Fort Warren or Angel Island. He believed no difficulty would be encountered in making arrangements

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37. Humphreys to Adj. Gen., July 14, 1875, NA, RG 77, Ltrs. Sent, Chief Engineers.

38. Humphreys to Sheridan, July 17, 1875, NA, RG 77, Ltrs. Sent, Chief Engineer.

for the women and children, provided General Humphreys did not object to them occupying a portion of the reservation.[39]

Chief Engineer Humphreys was agreeable to the dependents occupying tents on the military reservation.[40] He also decided that Colonel Gillmore should take measures to insure that a board and felt covering was positioned on the terreplein above all casemates that could be used as quarters.[41]

Upon receipt of this communication, Colonel Gillmore apprised the Department of the decision to build a shed on the north terreplein and not to employ the casemates to quarter the prisoners.[42]

On July 23 Chief Engineer Humphreys approved this change order.[43]

Lieutenant Pratt recalled that the large one-room shed was erected principally by Indian labor. "Rough board beds were made and bed ticks filled with grass, and the whole party of prisoners moved up to better air. This greater freedom of movement and observation, with work and regular army drill exercises, soon drove bad health away."[44]

Harriet Beecher Stowe, in an article published in the Christian Union, reported that the shed-barracks was more than 100 feet long by 40 or 50 feet." "The roof," she wrote:

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39. Sheridan to Humphreys, July 18, 1875, NA, RG 77, Ltrs. Recd., Chief Engineer.

40. Humphreys to Sheridan, July 18, 1875, NA, RG 77, Ltrs. Sent, Chief Engineer.

41. Casey to Gillmore, July 19, 1875, NA, RG 77, Ltrs. Sent, Chief Engineer.

42. Gillmore to Humphreys, July 21, 1875, NA, RG 77, Ltrs. Recd., Chief Engineer.

43. Humphreys to Gillmore, July 23, 1875, NA, RG 77, Ltrs. Sent, Chief Engineer.

44. Pratt, Battlefield and Classroom, p. 119.

was entirely shingled by the Indians, and a great part of the inside work done by them, under the directions of the builder, who found them both docile and competent workmen. A double row of rough board bunks occupies each side of the building, and the blankets and mattresses were rolled up and disposed in each with neatness and precision. The barracks were perfectly clean. Large stoves in the center afforded means of warming in chilly weather.[45]

3. Proposed Construction of Sink for Dependents

Early in August the St. Augustine city authorities urged the United States to build a sink for use of the prisoners' dependents. Upon checking with Captain Post, Gillmore learned that one could be built for $250. When informed of this, the Department approved construction of the sink, to be charged against contingencies.[46]

The question of providing additional facilities for the dependents became academic on August 13, when President U.S. Grant revoked the order transferring the prisoners' families to Fort Marion.

4. Repair of Retaining Wall

Another project undertaken at this time was repair of a break in the retaining wall at the foot of the glacis on the north side of the fort.[47]

5. Repairing Shed Roof

In September 1876 Lieutenant Pratt complained to the Department that the shed erected the previous year on the north terreplein was leaking.

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45. Ibid., p. 157.

46. Gillmore to Humphreys & Humphreys to Gillmore, Aug. 11, 1875, NA, RG 77, Ltrs. Recd. & Sent, Chief Engineer.

47. Gillmore's Annual Report for Fort Marion, Fiscal Year 1875, NA, RG 77, Ltrs. Recd., Chief Engineer.

Colonel Gillmore had the board and felt roof repaired, employing a $300 allotment from contingencies.[48]

6. Lieutenant Pratt Has Oven Built

Bread was at first issued from the post bakery at St. Francis Barracks, but after a few months Lieutenant Pratt had an oven built in one of the casemates. It was constructed of brick found in and about the fort.[49]

C. Maintenance and Repairs: 1877-1882

1. Pressures Build for Preservation and Restoration of the Fort

In April 1877 Governor Charles M. Crosswell of Michigan and Judge George T. Edwards, while in the Nation's capital, called on Secretary of War George W. McCrary and urged that a study be prepared on the cost of rehabilitating Fort Marion, which they described as a "castle 300 years old and a place of great interest."[50]

Consequently, the Secretary ordered Inspector-General Nelson H. Davis to St. Augustine. Davis found Fort Marion to be a "very interesting relic" of the past, and one of the prominent landmarks of the early settlement of our country by the Spaniards, still remaining. Besides being well preserved, the fort was an "object of much curiosity and great interest to our people who visit St. Augustine, and its preservation intact is worthy of the attention and care of our Government."

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48. Casey to Gillmore, Oct. 4 & 31, 1876; & Gillmore's Annual Report for Fort Marion, Fiscal Year 1877, NA, RG 77, Ltrs. Recd. & Sent, Chief Engineer.

49. Pratt, Battlefield and Classroom, p. 124.

50. Crosswell to Humphreys, April 9, 1877, NA, RG 77, Ltrs. Recd., Chief Engineer.

Colonel Davis was satisfied that at a small cost it could be kept in "good condition without modification of its ancient character."[51]

The Department then called on Colonel Gillmore to provide it with data on the cost of restoring the fort to its condition, circa 1821. On doing so, he estimated that, to accomplish this, an appropriation of between $10,000 and $12,000 was required. This figure, however, did not include the fort's armament.[52]

There was no follow-up on Gillmore's estimates by the War Department, and the fort continued to deteriorate and be used as a prison for the Indians.

Then, in the second week of April 1878, the War Department issued orders releasing the prisoners to the custody of the Indian Department, and three days later Captain Pratt and his 62 charges departed from St. Augustine en route to Norfolk, Virginia.

On November 5, 1881, Lt. Col. G.A. De Russy assumed command of St. Francis Barracks. Inspecting Fort Marion, he found it to be a "venerable old pile, blackened by time and falling into ruin and decay." Writing Chief Engineer Horatio G. Wright, he urged that something be "done towards its preservation." All the woodwork, he continued, has "rotted away, the bridge is nearly impassable, the gate rotten, the wells fallen in and the walls themselves cracked, but generally good after their kind."

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51. Davis to Adj. Gen., May 8, 1877, NA, RG 77, Ltrs. Recd., Chief Engineer.

52. Gillmore to Humphreys & Gillmore's Annual Report for Fiscal Year 1877, Dec. 7, 1877, NA, RG 77, Ltrs. Recd., Chief Engineer.

Although restoration of the fort would not benefit the Nation's defense, he noted, the work's historical significance should recommend the project to the Florida congressional delegation.[53]

After checking the files and discussing the subject with Colonel Gillmore, Chief Engineer Wright notified De Russy that the small annual appropriation for "Protection, Preservation and Repair" was insufficient to underwrite repairs of the Nation's coastal defenses called for in the Department's report for 1881, even if it were deemed advisable to employ it for that purpose. Wright declared that he was sympathetic to historic preservation, and would give the restoration of Fort Marion all the assistance in his power.

De Russy, because of these constraints, was urged to bring the subject to the attention of the Florida congressional delegation, with a view to securing a special appropriation of $10,000 to $12,000 for the project.[54]

Several years were to pass, however, before Congress made the necessary money available. In the meantime, certain repairs to the fort were funded from the appropriation for "Preservation and Repair."

2. French Expedition Observes the Transit of Venus

During the summer of 1882, the French minister to the United States formally requested that a group of his country's army officers being sent to St. Augustine to observe the transit of Venus be allowed to occupy Fort Marion. Colonel De Russy was agreeable, but he was embarrassed by the fort's lack of maintenance.

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53. De Russy to Wright, Dec. 6, 1881, NA, RG 77, Ltrs. Recd., Chief Engineer. General Wright had replaced General Humphreys as Chief Engineer on July 3, 1879.

54. Wright to De Russy, Dec. 20, 1881, NA, RG 77, Ltrs. Sent, Chief Engineer.

Relaying this information to the Chief Engineer, he pointed out that the fort's bridges and other woodworks were dilapidated, and the "casemates are probably too damp for use for storage of instruments or occupancy as quarters."

General Wright accordingly forwarded a copy of De Russy's communication to Colonel Gillmore, along with a request for an estimate of the "smallest amount" that could be employed to restore Fort Marion to "as presentable a state as possible."[55]

Gillmore, after studying the situation, recommended that the fort's bridges, doors, and windows be replaced. Because of the time factor, which precluded repairs to the masonry, he suggested that a one-story frame structure be erected on either the glacis or terreplein for storage of the party's gear. Cost of these improvements, he placed at $3,500. If, however, the decision was to eliminate the building, the price could be pared to $2,800.[56]

General Wright transmitted the correspondence to Secretary of War Robert Todd Lincoln. In a covering letter, Wright pointed out that "much interest has been manifested in the maintenance of this historical work in a decent state of repair." The expenditure of $2,800 for the recommended repairs, Wright continued, would improve the Army's image with the public, besides affording facilities to the French government. Though a frame building was desirable for storage of the scientific expedition's instruments, it could not be funded from the appropriation for "Preservation and Repair."[57]

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55. Elliot to Gillmore, Aug. 2, 1882, NA, RG 77, Ltrs. Sent, Chief Engineer.

56. Gillmore to Wright, Aug. 4, 1882, NA, RG 77, Ltrs. Recd., Chief Engineer.

57. Wright to Lincoln, Aug. 5, 1882, NA, RG 77, Ltrs. Sent, Chief Engineer.

Secretary Lincoln agreed and sanctioned expenditure of the designated sum for repair of the bridges, and the casemate doors and windows.[58]

Work on these projects was undertaken and completed in September. The wooden bridges across the fort and demilune ditches were rebuilt; new windows were put in the openings on the parade front; and the windows of three casemates provided with shutters. These casemates and the sally port were given new wooden floors, and their walls plastered and whitewashed. Where necessary new frames were installed and doors hung in the parade doorway openings.

The stairway giving access from the terreplein to the northeast watch tower was rebuilt.

"A cement paste was laid over the sally port and four casemates."

The woodwork of the doors and windows, as well as the bridge posts and handrails, was painted.[59]

On November 3, Colonel Perrier of the French army asked to be provided with a drawing of Fort Marion, to include the adjacent coast line, If this were possible, it would relieve him of the responsibility of drawing one.[60]

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58. Elliot to Gillmore, Aug. 10, 1882, NA, RG 77, Ltrs. Sent, Chief Engineer.

59. Gillmore's Annual Report for Fiscal Year 1883; Gillmore to Wright, Sept. 4 & Oct. 5, 1882, & Elliot to Gillmore, Sept. 6, 1882, NA, RG 77, Ltrs. Recd. & Sent, Chief Engineer. These repairs were made for about $600 less than the sum allotted.

60. Perrier to Wheeler, Nov. 3, 1882; & Wheeler to Wright, Nov. 10, 1882, NA, RG 77, Ltrs. Recd., Chief Engineer.

Acting Chief Engineer John G. Parke accordingly mailed to Colonel Perrier a tracing showing the "principal lines of Fort Marion and of the streets of St. Augustine, together with the adjacent coast line."[61]

Additional data, however, was desired. On the 28th Capt. George W. Wheeler, on behalf of the French expedition, asked that a larger scale tracing, giving "the length of the main lines and the depth of the ditches, etc.," be sent. He believed that "a skeleton tracing of the main lines given in the plan of 1840, accompanied by a profile showing the elevation of ditch and exterior glacis will suffice" to enable the astronomers to locate the exact position of their instruments.[62]

On December 2 Chief Engineer Wright had a member of his staff post the requested drawing.[63] Acknowledging receipt of the plan, Colonel Perrier wrote, "we have had a splendid time and . . . our observations have been a perfect success."[64]

To commemorate the successful completion of their mission, Colonel Perrier, in accordance with instructions from the French Academy of Sciences, requested permission to position a plaque at the door of the Fort Marion chapel reading:

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61. Parke to Perrier, Nov. 16, 1882, NA, RG 77, Ltrs. Sent, Chief Engineer.

62. Wheeler to Wright, Nov. 28, 1882, NA, RG 77, Ltrs. Recd., Chief Engineer.

63. Wright to Gillmore, Dec. 2, 1882, NA, RG 77, Ltrs. Sent, Chief Engineer.

64. Perrier to Wright, Dec. 6, 1882, NA, RG 77, Ltrs. Recd., Chief Engineer.

Passage de Vénus
observeau fort Marion
le 6 Décembre 1882
por le Colonel Perrier
le commandant Bassot
et le capitaine Desforges
de l'armee francaise.[65]

Chief Engineer Wright recommended to Secretary of War Lincoln that he sanction the request.[66]

Secretary Lincoln concurred, and orders were issued for the post commander at St. Francis Barracks to allow Colonel Perrier to position the metallic plaque at the chapel door.[67]

3. Coast and Geodetic Survey Establishes a Station at Fort Marion

At this time, Superintendent J.E. Hilyard of the Coast and Geodetic Survey called on the War Department for permission to establish a temporary station at Fort Marion.[68]

On December 20 Secretary of War Lincoln directed that Charles S. Pierce of the Coast and Geodetic Survey be permitted to occupy a station at Fort Marion for making "magnetic and gravity observations."[69]

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65. Perrier to Wright, Dec. 7, 1882, NA, RG 77, Ltrs. Recd., Chief Engineer.

66. Wright to Lincoln, Dec. 13, 1882, NA, RG 77, Ltrs. Sent, Chief Engineer.

67. Wright to Perrier, Dec. 20, 1882, & Drum to C.O., St. Francis Barracks, Dec. 22, 1882, NA, RG 77, Ltrs. Recd. & Sent, Chief Engineer.

68. Hilyard to Adj. Gen., Dec. 19, 1882, NA, Ltrs. Recd., Adj. Gen., Microcopy M-666.

69. Drum to C.O., St. Francis Barracks, Dec. 20, 1882, NA, RG 77, Ltrs. Recd., Chief Engineer.

4. Army Vetoes Searches for Hidden Copper Box and Secret Dungeon

Stories of secret casemates and hidden treasure plagued the Army. On August 12, 1882, the Department received a letter from Thomas T. Russell of Racy Point, Florida, advising that a copper box had been placed in the walls of Fort Marion by the Spanish while it was under construction. As the box was said to contain valuable historical documents, coins, papers, etc., he desired permission to remove it and examine its contents.

Chief Engineer Wright forwarded Russell's communication to Colonel Gillmore for comment.[70]

Gillmore knew nothing about the box. But, he replied, if one were there, and the Department desired it to be examined, it should be done by a designated officer.[71] Relaying Gillmore's report to Secretary of War Lincoln, Wright suggested that the box be removed by the superintending engineer or an officer designated by the War Department. Any articles found therein should be transferred to the Smithsonian Institution.[72]

Secretary Lincoln agreed with these views, and informed Russell that he saw "no reason for removing such box, provided there be one, until the fort is abandoned and the walls destroyed."[73]

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70. Elliot to Gillmore, Aug. 12, 1882, NA, RG 77, Ltrs. Sent, Chief Engineer.

71. Gillmore to Wright, Aug. 15, 1882, NA, RG 77, Ltrs. Recd., Chief Engineer.

72. Wright to Lincoln, Aug. 17, 1882, NA, RG 77, Ltrs. Sent, Chief Engineer.

73. Lincoln to Russell, Aug. 22, 1882, NA, RG 77, Ltrs. Sent, Chief Engineer.

There the subject was dropped, only to resurface two years later in another form. On September 20, 1884, John P. Whitney, editor of the St. Augustine Press, wrote Secretary of War Lincoln that he had reason to believe there was another "dungeon" in Fort Marion. Consequently, he desired authority to ascertain its whereabouts, which could be accomplished by removing only one stone. The casemate in which he proposed to conduct his explorations from was vacant.

Should he fail in his efforts to locate a secret room or passage, he would replace the stone and leave everything in as good condition as heretofore.[74]

When called on for his comments, the superintending engineer noted that there were many stories of "concealed dungeons, underground passages, etc.," associated with the fort. Were all persons supposing such to exist allowed to cut through the walls to search for them, he added, the structure would soon be "torn to pieces." As Whitney had failed to provide documentation to justify his proposal, the superintending engineer did not believe it proper to permit him to proceed. In the past, stones had been removed from two casemate walls and never replaced.

Acting Chief Engineer Parke agreed with his superintending engineer, and Whitney's request was turned down.[75]

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74. Whitney to Lincoln, Sept. 20, 1884, NA, RG 77, Ltrs. Recd., Chief Engineer.

75. Russell to Newton, Undated, NA, RG 77, Ltrs. Recd., Chief Engineer.

VIII. FORT AND RESERVATION: 1884-1900

A. Funding Assured and Preparations Made for the Fort's Restoration

1. Congress Appropriates $5,000

On May 10, 1884, Acting Chief Engineer John M. Wilson called on Colonel Gillmore for an estimate of the monies that could be profitably employed for rehabilitation of Fort Marion during fiscal year 1885.[1]

Gillmore cautioned the Department that, if the restoration were to be undertaken, it must be "done with care and deliberation." Some parts of the fort, particularly the lookout towers and demilune gateway, had "been in large measure destroyed or removed, and the restoration must be done on paper before any work for the stone mason and stone cutter can be intelligently laid out."

He recommended that nothing be attempted in the current fiscal year.[2]

Then, on May 16, Senator Wilkinson Call of Florida called on the War Department to support legislation appropriating from $5,000 to $10,000 for repair of Fort Marion, improvement of the grounds, and construction of a causeway and drawbridge across the Matanzas River to connect North Beach with the mainland.[3]

To justify construction of the causeway and bridge, Senator Call enclosed a letter from Bvt. Col. Albert Tracy, a retired army officer residing in St. Augustine. Tracy argued that the value of

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1. Wilson to Gillmore, May 10, 1884, NA, RG 77, Ltrs. Sent, Chief Engineer.

2. Gillmore to Newton, May 13, 1884, NA, RG 77, Ltrs. Recd., Chief Engineer.

3. Newton to Gillmore, May 21, 1884, NA, RG 77, Ltrs. Sent, Chief Engineer.

St. Augustine and its harbor had first been recognized by the Spanish in the sixteenth century, a view subsequently shared by the British. It was only after the United States took possession of East Florida that the area's defenses were permitted to deteriorate. Fortunately, Tracy continued, the Nation had no use for them until the Civil War. In that conflict, Union troops had "drifted to St. Augustine and its defenses, by a natural and inevitable law that of occupying the most available military point."

To provide for defense of St. Augustine against a force attempting to occupy North Beach and Anastasia Island, Colonel Tracy championed construction of a causeway and bridge.[4]

The Department referred this correspondence to Colonel Gillmore for comment. Gillmore was unable to agree with the views advanced by Tracy, respecting the strategic significance of St. Augustine. Gillmore held that the city and its harbor were of less importance than any Atlantic and Gulf Coast ports for which the Corps of Engineers had recommended modern fortifications. The area's value to the Spanish, besides the general "healthfulness of the location," Gillmore argued, resulted from it being a comparative safe haven from naval attack, except by small craft. It still enjoyed this immunity, because nothing but light-draft wooden vessels could cross the bar and enter the harbor. Against these, guns of small caliber emplaced in the existing water battery would suffice.

The reasons St. Augustine had been occupied and held during the Civil War were not those cited by Colonel Tracy, but because it was an excellent place for a general hospital. Such a facility had been established there with excellent results.

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4. Tracy to Call, May 8, 1884, NA, RG 77, Ltrs, Recd., Chief Engineer.

The bridge and causeway were not needed for the area's defense. Closing on a positive note, Gillmore urged that Fort Marion be repaired and restored as far as "practicable to the condition in which the Spaniards left it."[5]

Replying to Senator Call, Chief Engineer John Newton announced that, though the Department opposed legislation for a causeway and bridge, it supported an appropriation for restoration of the fort.[6]

Taking cognizance of the War Department's stance, the 1st Session of the 48th Congress appropriated by an act signed into law by President Chester A. Arthur, on July 5, 1884, $5,000 for preservation of Fort Marion, and the improvement and enclosure of its grounds. Thus nearly five years before Congress appropriated $2,000 for repair and protection of Casa Grande, it made $5,000 available for the preservation and restoration of Fort Marion. This action of the 48th Congress consequently became a milestone in the history of the expenditure of federal monies for restoration and preservation of a historically significant structure.

Therefore, on the 16th, Chief Engineer Newton called on Colonel Gillmore to formulate and submit for approval a program for expenditure of this sum.[7]

2. Corps Assumes Responsibility for the Fort and Reservation

Some two weeks befoe, on July 1, responsibility for maintenance and protection of Fort Marion and its reservation had been

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5. Gillmore to Newton, May 23, 1884, NA, RG 77, Ltrs. Sent, Chief Engineer.

6. Newton to Call, May 24, 1884, NA, RG 77, Ltrs. Sent, Chief Engineer. John Newton had succeeded General Wright as Chief Engineer on March 13, 1884. Wright had retired on reaching his 64th birthday.

7. Wilson to Gillmore, July 16, 1884, NA, RG 77, Ltrs. Sent, Chief Engineer.

transferred from the commander of St. Francis Barracks to the Corps of Engineers. Colonel Gibson's suggestion that his troops be permitted to retain for storage purposes the magazines and one of the casemates was agreed to by Colonel Gillmore.[8]

3. New Superintending Engineer Takes Charge

On August 20, 1884, Colonel Gillmore, after more than 16 years, relinquished responsibility for Fort Marion. The new superintending engineer was Capt. William T. Rossell. Alabama-born, Rossell had graduated from the U.S. Military Academy as No. 3 in the Class of 1873. Commissioned a 2d lieutenant in the Corps of Engineers, he was ordered to join the Engineer Battalion at Willetts Point, New York. He returned to West Point as Assistant Professor of Engineering in August 1876. From September 1880 to March 1882, he served as assistant engineer to Col. George Thom at Boston and from March 1882 to August 1884 as assistant engineer to Colonel Gillmore. Rossell was promoted 1st lieutenant in September 1877 and to captain in March 1884.[9]

4. Search of the Spanish Archives for Plans of the Castillo

On August 8, 1884, Chief Engineer Newton advised Secretary of War Lincoln of the proposal to employ the appropriation to restore Fort Marion to its appearance, circa 1821. To facilitate the project, he asked that measures be initiated to procure from the Spanish archives, "the original design of the work, a view of it . . which will give an idea of its architecture." If no information of this character could be obtained, Captain Rossell and his people would have to "work in" the dark, and "would be likely to make mistakes."[10]

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8. Gillmore to Newton, July 7, 1884, NA, RG77, Ltrs. Recd., Chief Engineer. The transfer had been effected in response to the special order from Headquarters, Department of the East, making the Corps of Engineers responsible for maintenance and protection of all ungarrisoned coastal forts within the department.

9. Cullum, Biographical Register, Vol. 3, p. 207.

10. Newton to Lincoln, Aug. 8, 1884, NA, RG 77, Ltrs. Sent, Chief Engineer.

Secretary Lincoln endorsed the proposal, and Secretary of State Frederick T. Frelinghausen brought the subject to the attention of the United States minister in Madrid.[11]

A search of Spanish repositories turned up three "copies of the original plans and views of Fort Marion." Upon their receipt from the State Department, they were transmitted by the Chief Engineer to Captain Rossell.[12]

5. Rossell's Program is Prepared, Submitted, and Approved

While awaiting a report on success of the search of the Spanish archives, Captain Rossell proposed to repair the arched stairway, giving access to the terreplein. The ramp arch was badly cracked.[13]

The Department approved Rossell's proposal. But, if the supporting arch could not now be restored as built, this work was to be deferred until receipt of the Spanish documents.[14]

In mid-November, Captain Rossell recommended that a carriageway be opened to connect Marine and St. George Streets, near the city gates. Gates would be positioned in the fence enclosing the reservation at Marine, Charlotte, and St. George Streets.[15]

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11. Davis to Lincoln, Aug. 18, 1884; & Adams to Rossell, Aug. 23, 1884, NA, RG 77, Ltrs. Recd. & Sent, Chief Engineer.

12. Frelinghausen to Lincoln, Jan. 5, 1885; & Wilson to Rossell, Jan. 21, 1885, NA, RG 77, Ltrs. Recd. & Sent, Chief Engineer. Copies of these plans titled, "Plano del Castillo de San Marcos cituado a 29 Gxa. 40 minutos de Latif en la Florida," and "Plano del Castillo de San Marcos en San Agustino de la Florida Oriental," are on file at Castillo de San Marcos NM. The third plan referred to in the correspondence is not on file at National Archives.

13. Rossell to Gillmore, Aug. 14, 1884, NA, RG 77, Ltrs. Recd., Chief Engineer.

14. Adams to Rossell, Sept. 13, 1884, NA, RG 77, Ltrs. Sent, Chief Engineer.

15. Rossell to Newton, Nov. 12, 1884, NA, RG 77, Ltrs. Recd., Chief Engineer.

The Department again cautioned that, after repairing the arch and fencing the reservation, Rossell was to undertake no additional projects until the documents to be retrived from the Spanish archives were received. There was no need to fret about losing unobligated monies for restoration of Fort Marion, the Chief Engineer reminded, because it was funded by a "no limit" appropriation and could be carried over into succeeding fiscal years until expended for the objects intended by Congress.[16]

After receiving and reviewing the Spanish plans, Captain Rossell prepared and submitted a program for restoration of Fort Marion. Subject to the Department's approval, he would repair the ramp. As could be seen from the enclosed drawing, the face of the arch had bulged two inches. The "lower joints" in the bed had opened more than two inches at several points, and the "tendency is to push the face wall over and for the roadway to fall."

Sometime in the past, he explained, the ramp had been repaired by placing over the roadbed, a layer of concrete, nearly 6 inches thick, and inserting pieces of brick into the lower joints.

To hold the ramp in place and permit its use, Rossell had supported the arch with timber struts.

There were, Rossell continued, two alternatives for repair of the ramp: (a) takedown and rebuild the section that was in bad condition; or (b) to make no repairs, replacing the struts with an iron framework.

Captain Rossell recommended the first method, the cost of which he estimated at $800.

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16. Wilson to Rossell, Nov. 17 & 24, 1884, NA, RG 77, Ltrs. Sent, Chief Engineer.

Along the crests of many of the walls, stones had been dislodged and earth had fallen into the covered way. To remove this earth and patch these walls was estimated at $600.

To repair the badly damaged southwest bastion lookout tower would cost $50, and to rebuild the missing northeast bastion lookout tower was estimated at $150. The stones of the former, with one exception, were in position and all that was needed was to relay them in "good cement mortar."

Forty dollars were needed to replace coquina blocks cut out of the walls of three of the casemates.

Finally, Rossell suggested that $1,500 be spent for covering the terreplein with a "thin coating of cement paste to prevent leaking in the casemates."[17]

On April 20, 1885, the Department approved Rossell's program, except for covering the terreplein with a thin coat of cement paste. Before acting on this, General Newton wished additional data on the character of the material upon which the paste was to be laid. This was needed to enable the Washington people "to ascertain the probable durability if exposed to promenade."[18]

To oversee the restoration project, Captain Rossell asked the Department for and received authority to employ an inspector at $100 per month.[19]

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17. Rossell to Newton, April 6, 1885, NA, RG 77, Ltrs. Recd., Chief Engineer.

18. Wilson to Rossell, April 20, 1885, NA, RG 77, Ltrs. Sent, Chief Engineer.

19. Rossell to Newton, May 27, 1885; & Wilson to Rossell, June 1, 1885, NA, RG 77, Ltrs. Recd. & Sent, Chief Engineer.

On September 12 the Department removed its objection to applying cement to the terreplein.[20]

6. Corps' Plea to Salvage Stone from Old Lighthouse is Rejected

Captain Rossell visited the Anastasia Island quarries and found that, before they could be reopened, much debris must be removed. Cost of this undertaking would be large in comparison to the small quantity of coquina (about 100 cubic yards required).

He had, however, observed that stone from the old lighthouse was of good size and, if permissable, could be used to advantage in the fort's restoration.[21]

Before the Department could agree to salvaging coquina from the lighthouse site, Rossell was called on for information as to its whereabouts and ownership.[22]

Replying, Rossell reported that the lighthouse tower was on the oceanside of Anastasia Island. Nearly half the tower and its surrounding loopholed wall had tumbled into the sea, while much of the 62-acre reservation had washed away.[23]

It having been ascertained that the structure belonged to the Lighthouse Board, Secretary of War William Endicott brought the subject to the attention of Secretary of the Treasury Daniel Manning.[24]

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20. Wilson to Rossell, Sept. 12, 1885, NA, RG 77, Ltrs. Sent, Chief Engineer.

21. Rossell to Newton, Nov. 3, 1885, NA, RG 77, Ltrs. Recd., Chief Engineer.

22. Wilson to Rossell, Nov. 6, 1885, NA, RG 77, Ltrs. Sent, Chief Engineer.

23. Rossell to Newton, Nov. 21, 1885, NA, RG 77, Ltrs. Recd., Chief Engineer.

24. Endicott to Manning, Nov. 30, 1885, NA, RG 77, Ltrs. Recd., Chief Engineer.

The Lighthouse Board, to whom Secretary Manning referred the question, decided to grant the Corps of Engineers permission to remove such of the blocks of coquina as the engineer for the 6th Lighthouse District believed were expendable.[25]

Authority to salvage the coquina was withdrawn on the last day of 1885, when the District Lighthouse Engineer reported that debris from the old lighthouse served to check beach erosion. Consequently, he did not deem it prudent to sanction removal of any of the stone.[26] The Corps would have to look elsewhere for its coquina.

B. 1884-86 Restoration Program

1. William M. Black Becomes Superintending Engineer

Most of the restoration and repair projects authorized under the $5,000-appropriation were accomplished in the first six months of calendar year 1886, and under the supervision of Lt. William M. Black.

On January 18, 1886, Lieutenant Black reached St. Augustine and reported to Captain Rossell. A Pennsylvanian, Black had graduated from the U.S. Military Academy as No. 1 in the Class of 1877. Commissioned a 2d lieutenant in the Corps of Engineers, he remained at West Point as an Assistant Instructor of Practical Military Engineering until December. He then served at Willetts Point in the Engineer Battalion until March 1880. Black was an assistant engineer to Col. William P. Craighill (March 1880-May 1881), Maj. William E. Merrill (May-November 1881), and Capt. William Ludlow (November 1881-August 1882). He was next detailed to the Military Academy as Assistant Instructor of Practical Military Engineering from November 1882 to January 1886, when he was ordered to St. Augustine.[27]

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25. Manning to Endicott, Dec. 11, 1885, NA, RG 77, Ltrs. Recd., Chief Engineer.

26. Lighthouse Board to Manning, Dec. 24, 1885; & Manning to Endicott, Dec, 28, 1885, NA, RG 77, Ltrs. Recd., Chief Engineer.

27. Cullum, Biographical Register, Vol. 3, p. 271.

Black served as Captain Rossell's assistant for three months. Then, on April 17, Black was placed in charge of Fort Marion.[28]

The day before Black assumed responsibility for the ancient fort, Captain Rossell had asked for and secured authority from the Department to change the designation of the inspector to overseer. This was dictated by the decision to accomplish the project by day labor rather than contract.[29]

2. Projects Accomplished in the 1886 Program

a. Condition of the Exterior Scarp and Repair of Parade Walls

At the time Lieutenant Black took charge of the fort, he reported that there were 22 serious cracks in the scarp walls of the bastions, and one in the curtain of the west front. He theorized that they had, in general, been caused by pressure from within rather than by settlement, because most of the displacements were horizontal. Some of the cracks had been repointed in the mid-1870s, but they had reopened. During the months he had been in St. Augustine, levelings documented that no settlement had occurred.

The fact that only one crack was found in the curtains caused Black to reason that these structural failures were caused by the "weight of the filling when surcharged with rain water through leaks in the terreplein."

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28. Semi-Annual Report for Fort Marion, July 17, 1886, NA, RG 77, Ltrs. Recd., Chief Engineer.

29. Rossell to Newton, April 16, 1886; & Wilson to Rossell, April 19, 1886, NA, RG 77, Ltrs. Recd. & Sent, Chief Engineer.

Black observed that the southwest bastion had settled at the salient angle to such an extent that the sentry tower was endangered. To secure the tower with iron straps would cost $75.[30]

The parade wall of the fort had been "picked entirely through in the vicinity of the dungeon by tourists and carried away as relics." At other points, there was extensive spalling. Under Black's supervision these areas were patched with concrete.[31]

b. Waterproofing the Terreplein

On May 11 Lieutenant Black sought approval of a change order to cover the terreplein "with 2 1/2 inches of concrete laid on either tarred paper or asphalt; the entire course to be covered with 1/2 inch paste of cement and sand."

It had been impossible, he reminded the Department, to stop the leaks into the casemates formerly covered with cement paste, owing in part to the porous nature of the paste and the loose and broken foundation on which it was laid.

Experiments had demonstrated that concrete could be rammed in place on one thickness of tarpaper resting on sand without damage to the paper.

He argued that a 3-inch thickness of concrete and paste was necessary to give "a firm pavement over the waterproof roofing."[32]

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30. Semi-Annual Report for Fort Marion, July 17, 1886, NA, RG 77, Ltrs. Recd., Chief Engineer.

31. Ibid.

32. Black to Newton, May 11, 1886, NA, RG 77, Ltrs. Recd., Chief Engneer.

Chief Engineer Newton, in approving the project, cautioned that the cost of this work was not to exceed the $1,500 previously authorized.[33]

When he filed his semi-annual report for the first six months of the year, Black wrote that the men were at work on the terreplein. The "waterproof pavement" was being applied to the north front terreplein, and should be extended to other areas as funds permitted. He reported that, a number of years before, the terreplein of the south and west fronts had been "coated thinly with cement paste. No bond was obtained and the foundation is so poor and rough that it is broken, and in bad condition."[34]

On August 24, in accordance with orders from the Department, work was stopped and all hands laid off. Since late May, 950 square feet of waterproof pavement had been laid, making 2,050 feet in all on the east front. Casemates Nos. 13-20 and one-half of 21 had been covered and all seepage into them stopped. The molds and mosses were now peeling off the walls.[35]

When he drafted his semi-annual report for the second six months of 1886, Lieutenant Black reported that the waterproofing had held up "excellently" under severe usage. The Indians' tents had "confined all movement to a path about eight feet wide along the middle" of the east terreplein. Consequently, this part of the fort was subjected to the same wear as a busy sidewalk, and it had held up and shed water.

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33. Wilson to Black, May 15, 1886, NA, RG 77, Ltrs. Sent, Chief Engineer.

34. Semi-Annual Report for Fort Marion, July 17, 1886, NA, RG 77, Ltrs. Recd., Chief Engineer.

35. Black to Chief Engineer, Sept. 6, 1886, NA, RG 77, Ltrs. Recd., Chief Engineer.

Simultaneously, the unrepaired portions of the terreplein were becoming badly broken. Near the head of the ramp, the casemate arch stones were exposed in places.[36]

In July 1887 Black observed that the pavement was still in "excellent condition," although it had been slightly injured at several places by axes before the Apaches' transfer.[37]

c. Condition of Casemates and Their Use

In June 1886 the casemates were dirty, in bad repair, and unfit for use by troops. They were currently employed: No. 1 unoccupied; No. 2 storeroom; No. 3 sally port; No. 4 schoolroom and office; No. 5, with adjoining casemate, commissary store for Indian prisoners; No. 6 guardroom; No. 7 dispensary and schoolroom; No. 8 storeroom for Engineer and ordnance stores; No. 9 magazine for St. Francis Barracks; Nos. 11, 19, and 20 Engineer storerooms; No. 12 guardroom; Nos. 13, 14, 15, 16, 18, 21, and 22 kitchens for Indian prisoners; No. 17 kitchen for soldiers; No. 23 bathroom and water closets; and small room under ramp a water closet.[38]

Lieutenant Black recommended that the window openings of all casemates not used as offices be provided with bars. The sash had been removed, because they kept the casemates too damp.[39]

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36. Fort Marion, Semi-Annual Report, Jan. 27, 1887, NA, RG 77, Ltrs. Recd., Chief Engineer.

37. Fort Marion, Semi-Annual Report, July 1887, NA, RG 77, Ltrs. Recd., Chief Engineers.

38. Semi-Annual Report for Fort Marion, July 17, 1886, NA, RG 77, Ltrs. Recd., Chief Engineer; "Fort Marion, Saint Augustine, Florida," description, NA, RG 77, Drawer 72, Sheet A.

39. Semi-Annual Report for Fort Marion, July 17, 1886, NA, RG 77, Ltrs. Recd., Chief Engineer; "Plan Showing Capacity and Present use of Casemates. Fort Marion, Fla." A copy of the subject plan is on file at Castillo de San Marcos NM.

d. Reconstructing Ramp

Workmen took down the defective portions of the ramp. Its foundations were examined and strengthened. A very heavy centering for both arch and floor, following the lines of the original work, was set up, bolted to the parade wall, and heavily loaded.

Next the arch was rebuilt from both ends and made 30 inches deep along the soffit. The rammed layers of concrete were kept, as nearly as possible, perpendicular to the lines of pressure and the centering kept evenly loaded. The key was made by alternate thin layers from two sides. The rammed layers were given an equal inclination of from 35 to 40 degrees to the horizontal.

A frame, supported by and resting on guides along the sides, held and compressed in the top surface of the concrete. Cross wires were built into the floor near the bottom. Eight round rammers were employed. After the floor was finished, a plaster rubble balustrade was constructed and concrete steps built on the ramp surface. The centering was removed on July 6, 1886.[40]

e. Repairs to Covered Way, Ditch, Counterscarp, Demilune, and Glacis

The breast-height wall of the covered way had been repaired, and the ditch, counterscarp, demilune, and covered way were now in "good condition." The glacis of the south and west fronts was in "generally good condition except where it has been cut through by roads crossing the reservation." On the north front, the glacis was crowned by a Civil War earthen parapet, from which spoil had been removed, leaving it in "bad shape."[41]

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40. Ibid.; "Elevation of Ramp at Fort Marion (Looking East) Showing Parapet in Feb. and Mar, 1886." A copy of the subject drawing is on file at Castillo de San Marcos National Monument.

41. Semi-Annual Report for Fort Marion, July 17, 1886, NA, RG 77, Ltrs. Recd., Chief Engineer.

f. Repair and Reconstruction of Lookout and Sentry Towers

The southwest bastion lookout tower had been repaired and the northeast tower reconstructed.[42]

C. Fort is Used as a Prison for Apaches

On April 13, 1886, the fort again became a prison for western Indians, when 77 Apaches and a guard detail reached St. Augustine from Fort Bowie in Arizona Territory. Some four months later, two more groups of Apaches reached the fort. The second of these, arriving on September 20, numbered 383. Additional Indians were received at the fort on October 25 and November 7. The prisoners were housed in 145 tents pitched on the terreplein.

On January 31, 1887, the number of prisoners at the fort was 447.

Early in February 1887, Lt. John Conklin, the officer in charge of the Apaches, inquired whether it would be possible to employ them on maintenance of the fort. All that Lieutenant Black had seen satisfied him that they were quick, strong, and eager to work. He accordingly asked the Department for authority to follow-up on Conklin's proposal.[43]

No work was contemplated at Fort Marion during the fiscal year, so the Department vetoed the proposal to employ the Indians on a rehabilitation project.[44]

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42. "Fort Marion, St. Augustine, Florida," NA, RG 77, Fortifications File.

43. Black to Chief Engineer, Feb. 4, 1887, NA, RG 77, Ltrs. Recd., Chief Engineer.

44. Raymond to Black, Feb. 8, 1887, NA, RG 77, Ltrs. Sent, Chief Engineer.

Fort Marion, in late April 1887, lost its Indian prisoners. Sixty-two men, women, and children were sent to Carlisle, Pennsylvania; 30 women and children to Fort Pickens; and 358 of both sexes to Mt. Vernon, Alabama.

D. Responsiblity for Protection and Administration of the Reservation is Returned to the St. Francis Barracks Commander

On July 29, 1886, Lt. Col. Loomis L. Langdon, the officer in charge of St. Francis Barracks and responsible for security of the Apache prisoners, formally requested that Fort Marion be turned over to his command. Upon reviewing the records, Lieutenant Black found that the Fort Marion reservation had been turned over to the Engineers on June 27, 1884, along with other ungarrisoned posts in the Department of the East.[45]

When he relayed this information to Chief Engineer Newton, Black endorsed this administrative change, because: (a) the hostile feeling of many of the citizens to any change in the status of the fort and reservation; (b) the ordnance-sergeant in command of the fort had never been directed to report to the Engineer officer in charge; and (c) the presence of the Indian prisoners and their guards.[46]

Chief Engineer Newton agreed and recommended that, in view of the Indians being confined in the fort, the reservation and structures be transferred from the Corps to the commanding officer of St. Francis Barracks. Responsibility for restoration of the fort and beautifying the grounds would be retained by the Engineers under any appropriation made for these purposes.[47]

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45. Langdon to Black, July 29, 1886, NA, RG 77, Ltrs. Recd., Chief Engineer.

46. Black to Newton, July 31, 1886, NA, RG 77, Ltrs. Recd., Chief Engineer.

47. Newton to Adj. Gen., Aug. 5, 1886, NA, RG 77, Ltrs. Sent, Chief Engineer.

Secretary of War Endicott approved the proposal and conditions thereof, and the transfer was effected on August 12, 1886.[48]

E. Providing the Apaches with Water and Sanitary Facilities

1. Chief Engineer Vetoes Request for Funding

The arrival of the Apache prisoners interferred with reconstruction and rehabilitation of the fort. In addition, their presence dictated certain expenditures that had not been foreseen. The most pressing of these was latrines. As an emergency measure, the Quatermaster people provided boxes, which were positioned in certain of the casemates, and periodically emptied.

When the Indians had been confined at the fort in the mid-1870s, a trench in the ditch had served them as a latrine. A stench that lingered discouraged doing this again.

As an alternative, Captain Rossell proposed to utilize the old drain leading from a casemate in the southeast angle. The drain would be lined with 6-inch vitrified pipe, and water for flushing secured from the fort's well. Cost of such an improvement, to include a hand operated force pump and leaders to carry the water from the well to latrine, Rossell placed at $300.[49]

Acting Chief Engineer Parke, however, vetoed this expenditure, because he held that funds appropriated for preservation of Fort Marion could not be employed for this purpose.[50]

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48. Drum to Chief Engineer, Aug. 12, 1886, NA, RG 77, Ltrs. Sent, Chief Engineer.

49. Rossell to Newton, April 22, 1886, NA, RG 77, Ltrs, Recd, Chief Engineer.

50. Wilson to Rossell, April 26, 1886, NA, RG 77, Ltrs. Sent, Chief Engineer.

2. 202-foot Artesian Well Drilled

It was apparent that the two surface wells--one at the southwest angle of the parade and the other on the glacis in front of the ordnance-sergeant's quarters--were insufficient to supply the prisoners' needs. Consequently, Post Quartermaster Sebree Smith prepared estimates for drilling at 3-inch artesian well. Col. Romeyn B. Ayres, commanding St. Francis Barracks, in urging allotment of $350 for the project noted that the "well will always be a convenience." But, when the fort was occupied, it was a necessity. Chances of striking water were excellent, because there were a number of artesian wells nearby, supplying an abundance of good tasting water.[51]

On April 30 Quartermaster General Samuel B. Holabird allotted the requested sum to underwrite the project.[52]

A drilling rig was positioned, and, in June 1886, a well was drilled in the southeast angle of the parade. Its depth was 202 feet, and it discharged with a force sufficient to raise the water to a height of 30 feet above the parade. It was cased to a depth of 132 feet. The water was pure, but was "charged with a sulphurous gas which disappears after the water had been exposed to air and light for a few hours."[53]

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51. Ayres to Schofield, April 19, 1886, NA, RG 92, Consolidated Correspondence File. The estimate brokedown: 150 feet of 3-inch wrought iron drive pipe, $75; labor for sinking a well to a depth of 150 feet, $275.

52. Holabird to Perry, April 30, 1886, NA, RG 92, Consolidated Correspondence File.

53. Monthly Report of Operations for June 1886, NA, RG 77, Ltrs. Recd., Chief Engineer. The well passed through these strata: sand 33 feet, coquina 3 feet, very fine coquina 4 feet, coral 3 feet, sand and rock mixed 4 feet, sand 2 feet, soil rock, with hard spots 4 feet, sand 3 feet, clay 68 feet, rock 3 feet, clay 9 feet, very hard rock 4 feet 8 inches, dark clay with grit 26 feet, rock 9 feet, gray limestone 7 feet, soft and chalky limestone 17 feet.

3. Casemate No. 23 is Converted into a Latrine

Simultaneously, the Quartermaster people installed a latrine in casemate No. 23. It was flushed by water from the artesian well and discharged into the Matanzas River through "a 4-inch sewer, following the line of the regular fort sewer, and passing through the regularly provided openings in the scarp" and parapet of the water battery. The latrine, itself, was an iron trough, having an emptying gate and an automatic overflow valve. The men's and women's latrines were separated by a longitudinal bulkhead.[54]

In October the number of prisoners having been increased from 77 to 443, additional water closets were added. Then, on February 24, 1887, Post Quartermaster Smith, on recommendation of Surgeon Webb DeWitt, called for a $358 allotment to cover costs of increasing "the facilities of water closets and sewerage" at the post.[55]

The Quartermaster General, deeming it an emergency, sanctioned the expenditure.

F. Steps are Taken to Modernize Water Battery Platforms Nos. 6, 8, 9, 12, 13, and 15

1. Plans are Made and Shelved

Lt. Col. Roger Jones of the Inspector-General's Office was at St. Augustine in early April 1884. While at Fort Marion, he recommended that, for the better instruction of the troops at St. Francis

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54. Ibid.

55. Smith to Post Adj., Feb. 24, 1887, NA, RG 92, Consolidated Correspondence File. The estimate brokedown: 150 feet 6-inch cast iron tarred sewer pipe, $60; 75 feet 4-inch cast iron tarred sewer pipe, $22; 25 feet 3-inch cast iron tarred sewer pipe, $7.50; 200 pounds lead, $10; 2 barrels Portland cement, $9; 2 Ys, 3 Ts, 6 bends, 2 double hubs, and 2 plugs, $8.50; 25 pounds oakum, $3; bolts and nuts, $2; elbows, nipples, brass plugs, links, and chains, $5; 20 days' labor by plumber and helper, $110; and furnishing and laying 110 square yards of concrete flooring in rooms containing water closets and around artesian well to secure proper drainage, $121.

Barracks, the water battery be rearmed.[56] Post Commander Col. Horatio G. Gibson agreed with Colonel Jones.

When called on by the Department to submit estimates of the costs, Colonel Gillmore reported that the water battery contained "platforms in various stages of completeness for 16 guns--old 42 & 32 pounders." These could be put in serviceable condition for similar calibers for $1,408, or $88 per platform. New traverse rails were required for all platforms, while a number of broken traverse stones must be replaced.

All pintles were 2 1/2-inch. Consequently, guns mounted thereon could not be fired with "charges suitable for ordinary target practice without destroying the platforms." New platforms for 8- and 10-inch columbiads would cost $700 each, or $10,200 for the entire battery.

Gillmore suggested that for target practice several new platforms be built and the others repaired for emplacement of smaller caliber cannon.

He did not believe that anything could be accomplished toward repair of the battery during the remaining six weeks of fiscal year 1884 beyond securing the ironwork.[57]

Upon reviewing Gillmore's report, Chief Engineer Newton recommended to Secretary of War Lincoln that $1,250 be allotted immediately for the project from the small sum available from the

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56. Jones to C. O., Dept. of the East, April 10, 1884, NA, RG 77, Ltrs. Recd., Chief Engineer.

57. Gillmore to Newton, May 13, 1884, NA, RG 77, Ltrs. Recd., Chief Engineer.

appropriation for "Preservation and Repair" in the current fiscal year, while the remainder be funded from monies to be obligated after July 1.[58]

Secretary Lincoln decided to pigeonhole this request for funds. The subject resurfaced within the year, when the Department by circular letter called on its superintending engineers to submit, as soon as feasible, estimates of the cost of placing in serviceable condition existing platforms for 8-, 10-, and 15-inch guns, as well as mortars and rifled cannon, bearing upon the channels at the various defenses for which they were responsible. Similar data was required for the magazines pertaining to these guns and mortars.[59]

Captain Rossell responded that the cost of achieving these goals at St. Augustine would be:

rebuilding platforms for 8- and 10-inch guns, 20 platforms at $2,000 each - - - - -	$40,000
to prepare 6 casemates as magazines at $1,000 each -	6,000
Total -	$46,000[60]

Four of these platforms, he expalined, were on the terreplein of the fort and 16 in the water battery. Two of those on the terreplein were serviceable and only one of those in the water battery was. All pintles were 2 1/2-inch, without keys, and the pintle-blocks were old pattern and comparatively weak. There were no magazines, but any of the casemates could be used. To make them serviceable, they must be waterproofed and lined with planking.[61]

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58. Newton to Adj. Gen., May 19, 1884, NA, RG 77, Ltrs. Sent, Chief Engineer.

59. Circular Letter, March 10, 1885, NA, RG 77, Ltrs., Sent, Chief Engineer.

60. Rossell to Newton, March 26, 1885, NA, RG 77, Ltrs. Recd., Chief Engineer.

61. Rossell to Newton, May 29, 1885, NA, RG 77, Ltrs. Recd., Chief Engineer. Three of the platforms were without pintle-blocks.

2. Funds Allotted to Repair and Strengthen Six Platforms

Then, on March 30, the Department called on Rossell to provide it with data on monies needed to repair existing platforms of large caliber guns and rifles commanding the channel. These figures were to be predicated on the assumption that this project is to be undertaken in the near future.[62]

Rossell placed the cost of making the platforms serviceable at $1,000: $700 for 700 cubic feet of cutstone masonry and $300 for repair of ironwork.[63]

The Department, satisfied with this figure, made the $1,000 allotment.

Before sending any instructions, the Department inquired, what repairs to the platforms are proposed? A tracing was being prepared for Rossell's guidance, depicting a method of strengthening the old model 42-pounder platform to prepare it for 8- and 10-inch Rodmans.[64]

Rossell replied, explaining that, when the $1,000 allotment was made, he had deemed it wise to position stronger pintles and pintle-blocks, and had prepared his plans accordingly.[65] On January 4, 1886, he had transmitted to Washington a "detail of Pintle and Pintle-Blocks of Gun Platforms, Fort Marion, Fla."[66]

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62. Newton to Rossell, March 30, 1885, NA, RG 77, Ltrs. Sent, Chief Engineer.

63. Rossell to Newton, May 28, 1885, NA, RG 77, Ltrs. Recd., Chief Engineer.

64. Wilson to Rossell, Jan. 7, 1886, NA, RG 77, Ltrs. Sent, Chief Engineer.

65. Rossell to Newton, Jan. 11, 1886, NA, RG 77, Ltrs. Recd. Chief Engineer.

66. A copy of the subject plan is on file at Castillo de San Marcos NM.

Chief Engineer Newton agreed with Rossell that it would be useless to repair the old platforms, if they would not be strong enough, after rehabilitation, for the big Rodmans. Rossell was to submit a detailed estimate of the cost of putting the 16 water battery platforms in order to mount modern guns.[67]

Rossell, therefore, revised his estimates for repair of the water battery platforms. As the level of the pintles and rails in reference to the crest of the parapet, differed from those now required, removal of the coquina was dictated. Project costs were placed at:

Materials for One Platform

Concrete 200 cu. ft. (1 cemt., 2 sand, 4 coq. gravel)

coquina gravel	64 bbls.	@ 16¢	$ 10.24
cement	32 bbls.	@ $3.50	35.00
sand	32 bbls.	@ 16¢	5.12

mortar 10 cubic feet (1 cement and 2 of same)

cement	1 bbls.	@ $3.50	3.50
sand	3 bbls.	@ 16¢	.48

Granite, getting out, cutting, dressing, and deliverying 3.26 cub. yds.

granite	3.26 cub. ydrs.	@ $3.50	260.80

Iron

manufactured iron	470 lbs.	@ 08¢	37.60
		Total Cost of Materials	$352.74

Labor

Site preparation, removal of platforms, etc.

1 mason	$3.50				
1 mason	$2.50	2 laborers	@ $3	3 days	$ 27.00

67. Wilson to Rossell, Jan. 16, 1886, NA, RG 77, Ltrs. Sent, Chief Engineer.

setting platforms

2 masons	$6	3 laborers	$4.50	5 days	$ 52.50
Fixing irons 2 masons	$6	1 laborer	$1.50	4 days	30.00
					$109.50
				Total cost of materials and labor	$461.24
				Contingencies	42.12
				Total cost of one platform	$507.36
				Cost of repairing 16 platforms	$8,117.76[68]

On February 12 Chief Engineer Newton, after reviewing the estimates and the Corps' nationwide commitments, allotted $2,000 from "Preservation and Repair" funds for "putting in order four of the platforms." This sum, with the $1,000 previously granted for this purpose, would enable Captain Rossell to "put in complete order six of the platforms."[69]

3. Work Begins and is Suspended

Rossell designated the platforms to be remodeled and rehabilitated as Nos. 6, 8, 9, 12, 13, and 15, because, besides bearing on the channel, they were spaced to permit erection of traverses between each pair of guns. Materials were ordered on March 29, while workmen were turned to removing coquina and constructing new foundations.[70]

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68. Rossell to Newton, Feb. 8, 1886, NA, RG 77, Ltrs. Recd., Chief Engineer.

69. Parke to Rossell, Feb. 12, 1886, NA, RG 77, Ltrs. Sent, Chief Engineer.

70. Black to Chief Engineer, July 17, 1886, NA, RG 77, Ltrs. Recd., Chief Engineer.

Lieutenant Black, who had relieved Captain Rossell, on studying the plans, saw that the distance between the traverse circle rail and the breast-height wall, measured through the pintle, was 13 feet 1/3 inches, whereas the same distance on the water battery platform was 12 feet 7 1/2 inches. Granite ordered for repair of the platforms had been proportioned according to the plans. As only a few of the traverse circle stones were broken, Captain Rossell's estimates did not contemplate removal of the traverse circles.

If Black were to place the platforms, without moving the traverse circles and retain the proper radii, it would be necessary for workmen to cut a 5-inch jog in the breast-height wall.[71]

The Department, upon being apprised of the problem, approved Black's proposal.[72]

June 30 arrived before the cut granite and pintle stones were received from Maine, and the appropriation lapsed. The $461.74 remaining in the account were returned to the Treasury. Pending receipt of another allotment, the sand and cement were stored in several of the Fort Marion casemates and the coquina gravel piled in the water battery.[73]

4. Dismounting the Fort's Armament

In 1873 the Corps of Engineers submitted an armament return for Fort Marion. There were at that time five guns mounted en barbette in the water battery. They were positioned: platform No. 1, 8-inch seacoast howitzer; platform No. 3, 8-inch seacoast howitzer;

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71. Black to Newton, May 21, 1886, NA, RG 77, Ltrs. Recd., Chief Engineer.

72. Wilson to Black, May 25, 1886, NA, RG 77, Ltrs. Sent, Chief Engineer.

73. Black to Chief Engineer, July 17, 1886, & July 1, 1887, NA, RG 77, Ltrs. Recd., Chief Engineer.

platform No. 6, 32-pounder smoothbore; platform No. 7, 32-pounder smoothbore; and platform No. 9, 32-pounder smoothbore. Emplaced on temporary center-pintle platforms, at salient angles in the covered way north of the fort, were two 8-inch columbiads. Both these guns were mounted en barbette, and their platforms were numbered 21 and 22.

Also at the fort were 13 field and siege guns--one 12-pounder (without carriage), three 6-pounder bronze guns (with carriages), three 3-inch siege howitzers (with carriages), three 24-pounder howitzers (without carriages), and three 10-pounder Parrotts (with carriages).[74]

In June 1885 there were at Fort Marion these guns:

	No.	Mounted	Dismounted
12-pounder bronze guns	2	x	
10-pounder Parrotts	2	x	
8-inch columbiads	2		x
24-pounder flank defense howitzers	3		x
8-inch siege howitzers	3		x
8-inch seacoast howitzers	2		x
32-pounder rifles	3		x
18-pounder smoothbores	20		x
24-pounder howitzer	1		x[75]

G. Protecting and Maintaining the Reservation: 1877-1886

1. Captain Post Surveys and Delineates the Reservations

During the autumn of 1877, Captain Post, utilizing a $1,000 allotment, began surveying and marking the boundaries of the St.

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74. Armament Return of Fort Marion, Fla., Dec. 1, 1873, & "Diagram Accompanying Armament Return of Fort Marion, Fla., December 1, 1873," NA, RG 77, Cartographic Records.

75. Fort Marion, Annual Report for Fiscal Year 1885, NA, RG 77, Ltrs. Recd., Chief Engineer.

Augustine military reservations. Conflicting land records and landmarks caused difficulties and delayed the project. To assist him, Post was compelled to employ a civil assistant engineer. This increased costs, and on March 23, 1878, Colonel Gillmore called for another $300 to fund the survey.[76]

General Humphreys was agreeable, and directed that the requested sum be transferred from contingencies.[77] With this money, Post and his assistant completed the project.

2. General Hancock Seeks to Divert Some of the 1884 Appropriation

Commander of the Department of the East Maj. Gen. Winfield S. Hancock, upon learning of the July 1884 appropriation for restoration of the fort and enclosing the grounds, sought to have some of these monies diverted to fencing the powder house lot and governor's garden. Chief Engineer Newton referred this question to Colonel Gillmore.[78]

Gillmore held that these funds could not be used for fencing the areas recommended by General Hancock.[79]

3. Fencing Reservation Causes a Public Uproar

Captain Rossell, while awaiting approval of plans for restoration of the fort, took measures to fence the reservation. But, if he were to do this, it would be necessary to eject a number of squatters.

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76. Gillmore to Humphreys, March 23, 1878, NA, RG 77, Ltrs. Recd., Chief Engineer.

77. Twining to Gillmore, March 23, 1878, NA, RG 77, Ltrs. Sent, Chief Engineer.

78. Wilson to Gillmore, Aug. 16, 1884, NA, RG 77, Ltrs. Sent, Chief Engineer.

79. Gillmore to Newton, Aug. 20, 1884, NA, RG 77, Ltrs. Recd., Chief Engineer.

Also within the boundary, as surveyed and marked by Captain Post in 1878, were several streets.

Rossell was of the opinion that he should leave these streets open to the public, but have it understood that the United States was not going to waive its claims to the lands in question.

He estimated the cost of a neat picket fence, painted, at 50 cents per running foot.[80]

Commenting on this situation, Colonel Gillmore urged that the fence enclosing the reservation be so located as not to interfere with private homes standing thereon, but the owners thereof be informed of the boundary's whereabouts.[81]

The Department, after reviewing the subject, wrote Captain Rossell that some 23 months before, Secretary of War Lincoln had called on Attorney General Benjamin Brewster to investigate the titles and institute legal steps for ejecting intruders from the Fort Marion reservation. Ten months later, in August 1883, the Secretary had again broached the subject in connection with the Lucy Abbot case. The lady in question had enclosed a portion of the reservation. Attorney General Brewster replied that he had forwarded the papers in the case to the U.S. District Attorney for North Florida.

As the question of trepass was now in the hands of legal authorities, Acting Chief Engineer Parke deemed it best for Captain Rossell, in fencing the reservation, to adopt the boundary located by Captain Post. Rossell was to erect the fence wherever no private fencing existed. But, where such fences intruded upon limits of the reservation,

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80. Rossell to Gillmore, Aug. 14, 1884, NA, RG 77, Ltrs. Recd., Chief Engineer.

81. Gillmore to Newton, Aug. 20, 1884, NA, RG 77, Ltrs. Recd., Chief Engineer.

he was to connect therewith and notify the owners that they were trespassing upon United States land.[82]

On October 24 the St. Augustine City Council voiced concern over the War Department's plan to close several public streets. A resolution was accordingly framed petitioning Secretary of War Lincoln to hold the project in abeyance until such time as the Florida congressional delegation could intervene in the community's behalf.[83]

Upon receiving a copy of the resolution, Chief Engineer Newton authorized Captain Rossell to keep the subject streets open until such time as Secretary Lincoln had an opportunity to evaluate the consequences.[84] Gates, however, could be erected at the intersection of the city limits with the reservation roads.[85]

Florida Senator Call now contacted the Department on behalf of his constituents. He pointed out that the public interest would not be compromised by closing such of the streets as were needed to provide access to people's homes.[86]

Senator Call was informed by Secretary Lincoln that the Department would "interfere as little as possible with the parties now occupying portions of the United States reservation, and . . . not . . .

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82. Parks to Rossell, Sept. 18, 1884, NA, RG 77, Ltrs. Sent, Chief Engineer.

83. Resolution, City Council, Oct. 28, 1884, NA, RG 77, Ltrs. Recd., Chief Engineer.

84. Wilson to Rossell, Nov. 5, 1884, NA, RG 77, Ltrs. Sent, Chief Engineer.

85. Wilson to Rossell, Nov. 17, 1884, NA, RG 77, Ltrs. Sent, Chief Engineer.

86. Call to Lincoln, Dec. 18, 1884, NA, RG 77, Ltrs. Recd., Chief Engineer.

suddenly take away privileges so long granted the citizens of St. Augustine."[87]

In fencing the reservation, Rossell kept these guidelines in mind.

4. Mayor Long Seeks to Secure the Reservation as a City Park

Mayor John G. Long of St. Augustine had written Secretary Lincoln, calling on the United States not to

> close our public through-fares which have been open to the public for more than three hundred years, nor fence in the front doors of a large numbers of our citizens (many of whom are poor widows and orphans) merely because they innocently made mistakes in locating their lots partly upon government land.

Mayor Long, as a way out of the impasse, suggested that the United States grant to the city, as a public park, vacant areas of the reservation. If this could be done, the municipality would care for the subject acreage, landscaping it at no expense to the federal government.[88]

Replying, Secretary Lincoln explained that only Congress had the power to dispose of public land, such as the Fort Marion reservation. He then reviewed for the mayor the correspondence between Chief Engineer Newton and Captain Rossell pertaining to enclosing the reservation.[89]

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87. Lincoln to Call, Jan. 2, 1885, NA, RG 77, Ltrs. Recd., Chief Engineer.

88. Long to Lincoln, Nov. 26, 1884, NA, RG 77, Ltrs. Recd., Chief Engineer.

89. Lincoln to Long, Dec. 23, 1884, NA, RG 77, Ltrs. Sent, Chief Engineer.

Mayor Long was advised that Rossell had assured his superiors he would carryout his orders in such a manner as no citizen would be deprived of access to the public streets.[90]

5. United States Does Some Landscaping and Builds Two Bridges

On January 29, 1885, Dr. O. H. Smith, a St. Augustine physician, wrote Secretary of War Lincoln. Besides commending the government on its plans to restore the fort and enclose the grounds, Dr. Smith called for drainage of the reservation. There was, he noted, an area where water was trapped "in the center of the square," and in the summers this stagnant water "must produce malaria and disease."[91]

When this was called to his attention, Captain Rossell advised the Department that most of the stagnant water on the reservation resulted from filling in the "Lines" by owners of the San Marco Hotel. A trench was being cut through this area, and would to a great measure alliviate this situation. Some leveling and ditching, at an estimated cost of $50, would be required by the government.[92]

The requested allotment was promptly forthcoming from the Chief Engineer.[93]

Then, on September 1, at Rossell's request, the Department allotted $115 for construction of two small bridges across the "lines."[94]

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90. Newton to Adj. Gen., Dec. 16, 1884, NA, RG 77, Ltrs. Sent, Chief Engineer.

91. Smith to Lincoln, Jan. 29, 1885, NA, RG 77, Ltrs. Recd., Chief Engineer.

92. Rossell to Newton, Feb. 11, 1885, NA, RG 77, Ltrs. Recd., Chief Engineer.

93. Wilson to Rossell, Feb. 14, 1885, NA, RG 77, Ltrs. Sent. Chief Engineer.

94. Wilson to Rossell, Sept. 1, 1885, NA, RG 77, Ltrs. Sent, Chief Engineer.

6. Combating Beach Erosion

The hurricane of September, 1885, undercut about 100 feet of the seawall fronting the northern part of the Fort Marion water battery. Unless steps were taken to repair about 55 cubic yards of masonry, Captain Rossell feared, the erosion would continue.[95]

After reviewing the expenditures and obligations, Chief Engineer Newton directed Captain Rossell to utilize the $1,100 still available from the $5,000 appropriation for restoration of the fort for repair of the seawall. Should this sum be insufficient, Rossell was to notify the Department.[96] Evidently, the sum was sufficient, because no request for additional money was forthcoming.

7. Repairs to Ordnance-Sergeant's Quarters

On May 24, 1882, Post Quartermaster Edward Davis submitted a requisition for $240.30 for repair of the ordnance-sergeant's quarters. The quarters, a small one and one-half story cottage, with front and rear porches, was on a Fort Marion outwork. The house was "much out of repair," and the ordnance-sergeant had told Lieutenant Davis that it had had little in the way of maintenance in the seven years since it was built. The sergeant also asked that, to afford privacy, it be fenced.[97]

Quartermaster General Holabird, after reviewing his servicewide commitments, allotted necessary funds to underwrite the project.[98]

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95. Rossell to Newton, Oct. 12, 1885, NA, RG 77, Ltrs. Recd., Chief Engineer.

96. Wilson to Rossell, Nov. 10, 1885, NA, RG 77, Ltrs. Sent, Chief Engineer.

97. Davis to Quartermaster General, May 24, 1882, NA, RG 92, Consolidated Correspondence File. Davis' estimate brokedown: plastering and kalsomining, $15; painting inside, $10; renewing steps, $6; repairs to porches, $8; repairs to blinds, $1.50; saddle boards, $3; painting exterior, 2 coats, $25; erecting privy, $20; 360 feet of picket fencing, $118.80; well platform, $5; and 1 submerged pump, $18.

98. Ibid.

By January 1887 Lieutenant Black was reporting that the cottage needed a new roof.[99]

8. Beefing up the Maintenance and Security Force

In the months after the Corps became responsible for maintenance and protection of Fort Marion and its reservation, Captain Rossell was dismayed by the adverse usage of the area by the citizens for concerts, festivals, etc. These practices resulted in damage to the fabric and vegetation. Recently, an anonymous visitor had complained that many parts of the fort were "rendered offensive by nuisances committed there," and that persons had been removing sand from the glacis.

To complicate the situation, Ord. Sgt. Charles Campbell was old and feeble, and it was impossible for him to properly police the grounds and fort during the tourist season. After the reservation was enclosed, it would be necessary to mow the grass and weed the walkways.

Upon reviewing the situation, Acting Chief Engineer Parke suggested to the Adjutant General that a second ordnance-sergeant be ordered to St. Augustine to assist Sergeant Campbell.[100]

The Department, however, hesitated to upset the "time-honored custom of holding festivals and concerts in the fort." If Captain Rossell desired to initiate action to curb these usages, he was to frame a communication citing damages that had resulted from these practices, and "reasons why the privilege so long permitted the citizens" should be revoked.[101]

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99. Fort Marion, Semi-Annual Report, Jan. 28, 1887, NA, RG 77, Ltrs. Recd., Chief Engineer.

100. Parke to Adj. Gen., Sept. 18, 1884; & Newton to Rossell, Sept. 23, 1884, NA, RG 77, Ltrs. Sent, Chief Engineer.

101. Wilson to Rossell, Sept. 18, 1884, NA, RG 77, Ltrs. Sent, Chief Engineer.

Rossell was not prepared to take such action.

Meanwhile, the War Department took steps to provide Sergeant Campbell with assistance. Instructions were issued for the post commander at St. Francis Barracks to detail such enlisted men as necessary to keep the fort and grounds in "good condition."[102]

This soon caused problems. On November 10, 1884, Captain Rossell inspected the fort and found Sergeant Campbell alone. When asked by Rossell, if he were having trouble taking care of Fort Marion and the grounds, and if he were being provided assistance by the St. Francis Barracks garrison, Campbell said, yes.

He explained that two soldiers had been detailed to help him. This number would be sufficient, provided they could be at the fort during the hours it was open to the public. This, however, had been impossible, because they were required to return to the barracks for drill.

Rossell told Sergeant Campbell that it was his duty to make application on the post commander for such men as were necessary.[103]

Sergeant Campbell accordingly notified the post commander of his difficulties, and requested that "two old soldiers who do not require any more drill except target practice may be detailed for this duty."[104]

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102. Ruggles to C.O., St. Francis Barracks, Sept. 27, 1884, NA, RG 77, Ltrs. Recd., Chief Engineer.

103. Rossell to Newton, Nov. 20, 1884, NA, RG 77, Ltrs. Recd., Chief Engineer.

104. Campbell to Post Adj., St. Francis Barracks, Nov. 10, 1884, NA, RG 77, Ltrs. Recd., Chief Engineer. The gates to the fort were open to the public from 7 A.M. to 4 P.M., daily, including Sundays. On a day in October, Campbell had registered 150 visitors.

To resolve this problem, the question was referred to the War Department. Adjutant General Richard C. Drum ruled that, because Fort Marion was in charge of the Corps of Engineers, the responsibility for making the requisitions rested with Rossell rather than Campbell.[105]

Continuing vandalism at the fort confronted the Corps with a problem it could not ignore. On January 17, 1885, the Department called on Captain Rossell to provide it with his recommendations for protecting the fort against vandalism. If a fort keeper would suffice, an allotment would be made for his salary. If troops were needed, however, the question was to be brought to Secretary of War Lincoln's attention.[106]

Rossell believed a fort keeper should be hired, at a salary not to exceed $75 per month, to guard against trespassers.[107]

The Department was agreeable and sanctioned hire of a keeper at a wage not to exceed $60 per month. To fund this position, the Chief Engineer allotted $300 from the appropriation for "Preservation and Repair."[108]

H. War Department Waives G.O. 35 and Permits the Interior of the Fort to be Photographed

On January 8, 1886, George Barker, a Niagara Falls photographer, wrote President Grover Cleveland for permission to take some interior views of "the ruins of old Fort Marion." He planned to include these in a set of views of Florida scenery he hoped to market.

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105. Drum to Newton & Drum to C.O., St. Francis Barracks, Dec. 22, 1884, NA, RG 77, Ltrs. Recd., Chief Engineer.

106. Wilson to Rossell, Jan. 17, 1885, NA, RG 77, Ltrs. Sent, Chief Engineer.

107. Rossell to Newton, Jan. 20, 1885, NA, RG 77, Ltrs. Recd., Chief Engineer.

108. Wilson to Rossell, Jan. 24, 1885, NA, RG 77, Ltrs. Sent, Chief Engineer.

He, however, had been stopped by the order of the War Department forbidding photographing any United States coastal defenses. Inasmuch as there were already thousands of pictures of Fort Marion on sale and that he had traveled far to get them, he hoped that the President would intervene in his behalf.[109]

President Cleveland's office transmitted Barker's letter, without comment, to the War Department. There, it was decided that, although it was good practice to adhere to General Order No. 35, there seemed to be no reason not to grant Barker permission to photograph the interior of the fort. Such action was not to be deemed as establishing a precedent.[110]

During the ensuing weeks, the Department was called on to process a rash of similar requests from people desirous of obtaining permission to photograph or sketch the fort's interior. In each case, the Department was agreeable to waving General Order No. 35, because Fort Marion was obsolete and did not constitute "a work of importance in the defense" of the Nation.[111]

I. Money Again Becomes Available for Protection and Repair

1. Fiscal Year 1889 Program and Funding

Congress for nearly two years failed to appropriate any monies for maintenance and protection of obsolete seacoast fortifications. This was during the months that plans were being thrashed out for the

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109. Barker to Cleveland, Jan. 8, 1886, NA, RG 77, Ltrs. Recd., Chief Engineer.

110. Newton to Adj. Gen., Jan. 18, 1886; & Endicott to Flagler, Jan. 26, 1886, NA, RG 77, Ltrs. Recd. & Sent, Chief Engineer. General Order No. 35 was issued on April 13, 1869.

111. Endicott to F.H. Shapleigh, Feb. 25, 1886; Endicott to Geo. F. Edmonds, April 24, 1886; Cole to Endicott, Feb. 5, 1886; Parke to Endicott, Feb. 13, 1886, NA, RG 77, Ltrs. Recd. & Sent, Chief Engineer.

defenses that were to be constructed as a result of recommendations of the Endicott Board.

On October 16, 1888, Black, who had been promoted captain on February 10, 1887, having been apprised that Congress had again appropriated funds for protection and repair of coastal fortifications, called for $3,585.98 for Fort Marion. His figures brokedown:

For completion of the six water battery gun platforms, the stone and ironwork for which was on hand . .	$ 845.98
For repair of a section of seawall opposite the fort, which had been undermined by the surf and was in danger of being overthrown	170.20
For resurfacing the remainder of the terreplein, which leaked badly and had already developed one dangerous cavity. The area still to be surfaced was 1,003 square yards	1,604.80
For reinforcing the bastion walls	200.00
For pay of fort keeper, 7 months at $60 per month .	420.00
For hire of clerk, 1 month at $150	150.00
For hire of assistant engineer and draughtsman, 1 month	150.00
For stationery and office supplies	45.00
Total	$3,585.98[112]

On November 8 the Department, after evaluating its nationwide responsibilities, allotted from the appropriation for "Preservation and Repair" $170.20 for repair of the seawall and $420 for seven months' pay of keeper at $60 per month.[113]

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112. Black to Chief Engineer, Oct. 16, 1888, NA, RG 77, Ltrs. Recd., Chief Engineer.

113. Sears to Black, Nov. 8, 1888, NA, RG 77, Ltrs. Sent, Chief Engineer.

A fort keeper was employed on January 1, 1889, at the stipulated salary.[114]

2. Fiscal Year 1890 Program and Funding

On April 30, 1889, Captain Black, in response to a call from the Department, submitted estimates of funds needed in fiscal year 1890 for protection and repair of the fort. He called for:

Hire of clerk and assistant engineer as required	$ 75.00
Salary of fort keeper, 12 months, at $60 per month	720.00
Paint, cement, lumber, and tools for general repair	25.00
Repair of two bridges from covered way to demilune and from demilune to sally port. The woodwork is rotten and the bridges are dangerous	260.45
Repair of sally port floor. It was of wood and should be replaced by a 3-inch concrete pavement	100.00
Repair of the wood floor of casemate No. 4, used as offices by the fort keeper and ordnance-sergeant	72.45
Repair of 8-inch cast iron drain under the sally port	92.00
Repair of the fence along the reservation's sea front. This was needed to prevent dumping of garbage on the beach, and was to consist of 300 feet of barbed wire	50.60
Construction of apron and wing walls to prevent under-scouring of seawall	477.25
Completion of waterproofing of terreplein. This to include grading terreplein and placing 3,883.50 square yards waterproof cement at $1.50	5,825.95
For sand fill of bastions, 100 yds. at $1	100.00
For overhead and contingencies	888.75
Total	$8,687.25[115]

114. Black to Casey, Jan. 14 & Sears to Black, Jan. 19, 1889, NA, RG 77, Ltrs. Recd. & Sent, Chief Engineer.

115. Black to Chief Engineer, April 30, 1889, NA, RG 77, Ltrs. Recd., Chief Engineer.

The Department was able to allot from the appropriation for "Preservation and Repair" $3,900. This would fund the projects as submitted, except for repair of the terreplein. For this work, the Chief Engineer earmarked $100 for sand filling bastions and $477.25 for "repair of terreplein."[116]

3. Terreplein Continues to be a Problem

On June 17, 1888, the terreplein at a point opposite the middle of the throat of the southwest bastion and some 4 feet from it, caved in under weight of two persons, forming a conical cavity. The bottom of the cavity was about 4 feet in diameter and the top about 18 inches. Its depth was some 4 feet. Captain Black easily pushed an iron rod through loose soil before striking a solid foundation.[117]

A fort keeper was hired in January 1889, and, besides his other duties, he patched some of the worst breaks in the terreplein with cement.[118]

Employing funds allotted by the Chief Engineer in June 1889, workmen filled the cavity and covered with waterproof pavement the terrepleins of the southwest bastion and about two-thirds of the south curtain.[119]

4. Checking on Movement in Scarp Walls

Early in August 1886, to determine whether the movement in the scarp walls was continuing, Black had had the cracks in the

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116. Sears to Black, June 25, 1889, NA, RG 77, Ltrs. Sent, Chief Engineer.

117. Black to Chief Engineer, June 30, 1888, NA, RG 77, Ltrs. Recd., Chief Engineer.

118. Black to Chief Engineer, July 8, 1889, NA, RG 77, Ltrs. Recd., Chief Engineer.

119. Black to Chief Engineer, Feb. 15, 1890, NA, RG 77, Ltrs. Recd., Chief Engineer.

exterior slopes of the bastions filled with cement mortar. Within five months, two of the cracks, one in the north face of the northwest bastion and the other in the west face of the southwest bastion, had opened about 1/32 of an inch. The mortar in the other cracks was unbroken.[120]

During the first six months of 1887, no farther movement was observed by Captain Black.[121]

5. Repair and Protection of Seawall Fronting the Water Battery

In the spring of 1889, Captain Black spent a $170.20 allotment to repair and strengthen the north end of the seawall fronting the water battery.[122]

The June 1889 allotment enabled workmen to position riprap along the foot of the northeast salient of the battery to prevent underscouring.[123]

6. Fiscal Year 1890 Repair of the Fort

Employing allotted funds, day laborers, during the first months of fiscal year 1890, "covered" the sally port with waterproof "concrete pavement"; built a new concrete drain "passing under the sally-port pavement" to carry off water from the parade; built new bridges across the ditch; and laid a new wood flooring in casemate No. 4.[124]

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120. Fort Marion, Semi-Annual Report, Jan. 27, 1887, NA, RG 77, Ltrs. Recd., Chief Engineer.

121. Fort Marion, Semi-Annual Report, July 1887, NA, RG 77, Ltrs. Recd., Chief Engineer.

122. Black to Chief Engineer, July 8, 1889, NA, RG 77, Ltrs. Recd., Chief Engineer.

123. Black to Chief Engineer, Feb. 15, 1890, NA, RG 77, Ltrs. Recd., Chief Engineer.

124. Ibid.

J. Reservation from July 1886 to June 1890

1. Trespassers Provoke the Military

On July 17, 1886, Superintending Engineer Black complained to the Department about continued encroachments on the reservation. As the years slipped by, the trespassers became more and more convinced that the government would never challenge their claims. Because the reservation could not be closed to trespassers, it was impossible to keep it properly policed.

A blacksmith shop, erected in the 1870s while Col. Frederick F. Dent was post commander, was in bad condition and should be razed.

The fence, built in 1884, was in good conditon, except where broken down by high water. But, as domestic livestock were allowed to stray through the streets of St. Augustine and the gates at the crossing streets were kept open, the fence was of little value. Animals, equestrians, and teams wandered about the slopes and turf.

Black recommended that the private fences be removed and a road opened along the north and south fronts of the reservation, and that a substantial fence be built parallel to these roads where needed, with stiles or small pedestrian gates. This plan would close the road crossing the reservation in prolongation of Charlotte Street and would be opposed locally, he cautioned.

The "lines" or ditch, a 121-foot lane, leading from the reservation to the San Sebastian River was in poor condition. Orange Street had been laid out on the south half. The north half, in which the tide still ebbed and flowed, was a favored grazing place for livestock.[125]

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125. Semi-Annual Report for Fort Marion, July 17, 1886, NA, RG 77, Ltrs. Recd., Chief Engineer.

When he submitted his report for the second half of 1886, Lieutenant Black called attention to a "large advertising sign board" erected on the reservation, and the "two private drains, both of which are badly laid and which are sources of pollution for the surrounding ground."

There had been one improvement, however, the blacksmith shop had been removed in accordance with orders from Colonel Langdon.[126]

During the first six months of 1887, a fire in one of the houses adjoining the reservation also burned a 20-foot section of government fencing.[127] Meanwhile, one of the private sewer drains crossing the reservation had been repaired and relaid with iron pipe.[128]

On June 30, 1888, Black again notified the Department that the drainage ditch through the grounds and the "lines" was choked and in an unsanitary condition. Trespassers continued to hold sway, and the grounds were used as ball fields and a pasture.[129]

2. Barbed Wire Fence is Built

Employing the June 1889 allotment, workmen built a barbed wire fence along the water front north of the fort.[130]

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126. Fort Marion, Semi-Annual Report, Jan. 28, 1887, NA, RG 77, Ltrs. Recd., Chief Engineer.

127. Fort Marion, Semi-Annual Report, July 1887, NA, RG 77, Ltrs. Recd., Chief Engineer.

128. Black to Chief Engineer, Feb. 1, 1887, NA, RG 77, Ltrs. Recd., Chief Engineer.

129. Black to Chief Engineer, June 30, 1888, NA, RG 77, Ltrs. Recd., Chief Engineer.

130. Black to Chief Engineer, Feb. 15, 1890, NA, RG 77, Ltrs. Recd., Chief Engineer.

K. 1890-92 Restoration and Rehabilitation Programs

1. Congress Appropriates $15,000 for Restoration of the Fort and Improvement of the Grounds

On January 26, 1886, Representative Charles Dougherty of Florida introduced legislation appropriating $10,000 "for repair of Fort Marion . . ., and for the inclosure of the grounds attached to the fort as a park or place of public resort, the said park . . . to be in charge of city authorities . . . and the commanding officer of said fort, and to repair and extend the sea-wall. . . ."[131]

When asked for his comments on H.R. 4446, as the bill was designated, Chief Engineer Newton pronounced the goal of restoring the fort to its condition, circa 1821, desirable. The sum named in the bill would suffice to fund reconstruction of the lookout towers; repair of the parapet walls, chapel entrance, counterscarp wall, drains and seawall, steps to the ditch, and breast-height wall; regrading the ditch and glacis; and sodding the latter.

The expense of beautifying and making a park of the reservation would be considerable, and such a project merited careful consideration by Congress before any funds were appropriated.

As squatters now occupied portions of the reservation, all title disputes must be first settled before any work, other than on the fort and seawall, was begun.

Divided administrative responsibility was impractical and undesirable, General Newton cautioned, and the reservation must be managed either by the military or the city.[132]

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131. H.R. 4446, 1st Session, 49th Congress, NA, RG 77, Ltrs. Recd., Chief Engineer.

132. Newton to Endicott, Feb. 19, 1886, NA, RG 77, Ltrs. Sent, Chief Engineer. A companion bill, S. 457, had been introduced into the Senate by Senator Call. Captain Rossell, in addition to the other points raised, was unable to see any "immediate demand" for extending the seawall.

Secretary of War Endicott, on relaying this information to the Chairman of the House Committee on Military Affairs, announced that he concurred with the views of his Chief Engineer.[133]

Congress failed to act on this legislation. Undaunted, Senator Call presented a bill to the 1st Session of the 50th Congress, asking for an appropriation for restoration of the fort and relocation and extension of the seawall. When asked for his comments on S. 250, as the bill was designated, Chief Engineer J.C. Duane informed Secretary of War Endicott that the arguments marshaled by General Newton 23 months before in support of H.R. 4446 were still valid. Moreover, as only a small part of the seawall was continguous to the reservation and St. Francis Barracks was not under control of the Corps, he urged that if the bill became law, it should state the sums to be applied to each object for which monies were appropriated.

The sum for beautifying and making a park of the reservation, he cautioned, would be large. At the same time, the government's title to a portion of the reservation and to sections of the seawall beyond the reservation were in dispute. These problems had been referred to the Attorney General, but no decision had been made. Consequently, General Duane opposed expenditures upon land in dispute, until the question of title had been adjudicated.

Ten thousand dollars, he noted, would be required for restoration of the fort.[134]

Senate bill 250, in view of the Department's comments, died in committee. Senator Call again took action on December 4, 1889,

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133. Endicott to Bragg, Feb. 20, 1886, NA, RG 77, Ltrs. Recd., Chief Engineer. E.S. Bragg of New York was Chairman of the House Committee on Military Affairs.

134. Duane to Endicott, Jan. 11, 1888, NA, RG 77, Ltrs. Sent, Chief Engineer. General Duane had become Chief Engineer on October 11, 1886, upon General Newton's retirement.

when the 1st Session of the 51st Congress convened. He dropped into the hopper S. 33, calling for a $15,000 appropriation to restore the fort, beautify the grounds, and extend the seawall to the north boundary of the reservation. This legislation was endorsed by the War Department. It was approved by both houses of Congress, and, on August 18, 1890, signed into law by President Benjamin Harrison.[135]

2. 1st Session of the 51st Congress Legislates Several Reservation Right-of-Ways

The 1st Session of the 51st Congress also enacted legislation effecting the reservation. The first of these granted the Jacksonville, St. Augustine, & Halifax River Railroad a right-of-way, not to exceed 100 feet "across the prolongation of 'the lines' or ditch" on the reservation. It also granted to the St. Augustine Street Railroad Co. a right-of-way for a street railway "along and across the southern and western sides" of the reservation, "between the sea-wall and city gates," upon a route to be designated by the superintending engineer. In addition, a right-of-way was to be located by the said officer "along the old road, now called Orange Street." These conditions were contingent on the latter company's changing its route, as presently located, to run west on St. Francis Street from Marine to Charlotte Streets and then south on Charlotte Street as far as the southern boundary of the St. Francis Barracks Reservation.[136]

3. Captain Black Submits a Program for Expenditure of the $15,000 Appropriation

Captain Black was called on to submit for review a program for expenditure of the $15,000. He proposed to:

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135. S. 33, 1st Session, 51st Congress, Dec. 4, 1889; Black to Chief Engineer, July 23, 1887, NA, RG 77, Ltrs. Recd., Chief Engineer.

136. Statutes at Large, 1st Session, 51st Congress, pp. 268, 478-79.

Replace the interior windows with iron gratings . .	$ 491
Extend the seawall from water battery to north boundary of reservation: 365 cubic yards of concrete and 640 cubic yards of excavation	3,016
Complete waterproof pavement of terreplein . . .	2,905
Repair door casings and interior walls	300
Make a topographical survey of reservation; restore glacis; clean, grade, ornament, and fence reservation, according to project to be submitted after survey is completed	7,288
Engineering, superintendence, and contingencies . .	1,000
Total	$15,000

Black proposed to undertake these projects by day labor, with materials purchased in the open market.[137]

On September 9 the Chief Engineer approved the program as presented.[138]

4. Captain Black's Landscaping Plan is Submitted, Reviewed, and Approved

On October 20, 1890, a force was turned out surveying the reservation. This project was completed by early December, when Captain Black transmitted to Washington a tracing illustrating a master plan for the reservation. Proposed were:

Seawall--An extension to the north end of the seawall would be fixed on the 3-foot contour above mean low water. This would provide sufficient depth at flood tide to keep the foot of the wall clear of drift.

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137. Black to Chief Engineer, Aug. 30, 1890, NA, RG 77, Correspondence 1890-92, Doc. 5189.

138. Chief Engineer to Black, Sept. 9, 1890, NA, RG 77, Correspondence 1890-92, Doc. 5189.

Fence--A continuous fence enclosing the reservation was mandatory before any improvements to the grounds were undertaken. Pedestrian gates were to be positioned at frequent intervals, but no roads were to cross the reservation. A roadway would be left open along the southern and southwest sides of the reservation from Marine to St. George Streets at the City Gates. No roadway was required at the north boundary, because Shenandoah Street paralleled it at a distance of 137 feet. The carriage gate at the end of the Water Street would be closed. A 4-foot concrete walkway would lead from the reservation's main gateway to the fort's postern.

The fence was to be of plain, neat palings.

Grading--The slopes of the glacis would be restored to the grade, about 1 to 7, shown on the Spanish plans. Spoil would be used to fill low places. If possible, the grade of the reservation beyond the glacis would be established at 8 feet above mean low water.

Grass--The reservation would be planted in grass.

Laying out Pathways--Because of limited funding, only those pathways found to be necessary were to be laid out. So far as possible, they were to be built of rammed coquina or of cheap concrete.

Ornamenting the Grounds--Captain Black had prepared his landscape plan with dual goals--economy and simplicity. Trees and shrubbery were to be grouped, so they would not "dwarf or hide the fort." Only idigenous trees and shrubs were to be used, and the grounds were to be laid out "so a minimum amount of care will be required to keep them in order."

Relocation of Ordnance-Sergeant's Quarters--The subject quarters would be relocated from the conspicuous site in the covered way's angle to an area at the southwest angle of the reservation, between the properties owned by S.E. Ponce and W.T. Reyes.

Captain Black had budgeted these projects at:

Seawall	$ 3,468
Fencing	675
Grading	3,500
Paths	650
Grassing and ornamenting grounds	2,457
Relocating cottage	100
Total	$10,630
Work within fort according to approved projects, including contingencies	$ 4,150
Total	$14,780[139]

The occupation of certain lands at the boundary of the reservation by sundry citizens would, in Black's opinion, only interfere with implementation of projects along the north limits. There certain grading and ornamentation could not be done, nor the entire seawall built, until the trespass suits were resolved.[140]

Chief Engineer Thomas L. Casey approved the projects and estimates as submitted. The seawall, despite the legal problems, was to be built to the reservation's north boundary.[141]

5. Work Accomplished on the Grounds in Fiscal Year 1891

Workmen were promptly employed and turned to under immediate supervision of Lt. D.D. Gaillard. By June 30, 1891, these grounds projects had been completed:

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139. Black to Chief Engineer, Dec. 8, 1890, NA, RG 77, Correspondence 1890-92, Doc. 7459; "Map of Fort Marion Reservation, St. Augustine, Fla., showing Monuments, Boundary Lines, Encroaching Properties, Proposed Improvements." A copy of the subject drawing is on file at Castillo de San Marcos MN.

140. Black to Chief Engineer, Dec. 8, 1890, NA, RG 77, Correspondence 1890-92, Doc. 7459.

141. Casey to Black, Dec. 12, 1890, NA, RG 77, Correspondence 1890-92, Doc. 7459. T.L. Casey had succeeded General Duane as Chief Engineer on July 6, 1888.

Seawall--A 292.5-foot concrete seawall, with a return wall of concrete 50 feet long, containing in all 353.5 cubic yards of concrete, 314.8 cubic yards en masse, and 38.7 cubic yards in blocks, was built. It extended from the 1842-44 wall to the north reservation boundary. The average cost of the concrete en masse was $6.82 per yard.

Construction of the wall and the fill behind it had reclaimed a strip of land 62 by 268 feet, valued at $4,000, while cost of the wall and fill was $2,700.[142]

Fencing--One thousand one hundred and forty-seven linear feet of picket fence was built along the south and west reservation boundary, and 1,930 linear feet of picket fencing painted.

Grading--The glacis planes were restored to their historic grade, and all low places on the reservation filled and graded. To accomplish this, 11,517 cubic yards of earth were moved an average distance of 1,032 feet, at a cost of 25-1/4 cents per cubic yard.

Five flights of concrete steps were built.[143]

Grassing--The covered way, slopes of the glacis, and other sections of the reservation that had been graded (8.8 acres) were plowed, fertilized, harrowed, and seeded in grass.[144]

Retaining Walls--Three short concrete retaining walls, containing 28 cubic yards of material, were built near the entrance to the fort.[145]

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142. The Executive Documents of the House of Representatives for the 1st Session of the 52d Congress, 1891-92 (Washington, 1892), Serial 2922, p. 534.

143. Ibid.

144. Ibid.

145. Ibid.

Concrete Drains--Two concrete drains, each 20 feet long and 8 inches by 8 inches in the clear, were built.[146]

Concrete Walkways--Two hundred square yards of concrete walks, 4 feet wide and 4 inches thick, and 1,269 square yards of concrete pathways, 3 feet wide by 3 inches thick, were laid.[147]

Plantings--Twenty-one cedars and 14 myrtles were set out by hired labor, and 55 palmettos, 40 cedars, 24 oleanders, 15 myrtles, 103 casinos, and 470 spanish bayonets by contract.[148]

Relocation of Quarters--The ordnance-sergeant's quarters were moved from the covered way to a vacant government lot on the west side of the reservation.[149]

6. Work Accomplished on the Fort in Fiscal Year 1891

Waterproofing of and Repairs to Terreplein--During the late winter and spring, day laborers completed covering 1,954.4 square yards of terreplein with 2-1/2-inch waterproof pavement. Simultaneously, masons repointed 146.7 squares of brick terreplein paving, the numerous broken portions having been previous relaid. Twenty-nine concrete spouts, 2-1/2-feet in length, were positioned to lead water off the terreplein.[150]

Banquette and Embrasures--Fifty linear feet of banquette tread and four embrasures were repaired.[151]

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146. Ibid.

147. Ibid.

148. Ibid.

149. Ibid.

150. Ibid.

151. Ibid.

Northeast Lookout Tower--The stairway on the outside of the tower was relocated from the tower's outside to its interior.[152]

Benches--Ten wooden benches for visitors' convenience were placed on the terreplein.[153]

Ditch--The ditch was cleaned out and graded.[154]

Door and Window Facings--Five door facings and 44 window facings were repaired with concrete, and one new door hung.[155]

Window Frames and Sashes--Window frames and sashes were removed from 44 casemate windows and replaced by iron gratings. These gratings had vertical bars of 1/2-inch round wrought iron, spaced 5-1/2 inches center-to-center, and cross bars of flat wrought iron, 2 inches wide and 1/4-inch thick. The vertical bars were firmly fastened to the cross bars. Bolts for securing the gratings to the structure were 6 inches long by 1/2-inch in diamter.[156]

7. Work Accomplished on the Fort and Grounds in Fiscal Year 1892

Terreplein--The surface was coated with a mixture of parafin and petroleum.[157]

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152. Ibid.

153. Ibid.

154. Ibid.

155. Ibid.

156. Ibid.; "Specifications & Proposals for Wrought Iron Gratings for Casemate Windows at Fort Marion, Fla.," NA, RG 77, Correspondence 1890-92, Doc. 6547. A copy of the subject plan and specifications is on file at Castillo de San Marcos NM.

157. The Executive Documents of the House of Representatives for the 2d Session of the 52d Congress, 1892-93 (Washington, 1893), Serial 3078, pp. 15, 471-72.

Plantings--Four hundred and thirty spanish bayonets, 105 myrtles, 20 palmettos, and 62 elms were set out. A number of trees that had died were replaced by the contractor.[158]

Drain--A covered drain, 6 inches square inside, of 2-inch plank, was positioned for a distance of 260 feet. This drain discharged into the ditch near the city gates.[159]

Grading and Leveling--Sixty feet of paving, laid the previous year, had settled, because it was positioned over ground where there was considerable fill. This area was refilled and restored to its proper grade.[160]

8. Planning for Restoration of Chapel Doorway

Captain Black called for assistance in securing documents to guide restoration of the chapel doorway. A copy of his request was placed in the hands of the Secretary of State, who called on the United States Consul-General in La Habana "to obtain, if possible, drawings or photographs of any chapel door-ways" that may be similar to the one at Fort Marion.[161]

The search was a success, and a plan of the chapel doorway, drawn in 1785, was found in the archives of the Cuban

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158. Ibid.

159. Ibid.

160. Ibid.

161. Casey to Proctor, Jan. 31, 1891, Proctor to Blaine, Feb. 3, 1891, & Blaine to Proctor, Feb. 24, 1891, NA, RG 77, Correspondence 1890-92.

topographical engineer. Through the courtesy of the Governor-General, a copy of the drawing was made and transmitted to Captain Black.[162]

When he submitted his annual report for fiscal year 1891, Captain Black announced plans for partial restoration of the doorway, employing funds still available from the 1890 appropriation. The design depicted on the print of the 1785 drawing, he noted, was "too elaborate to reproduce entirely."[163]

On November 20, 1891, Captain Black was reassigned as a member of a Board of Engineers to consider River and Harbor Improvements, and Maj. John C. Mallery was named as his replacement. Apparently, Mallery did not favor restoration of the chapel doorway, because it was dropped from the program.

L. Captain Black Submits Another Program Which Congress Fails to Fund

Captain Black, when he submitted his annual report for fiscal year 1891, called for a $6,500 appropriation to be used for:

(a) replacement of the "flimsy modern" casemate doors by ones similar to those providing access to casemate No. 7;

(b) positioning a "neat spiral staircase in the watchtower";

(c) restoration of the drawbridge;

(d) replacement of the reservation picket fence by a concrete wall;

(e) construction of 2,460 linear feet of additional concrete walkways;

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162. Williams to Blaine, May 9, 1891, & Wharton to Proctor, May 16, 1891, NA, RG 77, Correspondence 1890-92. A copy of the subject drawing titled, "Vista de la Puerta de la Capilla del Castillo de Sn. Marcos en Sn. Agustin de la Florida, tomada de los borradores del proyecto 12 de Mayo de 1785, firmador Dn. Mariano de la Roque," is on file at Castillo de San Marcos NM.

163. Executive Documents, Serial 2922, p. 535.

(f) positioning "neat iron benches" on the grounds;

(g) setting out additional shrubbery; and

(h) an extension of the seawall, provided the trespassers on the north boundary of the reservation could be removed.[164]

No appropriation, however, was forthcoming from Congress to underwrite the cost of these projects.

M. Fort Marion's Platforms and Guns

1. Water Battery Platform No. 12 is Rebuilt and an 8-inch Rifle Mounted

In the autumn of 1894, Post Commander LaRhett L. Livingston called on the War Department to arm the water battery with two guns (a 8-inch muzzle-loading rifle and a 15-inch Rodman shellgun) for target practice by the St. Francis Barracks garrison.

Upon investigating the subject, District Engineer Thomas H. Handbury found that, in 1885-86, materials had been purchased for construction of six stone platforms for front-pintle, low traverse 8-inch muzzle loading guns in the subject battery. The greater portion of the concrete for these platforms had been poured before work was suspended. Consequently, Major Handbury recommended that this material, so far as it was suitable, be employed in construction of the platform for the required front-pintle 8-inch gun. In Handbury's opinion, it would be suitable, excepting the traverse irons. It would be mandatory to purchase new 8" by 1" irons for the rear traverse circle, because the ones on hand were 6" by 1/2".

For the giant 15-inch Rodman front-pintle platform, it would be necessary to secure all the materials, because there were none on hand which could be utilized.

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164. Ibid.

Handbury estimated the cost of completing the 8-inch gun platform, under these circumstances, at:

715 pounds outer traverse rail planed on top at 10¢	$ 71.50
transportation	2.85
setting stones, cement and sand	4.00
2 masons, $5 each; 3 laborers, $2 each; 5 days	80.00
laying down irons, 2 masons, $5 each; 1 laborer, $2; 2 days	24.00
contingencies	17.65
Total	$ 200.00

His estimate for the 15-inch Rodman platform called for:

60 cubic yards excavation, at 75¢	$ 45.00
1,000 cubic feet, concrete, at 40¢	400.00
450 cubic feet, granite, at 50¢	225.00
cutting granite	450.00
transporting of granite	560.00
setting	100.00
575 pounds traverse circle irons, planed on top at 15¢	86.25
1.250 pounds outer traverse circle irons, planed on top	125.50
100 pounds bolts at .05¢	5.00
200 pounds 6" pintle with key at 15¢	30.00
laying down irons	50.00
transportation of irons	12.00
contingencies	411.25
Total	$2,500.00[165]

The small sum available from the appropriations for fiscal year 1895 compelled Chief Engineer Casey to defer acton on this request.[166] On March 2, 1895, President Grover Cleveland signed into law the appropriations act for "Preservation & Repair of Fortifications in 1896." Ten days later, General Casey allotted $2,700 for construction of

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165. Handbury to Casey, Dec. 17, 1894, NA, RG 77, Gen. Corres., 1894-1924, Doc. 9292/1.

166. Casey to War Dept., Dec. 20, 1894, NA, RG 77, Gen. Corres., 1894-1924, Doc. 9292.

the platforms.[167] Then, on March 27, he directed that, if work had commenced on the 15-inch Rodman platform, it was to be suspended.[168] Fortunately, for the taxpayers, no expenses had yet been incurred on the project beyond the cost of preparing plans and specifications.[169]

The reason for the shift in plans was a decision by Lt. Gen. John M. Schofield that a 8-inch rifle would be sufficient for exercising the St. Francis Barracks troops. After completing the 8-inch platform, Handbury was to return to the Department the balance of the allotment.[170]

2. Platform Fails and is Reinforced

The low traverse circle platform No. 12 was soon completed and a 8-inch converted rifle mounted. During a firing exercise in the spring of 1896, the shock of the recoil caused the rear traverse circle to give "way about three fourths of an inch." Col. E.C. Burbridge of the 3d Artillery deemed the platform unsafe and called upon the Engineers to place it in a "serviceable condition."[171]

Upon examining the platform, Lt. Col. William H.H. Benyaurd, who had replaced Major Handbury as District Engineer, saw that several of the stones in the bed of the circle were badly cracked, while the iron plates were bent in two places. These stones, unlike their neighbors, had been salvaged from several of the 1842-44 water battery

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167. Knight to Handbury, March 12, 1895, NA, RG 77, Gen. Corres., 1894-1924, Doc. 9292.

168. Knight to Handbury, March 27, 1895, NA, RG 77, Gen. Corres., 1894-1924, Doc. 9292.

169. Handbury to Casey, March 29, 1895, NA, RG 77, Gen. Corres., 1894-1924, Doc. 9292/3.

170. Casey to Handbury, April 3, 1895, NA, RG 77, Gen. Corres., 1894-1924, Doc. 9292/4.

171. Burbridge to Benyaurd, April 3, 1895, NA, RG 77, Gen. Corres., 1894-1924, Doc. 9292/9.

platforms. Consequently, they were not large enough to support the 8-inch rifle. To replace and reinforce them, along with the iron plates, would cost about $150.[172]

Chief Engineer William P. Craighill allotted the requested sum.[173] But, upon excavating the soil underneath the foundation, Colonel Benyaurd discovered that its character changed. It was of a "soft nature," while water was encountered at 1-1/2 feet. This satisfied him that the depression in the traverse circle was "due more to the nature of the subsoil than anything else." To cope with this situation, he proposed to add more "concrete . . . to strengthen the foundation and to give a wider spread of bed, and, leaving the concrete blocks in their present condition cut away the tops and portions of the bottoms of these blocks and by adding new concrete in place thereof endeavor to make the structure a monolith."

The cost of this work, he estimated at:

12.50 yards of concrete at $10	$ 125
cutting old concrete	25
cutting stone	35
rail	85
setting stone	20
bolts, lead, etc.	10
lumber, nails, labor boring	15
contingencies	50
Total	$ 365
amount alloted April 16	150
additional sum needed	$ 215[174]

172. Benyaurd to Craighill, April 11, 1896, NA, RG 77, Gen. Corres., 1894-1924, Doc. 9292/9.

173. Craighill to Benyaurd, April 16, 1896, NA, RG 77, Gen. Corres., 1894-1924, Doc. 9292/9. Craighill had succeeded General Casey as Chief Engineer on May 10, 1895.

174. Benyaurd to Craighill, Aug. 4, 1896, NA, RG 77, Gen. Corres., 1894-1924, Doc. 9292/10.

Chief Engineer Craighill made the additional money available.[175]

Workmen were accordingly turned out and materials purchased. The project was completed in November 1896, and the garrisoned again held target practice.[176]

3. 8-inch Rifle is Dismounted and Transferred

In the fourth week of April 1898, the United States declared war on Spain. To provide a measure of defense for the area, a temporary battery was erected on the Anastasia Island Lighthouse Reservation. In the first week of May, the Fort Marion 8-inch rifle was dismounted and sent across the Matanzas River to the temporary battery. It would be mounted as soon as the platform was laid.[177]

By late May the gun was in position, and there it remained until 1907, when it was dismounted and sold by the Ordnance Department, and the carriage removed and transferred.[178]

4. Fort's Armament and Condition of the Platforms: 1892-1902

The fort's armament report for fiscal year 1892 listed no guns as emplaced. There were on hand, not mounted, two 8-inch columbiads, two 8-inch siege howitzers, three 8-inch seacoast howitzers,

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175. Craighill to Benyaurd, Aug. 21, 1896, NA, RG 77, Gen. Corres., 1894-1924, Doc. 9292/10.

176. Executive Documents of the House of Representatives for the 2d Session of the 55th Congress, 1897-98 (Washington, 1898), Serial 3631, pp. 702-03.

177. Benyaurd to Craighill, May 7, 1898, NA, RG 77, Gen. Corres., 1894-1924, Doc. 28409/42.

178. Beach to Mackenzie, Jan. 10, 1908, NA, RG 77, Gen. Corres., 1894-1924, Doc. 25409.

one 32-pounder, nine 24-pounders, nine 18-pounders, and three 24-pounder flank howitzers.[179]

On January 8, 1896, the report submitted by Colonel Benyaurd listed two weapons as emplaced at the fort. Mounted on platform No. 12 was the 8-inch muzzle-loading rifled gun, while a short distance in rear of platforms Nos. 10 and 11 was a 10-inch mortar.

Describing the condition of the platforms, he wrote:

Platform	Pintle	Pintle Block	Stones broken	Traverse rail	Serviceable
No. 1	2"	Yes	Yes	Broken	No
No. 2	2"	Yes	Yes	Broken	No
No. 3	2"	Yes	Yes	None	No
No. 4	2"	Yes	No	Broken	No
No. 5	No	Yes	No	None	No
No. 6	No	Yes	No	None	No
No. 7	2"	Yes	Yes	None	No
No. 8	No	Yes	No	None	No
No. 9	No	Yes	No	None	No
No. 10	2"	Yes	No	None	No
No. 11	2"	Yes	No	None	No
No. 12	4"	Yes	No	Yes	Yes
No. 13	No	Yes	No	None	No
No. 14	No	Yes	No	None	No
No. 15	No	Yes	No	None	No
No. 16	No	No	Nothing	Nothing	No
No. 17	2"	Yes	No	Yes	No
No. 18	No	No	Nothing	Nothing	No
No. 19	No	No	Nothing	Nothing	No
No. 20	No	No	Nothing	Nothing	No
No. 21	2"	No	No	Broken	No
No. 22	2"	No	No	None	No
No. 23	2"	No	No	None	No[180]

179. Armament Report, Fort Marion, June 30, 1892, NA, RG 77, Drawer 254, Sheet 5-5.

180. Fort Marion, Fla., "Sketch showing condition of Armament, Jan. 8, 1897," & Dec. 1, 1902, NA, RG 77, Drawer 254, Sheet 5.

5. Army Disposes of Some of its Obsolete Heavy Ordnance

In May 1900 the St. Augustine Institute of Science and Historical Society wrote the War Department, requesting that the obsolete cannon and projectiles stored at Fort Marion be left there rather than being sold as scrap iron.[181]

Responding to this letter, the Chief of Ordnance directed the officer commanding St. Francis Barracks to turn over to the municipality the subject ordnance and ordnance stores: four 32-pounders, (one of them rifled), two 8-inch columbiads, one 10-inch seacoast mortar, and 1,840 projectiles.[182]

N. Maintenance and Repair: 1894-1902

1. February 1895 Allotment for Repair of Walls, Stairs, Floors, Terreplein, etc.

On August 31, 1894, District Engineer Handbury submitted estimates of monies required from the appropriation for "Preservation & Repair" of Fort Marion in fiscal year 1895.

Needed were:

material for concrete repair of walls, stairs, floors, terreplein, etc.	$ 175
repairs to fences, turnstiles, bridges, and casemate doors	140
grading about ordnance-sergeant's quarters	35
pay of 2 laborers, ten months, at $30 per month	600
hire of team to remove weeds and grass cut during year	30
extra labor required in making repairs, etc.	100
overhead and contingencies	150
Total	$1,250[183]

181. Webb to Davis, May 22, 1900, files Castillo de San Marcos NM. DeWitt Webb was president of the Society.

182. Santling to Boyce, June 15, 1900, files Castillo de San Marcos NM. E.E. Boyce was mayor of St. Augustine and Maj. J.C. Santling commanded St. Francis Barracks.

183. Handbury to Casey, Aug. 31, 1894, NA, RG 77, Gen. Corres., 1894-1924, Doc. 7986/1.

Some five months passed before the Department acted on these estimates. When it did, it authorized expenditure of $275 for repair of walls, stairs, floors, and terreplein.[184]

2. Judge Advocate-General Rules on Maintenance Responsibilities

On September 29, 1894, Major Handbury requested that funds for pay of two laborers be allotted immediately. The end of the month, he explained, was at hand and there was no money to pay them.[185]

Chief Engineer Casey accordingly authorized the laborers to be paid $30 each per month, until discharged. The expense thereof was to be defrayed from the balance in the Fort Taylor account. They, however, were to be laid off upon receipt of this correspondence.[186]

The laborers were fired on October 7.

Upon reviewing the records, Major Handbury found that, for some time prior to November 1, 1892, a man had been employed at $60 per month "to take care of the reservation grounds and fort" and keep them in order. He had been carried on the rolls as fort keeper, and his duties had included mowing the lawn, cultivating trees and shrubbery, and "doing slight repairs to the walls and bridge approaches to the Fort." But, by the autumn of 1892, it had become apparent that one man could not maintain a 25-acre reservation, which was "a park for the citizens of St. Augustine and the thousands of persons" who visited the

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184. Knight to Handbury, Feb. 15, 1895, NA, RG 77, Gen. Corres., 1894-1924, Doc. 7986.

185. Handbury to Casey, Sept. 29, 1894, NA, RG 77, Gen. Corres., 1894-1924, Doc. 7986/1.

186. Knight to Handbury, Oct. 2, 1894, NA, RG 77, Gen. Corres., 1894-1924, Doc 7986/1.

area during the winter tourist season. The fort keeper had accordingly been laid off, and two day laborers engaged at his salary to accomplish this work.

An ordnance-sergeant, residing on the reservation, had general charge of all government property thereon, besides supervising the laborers in the performance of their duties.[187]

Although the Department commended the measures heretofore taken for maintenance of the reservation, a financial crunch dictated that this work must be shouldered by the ordnance-sergeant, in addition to his other duties.[188] This of course was physically impossible.

If, however, the reservation were to be hereinafter maintained by the St. Francis Barracks post quartermaster, he would need additional funds. The question was accordingly referred to the Judge Advocate-General. In reviewing the records, the Army's highest legal officer found that for the past few years, a small annual allotment had been made by the Chief Engineer from the appropriation for Preservation and Repair for "care of this fort and the surrounding grounds." Although the Engineers were agreeable to allotting funds for repair of the steps, etc., there was no money available for maintenance of the reservation as a public park.

Quartermaster General R.N. Batchelder had agreed to an expenditure of $195.55 from the appropriation for "Regular Supplies" for "repairing, painting, and whitewashing the fence enclosing the Fort Marion reservation," but he had questioned whether his Department or the Engineers should fund "care of the fort and the surrounding grounds."

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187. Handbury to Casey, Oct. 4, 1894, NA, RG 77, Gen. Corres., 1894-1924, Doc. 7986/2.

188. Knight to Handbury, Oct. 11, 1894, NA, RG 77, Gen. Corres., 1894-1924, Doc. 7986/2.

After weighing the evidence, the Judge Advocate held that the "duty of caring for the reservation does not devolve exclusively upon either the Engineer or the Quartermaster's Department." So far as the permanent works were involved, he ruled, their maintenance was the responsibility of the Corps of Engineers, while the police of the grounds, care of the fencing, etc., accured to the Quartermaster General.[189]

General Batchelder therefore called on the post commander to detail men from St. Francis Barracks to cut the grass, while the ordnance-sergeant attended to the ordinary police.[190]

3. Four Years of Minimal Repairs and Maintenance

In July 1898 the Chief Engineer allotted $200 for minor repairs to the fort. Only a portion of this sum was expended before Fort Marion was converted into a military prison.[191]

While the structure served this purpose, it was closed to the public. The last of the prisoners were transferred in March 1899, and the fort reopened to the public. The balance of this allotment was disbursed for repair of the city gates and to prune shrubbery.[192]

In fiscal year 1901, $16.64 was spent for locks for the casemate doors.[193] Then on July 1, 1901, the Chief Engineer allotted

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189. Lieber to Lamont, Feb. 25, 1895, NA, RG 77, Gen. Corres., 1894-1924, Doc. 7986/3.

190. Batchelder to Lamont, March 1, 1895, NA, RG 77, Gen. Corres., 1894-1924, Doc. 7986/3.

191. Executive Documents of the House of Representatives for the 1st Session of the 56th Congress, 1899-1900 (Washington, 1899), Serial 3905, p. 888.

192. Executive Documents of the House of Representatives for the 2d Session of the 56th Congress, 1900-1901 (Washington, 1900), Serial 4089, p. 923.

193. Executive Documents of the House of Representatives for the 1st Session of the 57th Congress, 1901-02 (Washington, 1901), Serial 4279, p. 826.

$112.36 for repairs to casemate No. 4, the one to the west of the sally port. The money was used to plaster the walls and ceiling, and to renew woodwork of the doors and window.[194]

194. Executive Documents of the House of Representatives for the 2d Session of the 57th Congress, 1902-03 (Washington, 1902), Serial 4444, p. 729.

IX. PRESERVATION AND PROTECTION OF FORT MARION DURING THE FIRST THIRD OF THE 20TH CENTURY

A. First 14 Years

1. 1907 Legislation

The 2d Session of the 59th Congress enacted and President Theodore Roosevelt signed into law, during the winter of 1907, two acts affecting the Fort Marion Reservation. The first of these, S. 1726, made provision for conveying in fee to the city of St. Augustine a strip of land, known as "The Lines," for school purposes.[1] The second, S. 8128, granted to the Saint Johns Light & Power Co. a right-of-way for a street railway across the United States Reservation.[2]

2. 1908-09 Repairs

On September 25, 1908, District Engineer George R. Spalding notified the Department that "certain repair work is urgently needed" to insure continued public access to Fort Marion. The bridges leading to the demilune and sally port were unsafe, and unless attended to their use must be discontinued. In addition, the covers over two wells, the doors to two casemates, and the stairs and platform in the northeast tower must be renewed. The water closet and wash sink plumbing had deteriorated.

Captain Spalding placed the cost of these repairs at $500.[3]

The Chief Engineer recognized the proposal's merit and allotted the requested sum.[4]

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1. Statutes at Large, 2d Session, 59th Congress, pp. 913-14.

2. Ibid., p. 1219.

3. Spalding to Chief Engineer, Sept. 25, 1908, NA, RG 77, Gen. Corres., 1894-1924, Doc. 7986.

4. Abbot to Spalding, Sept. 30, 1908, NA, RG 77, Gen. Corres., 1894-1924, Doc. 7986/5.

During the next several months, these repairs were made at a cost of $298.01. At the same time, an iron gate was purchased and hung at the entrance to the demilune.[5]

3. Sergeant Brown Manages and Interprets the Reservation

In March 1910 W. W. Acheson of Jacksonville, accompanied by a group of friends from Pennsylvania, was in St. Augustine and reached the fort at 1:30 P.M., to find the gate closed and a large crowd waiting. One of them told Acheson that he had been there since 11:40.

At 2:30, Sgt. George M. Brown returned from a leisurely lunch and opened the gate. He then led a group through the sally port, across the parade to the "dungeons," and when they entered locked the rest out. After they emerged, he again locked the "dungeon doors," thus preventing those who refused to tip from viewing the interiors. When Acheson complained a black porter told him, "a good many had said they would . . . but never did."

Acheson, upon returning to Jacksonville, wrote Senator James P. Taliaferro, detailing what had occurred.[6] Taliaferro forwarded the letter to the War Department, with a request that the complaint be investigated.[7]

P. B. Bird, a junior engineer from the District Engineer's Jacksonville Office, was given the task of investigating the problem, Accompanied by his wife and child, Bird visited the fort. They found Sergeant Brown in his sally port office. Brown indicated by a gesture that the fort was open and they could enter.

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5. Folder 15, Accepted Bid of E. C. Allen, Oct. 27, 1908, FRC-East Point, Ga., RG 77, Records of the Jacksonville Dist.

6. Acheson to Taliaferro, undated, NA, RG 77, Gen. Corres., 1894-1924, Doc. 66344/2.

7. Taliaferro to Ainsworth, March 24, 1910, NA, RG 77, Gen. Corres., 1894-1924, Doc. 66344/2.

Bird then told Brown that, as he knew nothing about the fort, they would like to have a guided tour, i.e., with the doors to the "dungeons and other points of particular interest" opened and for Brown to answer some questions. Brown replied that he was too busy with his paperwork to conduct them. After walking about the parade and terreplein, Bird returned and, becoming more insistent, sought to prevail on Brown to give them a tour. As a last resort, Bird said he would willingly pay the sergeant for his troubles.

Brown then explained that he could neither accept money nor did he have the time. Bird, before leaving the reservation, encountered two other parties, who had likewise failed to prevail on Brown to escort them.

After questioning Bird about his visit to Fort Marion and the failure to entrap Sergeant Brown, Captain Spalding informed the Department that the sergeant had been stationed at the fort for years. He was accordingly very knowledgeable on its history, and had authored a "creditable book on the fort." In Spalding's opinion, the popularity of the site with visitors had been largely engendered by Sergeant Brown's book, lectures, and "almost invariable courtesy."

It was, Spalding continued, a physical impossibility for any man to provide all groups visiting the fort with a guided tour. In addition, Brown was charged with protecting the structure from the ravages of relic hunters. Brown had therefore closed and locked all casemates, and only opened the fort for visitation from 8:30 to noon and from 2 to 4 P.M. Only when not engaged on government business did he show groups through the casemates. On doing so, these parties were limited in number, because the casemates were dark, poorly ventilated, and of limited size. In the past, women had been known to faint and to be carried out.[8]

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8. Spalding to Chief Engineer, May 13, 1910, NA, RG 77, Gen. Corres., 1894-1924, Doc. 66344/3.

At present, Sergeant Brown was the War Department's only representative in St. Augustine. Besides being responsible for the fort and reservation, he was in charge of the National Cemetery. He also supervised "work authorized under revocable licenses from the Secretary of War, such as openings through the sea-wall for sewers, and construction of wharves and other structures outside the sea-wall."

If Brown's services were no longer required by the Quartermaster General, they were necessary for the care and preservation of property belonging to the Corps of Engineers. Especially important were his Fort Marion responsibilities. A significant historic treasure, it was visited by not less than 50,000 people annually. As it was built of coquina, relic hunters, unless watched, would chop off pieces to take home as souvenirs.

Should the fort be closed to the public, there would be a howl. Such action, even if the Department held its ground, would not protect the outer works from vandalism.

If the Quartermaster General were agreeable to releasing Sergeant Brown and the reservation were left in charge of the Corps, it was recommended by District Engineer Spalding that Brown be employed by the Department at a salary of $75 per month.[9]

The Department was agreeable, and Sergeant Brown was transferred to the Corps' payroll.

B. St. Augustine Historical Society and Institute of Science Secures a License Giving it an Important Role

A fire in the spring of 1914, which devastated a large area in downtown St. Augustine, cost the Historical Society and Institute of Science much of its collection and left the society homeless. The group,

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9. Spalding to Chief Engineer, June 27, 1910, NA, RG 77, Gen. Corres., 1894-1924, Dec. 66344/6.

on evaluating the situation and desirous of securing fireproof quarters, approached District Engineer W. B. Ladue, and asked permission to use Fort Marion as a headquarters and museum.

The fort, it was pointed out, possessed local and national historical significance. For many years, the Society had been eager for the privilege of accomplishing something to preserve and enhance the "attractiveness of the Fort to Visitors." To do this, the Society wished to:

(a) Occupy casemates Nos. 23-27, on the north side of the parade, as offices and repository, At present, none of these casemates were in use.

(b) Have access to all other casemates possessing "special historical interest" or not used by the Army.

(c) Have the right to clean out and use for exhibition purposes all casemates not required by the Army.

(d) Have the right to require registration of all visitors to the fort.

(e) Have the privilege of licensing all guides and regulating their conduct and fees.

(f) Have the right to exclude all guides, except those sanctioned by the Society.

(g) Have the right to market all interpretive literature, postcards, photographs, souvenirs, etc., vended in the "rooms to be used exclusively" by the Society.

(h) Have the right to keep the fort open from sunrise to sunset.

(i) Have the right to exhibit "specimens typical or indicative of the agricultural, horticultural, mineral, timber" and other resources of the State of Florida, and, if necessary, to employ curators.

(j) Have the right to charge fees for the "maintenance of agricultural exhibits" within the fort.

In consideration of these privileges, the Society would assume responsibility for care and preservation of any casemates it might occupy or have access to.[10]

After considerable correspondence, Secrtary of War Lindley M. Garrison on November 20, 1914, granted to the St. Augustine Historical Society, a revocable license to "occupy or use" certain parts of the Fort Marion Reservation, "for purposes of said Society and its museum and for the benefit of the public."

The Society was granted use of casemates Nos. 1, 2, and C as executive offices and repository and display rooms. It was to have access to all other casemates, except those used specifically for governmental purposes or for residence of the custodian. It was to be permitted to clean out and have access, for exhibition purposes, to such rooms as the Secretary of War may designate.

The license was subject to a number of conditions. Among these were: the fort was to be open to visitors from 8 A.M. to 5 P.M. daily, except Sundays. The number of licensed guides was not to exceed five at any one time, and a fee of ten cents per person was deemed sufficient remuneration for their services. The custodian (fort keeper) did not need a license. In addition, the use of guides by visitors was not to be compulsory.[11]

Minor amendments to the license were made on February 1 and October 16, 1915.

Then, on August 15, 1923, a new license was issued to the Society by the War Department. Originally, the Society had been given valuable

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10. Webb to Ladue, June 17, 1914, NA, RG 79, War Dept. Files, Fort Marion.

11. Special Use Permit, Nov. 20, 1914, NA, RG 79, War Dept. Files, Fort Marion.

privileges without any material compensation to the United States. The Society being merely required to "assume full responsibility . . . for the ordinary care and preservation of the portions of the fort occupied by it under the license . . ., but not to assume the responsibility or authority of the custodian over the fort and grounds." The grounds and casemates occupied by the Society were to be cared for to the satisfaction of the officer-in-charge, the caretaker, originally Sergeant Brown.

The new license required the Society to spend $500 annually, in equal installments, and to make

> such minor repairs to the fort and appurtenant structures, walks, and paths as may from time to time become necessary for their maintenance; keep the grounds, exclusive of that portion used as a golf course, properly mowed and in a suitable and sightly condition; maintain the fort in an orderly and sanitary condition; light and heat, to such an extent as may be necessary, all rooms used by the Society and caretaker or open to the public; and provide such toilet facilities and supplies as may be required.[12]

On July 14, 1925, a new license was granted the Society, increasing its annual payment, to be made in four installments, to the United States from $500 to $700.

C. Fort Marion Becomes a National Monument

At hearings before the Subcommittee of the House Committee on Appropriatons of the 3d Session of the 63d Congress, in the winter of 1914-15, the question

> was raised and discussed as to the "advisability of the United States maintaining" its obsolete but historical significant fortifications. Members of the subcommittee were of the opinion that such an expenditure was justified, provided the cost was not too great. The Chief Engineer was accordingly requested to submit at the winter of 1915-16 hearings on the Fortifications

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12. District Engineer to Chief Engineer, March 17, 1926, NA, RG 79, War Dept. Files, Fort Marion.

Bill, a "report with plans as to the cost upon the desirability and manner of preserving our older forts."

To apprise the field of this, a letter was circulated by the Chief Engineer, requesting District Engineers to investigate the present condition of all "old fortifications" for which they were responsible, and to submit a "report as to the means, cost, feasibility, and advisability of preserving the same."[13]

During the next four months, the Chief Engineer received from the field the requested data pertaining to obsolete defenses, as well as other historic sites for which the War Department was responsible. The Jacksonville District Engineer listed three sites he believed fell into this category--Fort Marion, Fort Matanzas, and the St. Augustine National Cemetery. Fort Marion, he noted, was built by the Spanish. It was a square, bastioned fort, with moat and outwork. The fort, it was noted, had been maintained by the Corps of Engineers for many years.

District Engineer Ladue's letter was removed from the Corps of Engineer files in 1937 by a Mr. Guinn of the Department of the Interior and never returned, consequently, we do not know whether Ladue, as called for, also provided data "as to the means, cost, feasibility and advisability of preserving" the fort.[14]

After evaluating this information, the Secretary of War on July 17, 1915, issued Bulletin No. 27, destined to assume landmark dimensions in the fight to preserve obsolete defenses, as well as the monuments for which the War Department was responsible. The first paragraph of Bulletin No. 27 detailed the "Act for the preservation of American antiquities," signed into law by President Roosevelt on June 8, 1906.

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13. Winslow to District Engineers, Feb. 11, 1915, NA, RG 77, Gen. Corres., 1894-1924, Doc. 96697.

14. War Dept. General Orders and Bulletins for 1915 (Washington, 1916), Bulletin No. 27; Corps of Engineers Files, NA, RG 77, Gen. Corres., 1894-1924, Doc. 96697/101-112.

Attention was called to Section No. 2 of the act, providing that the President was authorized

> to declare by public proclamation historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest that are situated upon the lands owned and controlled by the Government of the United States to be national monuments, and may reserve as a part thereof parcels of land the limits of which in all cases shall be confined to the smallest area compatible with the proper care and management of the objects to be protected.

Under provision of the Act of June 8, 1906, Secretary of War Garrison proceeded to declare a number of historic landmarks and structures, for which he was responsible, national monuments. Among those enumerated was Fort Marion.[15]

Some nine years later, on October 15, 1924, President Calvin Coolidge issued an order, under provision of the Act of June 8, 1906, authorizing the President to declare "historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest that are situated upon the lands owned or controlled" by the United States to be national monuments. In accordance with this authority, he declared Fort Marion, along with four other sites (Forts Matanzas, Pulaski, and Wood, and Castle Pinckney), to be national monuments. Fort Marion National Monument was to include 18.09 acres situated in the city of St. Augustine.[16]

Then, on March 20, 1925, President Coolidge, by Executive Order, rescinded that part of War Department Bulletin No. 27, July 17, 1915, applying to Fort Marion.[17]

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15. Ibid.

16. Executive Proclamation No. 1713, Oct. 15, 1924, NA, RG 79, NPS, Central Classified File, 1933-49, Fort Matanzas.

17. War Department, Bulletin No. 2, March 20, 1925.

D. Repairs Made to the Fort by the Corps of Engineers: 1915-24

1. 1915 Repairs to Northwest Bastion's Terreplein, Chapel Lintel, etc.

On January 6, 1915, District Engineer Ladue reported that certain repairs should be made to the fort and reservation during 1915. These included:

the stone lintel over the chapel doorway was disintegrating and about 300 cubic feet of concrete should be placed	$300
the platform framing the terreplein over the northwest bastion was badly fractured and should be releveled and grouted	100
the floor in one of the casemates occupied by the custodian should be repaired	90
Total	$490[18]

An inspector-general having also commented on the crumbling "portico" and the problem with the terreplein of the northwest bastion, the Chief Engineer promptly allotted the sum requested by Major Ladue.[19]

To repair the bastion, a number of blocks constituting the surface of the terreplein were taken up. They were replaced, after drains and grouting had been positioned. Repairs to the chapel lintel and flooring of the subject casemate were made.

Workmen also repaired and repointed cracks in the walls of the covered way and south face of the northwest bastion. A chimney was rebuilt.[20]

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18. Ladue to Chief Engineer, Jan. 6, 1915, NA, RG 79, War Dept. Files, Fort Marion.

19. Brady to Comdg. Gen., Eastern Dept., Feb. 5, 1915, NA, RG 77, Gen. Corres., 1894-1924, Doc. 7986.

20. Folder No. 26, Caretaker Brown to District Engineer, Undated, FRC, East Point, GA., RG 77, Jacksonville, Dist.

2. Repair of Door to Casemate No. 7

In the summer of 1917, Caretaker Brown forwarded to the District Engineer a color postcard view of the "Old Spanish Door." Attached was a description of required repairs to the door of casemate No. 7, the "Treasurer's Room," reading:

> The two iron straps holding door frame have entirely rusted away from the woodwork, and it will be necessary to have new iron straps made for this work: The side walls back of door frame are in such condition that iron pins will not hold the weight of the door: As the old iron straps are so firmly placed in the wall they should remain and new straps be placed on side the old ones.

Caretaker Brown was authorized by the District Engineer to proceed as suggested. A carpenter was employed for one day for this purpose.[21]

3. 1917 Repairs to Northwest Bastion and Casemate Wall

During the autumn of 1917, a crack in the scarp of the northwest bastion was grouted and pointed. Simultaneously, coquina blocks were placed and cemented in three large square holes in the walls of one of the casemates. Caretaker Brown did not know the significance of the "three holes," but "judging from appearance stones had been taken out during some work on the walls long ago."[22]

4. 1921 Repairs and Rehabilitation of Casemate No. 7

In fiscal year 1920, the bridges were repaired, and an iron railing positioned around the stair-opening in the lookout tower. Then, in fiscal year 1921, casemate No. 7 was placed in condition for use by Maj. Leo J. Ahern's recruiting detachment. This work included repairs to window frames, renewal of wooden flooring, positioning of a

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21. Folder No. 26, Report of Caretaker Brown to District Engineer, June 30, 1917, FRC, East Point, Ga., RG 77, Jacksonville, Dist.

22. Folder No. 26, Brown to District Engineer, Oct. 25, 1917, FRC, East Point, Ga., RG 77, Jacksonville Dist.

wooden shutter in the ventilator, and a new lock for the door. The latter was in addition to the Spanish lock.[23]

5. Autumn of 1924 Repairs

In the autumn of 1924, workmen grouted cracks in the scarp of the northwest and southwest bastions; pointed cracks in the counterscarp; repaired the southwest lookout tower, drain, and water pipes; and replaced the iron gate at the entrance to the demilune.[24]

6. Waterproofing Terreplein of Southwest Bastion, etc.

During the second six months of fiscal year 1925, the southwest bastion terreplein was resurfaced with asphalt; a metal frame with plate glass front was positioned to protect the coat of arms; and the principal roadway was paved with crushed rock.[25]

E. Leslie L. Davis' Years as Custodian

1. Reservation Becomes the Responsibility of the Quartermaster Department

On July 1, 1925, responsibility for the Fort Marion Reservation was tranferred from the Corps of Engineers to the Quartermaster Department. The latter agency made the commanding officer of its Jeffersonville, Indiana, Quartermaster Depot responsible for the reservation's oversight.

2. Repairs and Maintenance During the First Six Months of 1926

On January 1, 1926, Leslie L. Davis, a Spanish-American War veteran and superintendent of the St. Augustine National Cemetery,

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23. Folder No. 27, Brown to District Engineer, March 1921, FRC, East Point, Ga., Jacksonville Dist.

24. Folder No. 26, Brown to District Engineer, Dec. 6, 1924, FRC, East Point, Ga., Jacksonville Dist.

25. Folder No. 26, Brown to District Engineer, June 7, 1925, FRC, East Point, Ga., Jacksonville Dist.

replaced Sergeant Brown, who was in poor health, as custodian of the Fort Marion Reservation. Henceforth, Davis would wear three hats. He would be superintendent of the St. Augustine National Cemetery, as well as caretaker for the Forts Marion and Matanzas National Monuments.

In January, a few days after he replaced Brown, Davis was authorized by the Quartermaster General to have needed "grouting and pointing done on the north and west curtain walls and minor work on the Fort," for which an estimate of $202 had been submitted.

He was to have the terreplein covered with "asphalt in the vicinity of S.W. bastion, estimated at 240 square yards, at an estimated cost of $170."[26]

Workmen, during the three months ending March 31, accomplished a number of projects:

(a) The moat was cleaned out, and the wall leading into it on the east side realigned and cemented.

(b) A parking lot for visitors' automobiles was established.

(c) A start was made repointing the northwest bastion walls and demilune.

(d) The toilets were renovated, partitioned, and a urinal installed in the men's room.

(e) The electric lighting system was "modernized."[27]

During the second quarter of 1926, about 400 square feet of concrete walkway from Bay Street and Marion Circle to the bridge at the entrance to the fort was laid.

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26. Bailey to Davis, Jan. 28, 1826, NA, RG 79, War Dept. Files, Fort Marion.

27. Quarterly Report, Fort Marion, March 31, 1926; Bailey to C.O., QMID, Jeffersonville, May 3, 1926, NA, RG 79, War Dept. Files, Fort Marion.

Both coats of arms for their preservation were enclosed in glassed metal frames.

An abandoned well was covered with reinforced concrete.

As a result of heavy spring rains some of the terreplein flagstones had sunk, and there was severe leakage into the casemates of the southwest bastion and west curtain.[28]

3. Fiscal Year 1927 Program

To fund repairs, maintenance, and protection of the site in fiscal year 1927, Caretaker Davis called for and was allotted these sums for:

Pay of Caretaker	$ 720,00
Repair of coquina parking lot posts	50.00
Painting signs and bridge railings	57.00
Stands for gun monuments	75.00
Removal of old window sash and frames	20.00
Concrete steps to replace wooden ramp leading out of covered way	108.00
Concrete walks within quadrangle, 213 square yards	422.70
Repair of cornice	50.00
Cement plaster coat for shot furnace	60.00
Construction of 40-foot flagstaff for demilune	178.30
Ten benches	60.00
Materials for repointing	125.00
Protection against seepage into rooms under southwest bastion, cement or asphalt	280.00
Extra repairs	100.00
Hire of day labor	220.00
Total	$2,526.00[29]

28. Quarterly Report, Fort Marion, June 30, 1926, NA, RG 79, War Dept. Files, Fort Marion.

29. Davis to C.O., QMID, Jeffersonville, Undated, NA, RG 79, War Dept. Files, Fort Marion.

4. Repairs and Maintenance During Fiscal Year 1927

Priority was given to repair of the terreplein. In July an asphalt coating was applied to the terreplein above the "courtroom and room adjoining,"[30] and in August along the seams above the sally port. The asphalt promised to be "very effective," and the courtroom was "now entirely dry," despite torrential rains which drenched the area during the recent hurricane.[31]

In the summer of 1926, the walls of the shot furnace were replastered.[32]

During the fourth quarter of the year, a 2-inch flagstaff, 40 feet in height, was positioned on the northwest side of the northeast lookout tower. The base of the staff was set into the masonry to a depth of 3 feet.[33]

The Historical Society had eight cannon positioned on concrete mounts at selected embrasures along the fort's south front.[34]

A number of maintenance- and visitor-oriented projects were undertaken in the first quarter of 1927. Several casemate doors were repaired, and Custodian Davis opened to the public three southwest bastion rooms. Simultaneously, the subject bastion was investigated in a futile search for a secret dungeon.

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30. Davis to C.O., QMID, Jeffersonville, July 21, 1926, NA, RG 79, War Dept. Files, Fort Marion.

31. Davis to C.O., QMID, Jeffersonville, Aug. 27, 1926, NA, RG 79, War Dept. Files, Fort Marion.

32. Bailey to C.O., QMID, Jeffersonville, Oct. 7, 1926, NA, RG 79, War Dept. Files, Fort Marion.

33. Davis to C.O., QMID, Jeffersonville, Oct. 29, 1926, NA, RG 79, War Dept. Files, Fort Marion.

34. Quarterly Report, Fort Marion, Dec. 31, 1926, NA, RG 79, War Dept. Files, Fort Marion.

The floors in a number of casemates were leveled.

The wooden ramps giving access to the moat and covered way were replaced by six sets of stone steps.

New stringers were positioned under the bridges and the boards replaced.

The fort and reservation were connected with the city water system.[35]

5. Raising and Grading the Parade, etc.

During the summer and early autumn, the level of the parade was raised and the surface graded with oil tar dusted with coquina; the well was cleaned and covered with iron bars and a heavy screen; and additional areas of the terreplein given an asphalt treatment.[36]

6. Davis' Program for Fiscal Year 1928 is Submitted and Approved

On August 22, 1927, Custodian Davis notified the commanding officer of the Jeffersonville Quartermaster Depot that, subject to his approval, Davis proposed in fiscal year 1928 to: (a) build an incinerator for burning trash; (b) construct and position a number of concrete benches; (c) build a small toolhouse; (d) ventilate the "dungeon" with a "camouflaged fan"; (e) surface top of "outer wall around" the covered way with cement plaster; (f) replace present 4-inch sewer with a larger one; and (g) extend pipe line to facilitate watering of flower beds.[37]

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35. Quarterly Report, Fort Marion, March 1927, NA, RG 79, War Dept. Files, Fort Marion.

36. Quarterly Report, Fort Marion, June 30 & Sept. 30, 1927, NA, RG 79, War Dept. Files, Fort Marion.

37. Davis to C.O., QMID, Jeffersonville, Aug. 22, 1927, NA, RG 79, War Dept. Files, Fort Marion.

Personnel at the Jeffersonville Depot approved the program as outlined, except for construction of the toolhouse. Additional information was needed regarding that structure's dimensions, location, etc.[38] This data was promptly supplied by Davis and approval was given to proceed with construction of a small toolhouse in an angle of the covered way north of the fort.[39]

7. Projects Funded and Implemented in the Period: October 1, 1927-June 30, 1929

Workmen, during the remaining four months of 1927, installed the ventilator in the "dungeon" and repointed the wall of the covered way.[40]

On December 16 Lt. Col. Norris Stayton, the officer in charge of the Jeffersonville Depot, approved a proposal by Custodian Davis to improve the restroom facilities. The ladies' toilet, currently located under the steps, was to be moved into the room under the arch. An additional lavatory was added in both the men's and women's restrooms.[41]

When Custodian Davis submitted his quarterly report for the first three months of 1928, he listed these approved projects as completed: (a) construction of the toolhouse; (b) repointing of the covered way's wall; (c) renewal of the sewer line to the outer scarp of

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38. Hockman to Davis, Aug. 31, 1927, NA, RG 79, War Dept. Files, Fort Marion.

39. Davis to C.O., QMID, Jeffersonville, Sept. 12, 1927, NA, RG 79, War Dept. Files, Fort Marion. In 1930 the Quartermaster General authorized retention of the structure for storage purposes. But to make it less intrusive, the roof was to be painted and vines planted.

40. Quarterly Reports, Fort Marion, Sept. 30 & Dec. 31, 1927, NA, RG 79, War Dept. Files, Fort Marion.

41. Davis to C.O., QMID, Jeffersonville, Dec. 6, 1927, & Stayton to Davis, Dec. 16, 1927, NA, RG 79, War Dept. Files, Fort Maron.

the fort with extra heavy soil pipe; (d) relocation of the women's toilet and installation of Sloan flush valves; and (e) setting out on Marion Circle eight large palms.

In progress were: (a) laying of the sewer line to mean low tide; (b) repainting toilets; (c) painting cannon and iron bars in casemate windows; (d) topping wall of covered way with cement plaster; and (e) applying coat of velspar varnish to chapel door and drawbridge pullies.[42]

During the second quarter of the calendar year, the projects underway on March 31 were completed. In addition, workmen built a concrete walkway from the covered way on the west side of the fort to connect with the walk at the fort's entrance.[43]

8. September 15, 1928, Hurricane

The mid-September hurricane urooted a number of trees but did no damage to reservation structures. Surf came pounding over the seawall, and water stood from 18 inches to 3 feet deep on parts of the reservation.

Along the front of the seawall from the north end of the reservation to the area opposite the National Cemetery, a number of wash holes appeared. These were filled by the Corps of Engineers.[44]

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42. Quarterly Report, Fort Marion, March 1928, NA, RG 79, War Dept. Files, Fort Marion. The toolhouse's design caused a howl of protest by the Colonial Dames and some minor modifications were made.

43. Quarterly Report, Fort Marion, June 30, 1928, NA, RG 79, War Dept. Files, Fort Marion.

44. Davis to C.O., QMID, Jeffersonville, Sept. 18, 1828, NA, RG 79, War Dept. Files, Fort Marion.

9. Fiscal Year 1929 Program

Meanwhile, Caretaker Davis had submitted to Colonel Slayton for review his budget for maintenance and protection of the reservation in fiscal year 1929. He called for:

Pay of caretaker	$ 720
Resurfacing 2,020 square yards of terreplein with asphalt	535
Reflooring bridges	116
Repointing walls of ditch, demilune, and fort	490
Hire of day labor	450
Hire of horse for mowing grass	180
Materials	10
Water rent	24
Total	$1,805[45]

10. New Method for Waterproofing Terreplein is Adopted

Custodian Davis, having secured the necessary allotment, recommended to the War Department that, in resurfacing the terreplein, asphalt paint be applied directly to the asphalt. Investigation, he noted, had demonstrated that asphalt by itself was of only temporary benefit, because it cracked under the hot sun. It was also urged that the cracks be "filled with an elastic fiber coating."

A 1/2-inch cement plaster coat was to be applied to the superior slope of the covered way.[46]

But, before the waterproofing began, Custodian W. J. Harris of the Historical Society proposed and received authority from Colonel Slayton to coat the terreplein with "genuine asphalt, then lay sheet felt in the asphalt, then cover the felt with another layer of asphalt." The asphalt to be applied while hot. The asphalt, Harris noted, was black, but this would not be too great a problem, because the

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45. Davis to C.O., Jeffersonville, QMID, Undated, NA, RG 79, War Dept. Files, Fort Marion.

46. Davis to C.O., QMID, Jeffersonville, Aug. 21, 1928, NA, RG 79, War Dept. Files, Fort Marion.

terreplein was "already black in some places and in others has asphalt poured in all cracks giving a checker board appearance." Consequently, Harris postulated, having it entirely black may improve its appearance.[47]

During the fourth quarter of 1928, workmen began applying felt and asphalt to the terreplein.

This was none too soon, because an inspecting officer had noted that the roof over the ladies room was leaking, causing the floor to buckle and rot. He also had complained that the cannon, window gratings, iron doors giving access to the demilune and sentry boxes, and bridge rails needed painting; and the chapel door and drawbridge pullies should be shellacked.[48]

In late December 1928, Custodian Harris advised Colonel Stayton that waterproofing the terreplein was completed. All casemates into which there had been seepage were covered with "a wide margin to spare. Three coats of hot asphalt were used with two layers of felt between." The asphalt had been "mopped on thick."[49]

During the same period, the ironwork about which the inspecting officer had complained was repainted, and three small cannon remounted on concrete pedestals.[50]

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47. Harris to C.O., QMID, Jeffersonville, Oct. 26, 1928, & Stayton to Harris, Oct. 29, 1928, NA, RG 79, War Dept. Files, Fort Marion.

48. Quarterly Report, Fort Maron, Dec. 31, 1928, NA, RG 79, War Dept. Files, Fort Marion.

49. Harris to C.O., QMID, Jeffersonville, Dec. 22, 1928, NA, RG 77, War Dept. Files, Fort Marion.

50. Stayton to Harris, Dec. 7, 1928, NA, RG 79, War Dept. Files, Fort Marion.

F. Repairs and Improvements Made Under Aegis of the Society

1. Investigation Results in the Society Assuming Responsibility for Day-to-Day Management of the Site

Until the winter of 1927-28, relations between Custodian Davis and Curator Harris and other officers of the St. Augustine Historical Society had been amicable. But, in the autumn of 1927, the local camp of the United Spanish-American War Veterans, of which Davis was a member, expressed interest in making application for the license to operate the Fort Marion Reservation when it came up for renewal on July 1, 1928. This led to serious differences between Davis and Harris. Grave charges by the principals were made. These led to an investigation by the Army's Judge Advocate-General.

As a result, orders were issued that, effective March 1, 1929, Custodian Davis would be relieved as caretaker of Forts Marion and Matanzas National Monuments. Hereinafter, he was to confine his attention to his duties as Superintendent, St. Augustine National Cemetery, or face dismissal from the Civil Service.[51]

2. 1929 Repairs

The Quarterly Reports for Fort Marion for March 31, June 30, and September 30, 1929, are missing from the files. On December 31 Curator Harris reported that, during the previous three months: (a) the top of the "old well had been rebuilt and protected"; (b) cracks and crevices "in the parade had been filled; and (c) cement work on walls was continuing.[52]

Commenting on the subject report, Col. F. W. Van Duyne of the Jeffersonville Depot informed the Quartermaster General that

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51. McClintock to C.O., QMID, Jeffersonville, Feb. 9, 1929, NA, RG 79, War Dept. Files, Fort Marion.

52. Quarterly Report, Fort Marion, Dec. 31, 1929, NA, RG 79, NPS Classified File, 1933-49, Castillo de San Marcos NM.

considerable repointing of the "outer walls was being done with coquina cement."[53]

On January 16, 1930, Curator Harris reported that the casemate doorway in the southwest bastion, opened in one of the periodic searches for additional dungeons, had been closed. Work had been delayed by the need to secure old coquina "to harmonize with the balance of the fort."[54]

3. Grouting Cracks in Ceilings of Ten Casemates

On March 11, 1930, an assistant engineer from the Jacksonville District spent the day at the fort investigating cracks in the casemates reported by Curator Harris. The engineer found that the cracks were at the junction of the ceilings and parade walls. Cracks were pinpointed in ten of the casemates. They were 1-1/4 to 1-1/2 inches at their widest, and tapered in most instances "to nothing at all near the spring line of the arch."

To ascertain whether the parade walls were bulging, measurements were taken. These documented that the walls were plumb and eliminated this as a reason for the cracking.

Mildew and stains gave the cracks an aged appearance, and led the engineer to conclude that they were old, but had "escaped observation due to their position directly overhead when entering the casemate, where the light is not good."

Upon investigating the casemate ceilings, he found that they were constructed of coquina blocks, 6 to 8 inches wide and 12 to 14 inches long, cut to fit the arch. In one of the casemates, he saw that

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53. Van Duyne to QMG, Feb. 20, 1930, NA, RG 79, NPS Classified File, 1933-49, Castillo de San Marcos NM.

54. Harris to C.O., QMID, Jeffersonville, Jan. 16, 1930, NA, RG 79, War Dept. Files, Fort Marion.

the blocks did not make a tight joint with the parade wall, leaving an opening 3 to 4 inches in width. This interstice had been filled with smaller pieces of stone and mortar. The mortar had loosened and pieces had fallen out leaving an irregular crack from 3 to 4 inches wide near the center. The cracks in the other nine casemates seemingly had not originated in this manner.

The engineer recommended that the cracks be grouted "by building forms to fit the arch ceiling in relatively small sections and forcing the cement into the cracks with a small slender implement." Upon undertaking this project, the Society was to exercise care to see that the grouting conformed with the "general appearance of the rest of the ceiling, at a cost not to exceed $150."[55]

By May 28 the Society reported that the cracks had been repaired by an expert mason, at a cost of between $160 and $170. In some of the cracks, cement had been "forced in a distance of eighteen inches."

The fort, Curator Harris boasted, was now in "better condition than it has been in the past twenty five years."[56]

4. Other Improvements Made During the First Six Months of 1930

Workmen, during the first six months of 1930, also made and positioned outside the entrance to the fort several cement lawn seats; repaired the flooring of the bridges; repointed the exterior walls with

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55. Ralston to QMG, March 14, 1930, NA, RG 79, NPS Classified File, 1933-49, Castillo de San Marcos NM.

56. Harris to C.O., QMID, Jeffersonville, May 28, 1930; Van Duyne to QMG, April 10, 1930; Quarterly Report, Fort Marion, June 30, 1930, NA, RG 79, NPS Classified File, 1933-49, Castillo de San Marcos NM.

coquina-cement; and repaired toilets and installed new water closet seats.[57]

5. Captain Spann's April 1930 Inspection and Steps Taken to Correct Deficiencies Noted

Capt. George F. Spann of the Quartermaster Corps spent April 10 and 11, 1930, at the fort. When he submitted his report, he called attention to:

(a) The inclined chimney, in the second casemate to right of the sally port, was cracked at arch.

(b) Old commanding officer's room, plaster on right peeling off.

(c) Judge's chamber, roof leaking.

(d) West parade wall, coquina pulled away from arched ceilings, varying from 1/2-inch in doorway to third casemate to 1/8-inch on south and east walls. Inasmuch as the cracks ended below "old cedar lintels over doorways," Captain Spann theorized the cause was a slight fracture in the old timbers.

(e) Repointing of outer walls with a mixture of ground coquina and cement had not been completed.

(f) The terreplein leaked in several places. An investigation revealed that the stone slab roof had been caulked with asphalt. Spann recommended that the asphalt be removed and the "joints repaired with a waterproof cement."

(g) There was a long, jagged crack in the outer west wall of the "Bishop of Havana's room."

(h) Wood and rubbish in the room adjoining the toilet was a fire hazard.

(i) The water closets and urinals should be kept in a more sanitary condition.

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57. Quarterly Reports, Fort Marion, March 31 & June 30, 1930; Van Duyne to QMG, April 10, 1930, NA, RG 79, NPS Classified File, 1933-49, Castillo de San Marcos NM.

Colonel Van Duyne of the Jeffersonville Quartermaster Depot relayed a copy of Captain Spann's report to the President of the Historical Society.

In a covering letter, Van Duyne called attention to the need to repair the terreplein in an "effective manner to prevent the deterioration which will eventually result . . . from the leaky condition." Before removing the "tar or asphalt caulking from the roof joints and replacing it by waterproof cement," the Society was to review this situation with competent local authorities.

Van Duyne called upon the Society to apprise him of how much of the terreplein had been repaired by layers of asphalt and sheet felt as outlined in Curator Harris' letter of October 26, 1928, and the effectiveness of this treatment.[58]

President Harold Colee of the Society, after checking with Curator Harris, replied that the tar on the terreplein had been applied by Mr. Davis, while he was custodian. The Society, since assuming reponsibility for maintenance, had been employing "asphalt pitch at a boiling temperature with layers of felt in between." The latter treatment gave promise of success.

Commenting on certain other points raised by Captain Spann, Colee noted that the Society had been aware of the crack in the chimney, over the fireplace, in the casemate housing the Chauncey Depew Collection, but no immediate danger was apprehended. A similar situation prevailed in respect to the "arched ceiling in the center door [above exit of sally port into parade], where a crack was noticed and attributed to placing the heavy plaque on the parade wall by the Colonial Dames on February 22, 1921."

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58. Van Duyne to President, May 17, 1930, NA, RG 79, NPS, Classified File, 1933-49, Castillo de San Marcos NM.

The little room had been cleared of lumber and trash, and the men's toilet attended to.

Custodian Harris had reassured the Society that his maintenance people always employed a cement and coquina mix. Former Custodian Davis, however, had generally used cement without an admixture of coquina.[59]

Upon his return to St. Augustine from his annual summer vacation to New Jersey, Curator Harris informed Colonel Van Duyne that, after a heavy rain, there was always a small seepage through the terreplein into several of the casemates. The Society had covered a section of the terreplein with felt laid in asphalt, and "this almost stopped the leaks or drippings." The Society planned to repeat this treatment during the autumn.[60]

Consequently, during the second half of 1930, the interstices in the terreplein above the casemates into which there was seepage were treated with asphalt and felt.

Fences and walkways were also repaired.[61]

6. Society Makes Minimal Repairs During the Early Years of the "Great Depression"

In calendar year 1931 repairs to the fort and improvements to the grounds were minimal. Among the few reported were: (a) "small repairs to fort and walks, as needed"; (b) pruning of cedars; (c) repair

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59. Colee to Spann, May 20, 1930, NA, RG 79, NPS Classified File, 1933-49, Castillo de San Marcos NM.

60. Harris to Van Duyne, July 26, 1930, NA, RG 79, NPS Classified File, 1933-49, Castillo de San Marcos NM.

61. Quarterly Reports, Fort Marion, Sept. 30 & Dec. 31, 1930, NA, RG 79, NPS Classified Files, 1933-49, Castillo de San Marcos NM.

of toilets; (d) grading parkway; and (e) cementing a floor in one of the casemates.[62]

On October 2, 1931, Col. William S. Browning of the Inspector-General's Department was at the Fort Marion Reservation. He pronounced the fort and reservation in "excellent condition."

In the 24 months since the last visit of an officer of the Inspector-General's Department, he noted, the decision to use cement and powdered coquina for repointing and repair of walls had resulted in a great improvement in appearance over the old method of using cement alone."[63]

During the 18 months between January 1, 1932, and June 30, 1933, little money was spent for repairs. Those reported included: (a) placing timbers under bridges at entrance to fort; (b) repair of toilets and latrine pipes; (c) repair of walks and "small sections of fort"; and (d) repainting flagstaff.[64]

G. National Park Service Takes Charge

On March 4, 1933, Franklin D. Roosevelt was inaugurated as 32d President. He named as his Secretary of the Interior forceful conservationist Harold L. Ickes. The new Secretary and Director of the National Park Service Horace Albright on June 10, 1933, prevailed on the President to issue an Executive Order making the National Park Service of the Department of the Interior responsible for administration of "all public

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62. Quarterly Reports, Fort Marion, March 31, June 30, Sept. 30, & Dec. 31, 1931, NA, RG 79, NPS Classified File, 1933-49, Castillo de San Marcos NM.

63. Browning to Comdg. Gen., IV Corps Area, Oct. 16, 1931, NA, RG 79, NPS Classified File, 1933-49, Castillo de San Marcos NM.

64. Quarterly Report, March 31, June 30, Sept. 30, Dec. 31, 1932 & March 31 & June 30, 1933, NA, RG 79, NPS Classified File, 1933-49, Castillo de San Marcos NM.

buildings, reservations, national parks, national monuments, and national cemeteries." This transfer and consolidation of functions was to include the national cemeteries and parks within the continental limits of the United States for which the War Department was responsible. By Executive Order of July 28, President Roosevelt enumerated the War Department properties that were to be transferred. Among the areas formally transferred on August 10, 1933, was Fort Marion National Monument.[65]

65. Noble to Harris, Aug. 7, 1933, NA, RG 79, NPS Classified File, 1933-49, Castillo de San Marcos NM.

APPENDIX A

New York, May 12, 1869

Maj. Gnl. A. A. Humphreys
Commanding Corps of Engrs.
Washington, D. C.

General

I transmit herewith my inspection notes of the condition of Fort Marion, Florida, which have been detained in order to complete a drawing of the work, without employing additional draughtsmen. This has not been accomplished, and is not perhaps necessary, inasmuch as no extensive repairs or modifications are recommended, in either the main work or the exterior water battery.

The position occupied by Fort Marion, at the head of the inner harbor of St. Augustine, defends nothing of special value, and is destitute of strategic importance. It prossesses little of an military significance, either in itself, or in its relations to other localities. Were it otherwise, indeed, the bay at the mouth of the harbor might be safely relied upon, to afford an adequate defence against any foe approaching by sea, of sufficient magnitude to contemplate a lodgement upon our coast, or maintain an attitude of grave menace in that quarter.

Even if the harbor could be considered as accessible to men of war, it is one of the least advantageous or desirable ones, upon our Atlantic Coast, as a base for operations in the interior, and the last that an enemy would select for such a purpose, as well as account of the prevailing poverty of the adjacent country, as of the formidable barrier of St. Johns river, in its rear. This stream flows in a direction generally parallel with the coast, and at a distance from it varying between eighteen and twenty five miles; and is impassable without boats, from its mouth--about forty miles north of St. Augustine--to its sources among the lagoons and marshes, over two hundred miles distant. The narrow strip of country lying between the river and the coast, is very thinly settled, with a population

of almost extreme poverty, and possesses scarcely any developed wealth and little commerce, the latter consisting in a moderate export trade in lumber and fruit, carried on mostly by way of St. Johns River.

There is, in my judgement, no point upon our Atlantic seaboard, which offers fewer inducements to occupation by a foreign foe, and where his efforts to inflict injury could be so nearly harmless, or more easily frustrated, then the one in question; while there are many vastly superior to it, whether regarded as harbors simply, or as bases for military operations, upon which the government has never expended a dollar for permanent defences. Among those may be mentioned St. Johns River, Brunswick, Port Royal, and Georgetown, omitting others, and not attempting any comparison of their relative advantages.

For these reasons, I do not recommend any considerable expenditure, upon the defences of St. Augustine harbor. Fort Marion is an interesting old work, possessing many attractions for antiquarians, and it would be well to put some general repairs upon it to arrest further decay, after other and more important points have received attention. An estimate of the cost of general repairs will be forwarded as soon as completed.

I recommend that for the present the repairs be restricted to the platforms of the water battery, (all of which, omitting those Numbered 5, 16, 18, 19 and 20, would require but little work), and to renewing the wood work of the two bridges, as far as may be necessary, and of the casemate magazine in the west front, and the gates of the entrance to the main work. An expenditure of $2500--would probably suffice for these objects.

Very Respectfully
Your obdt. Svt.
Q.A. Gillmore
Maj. Engr. Bvt. Maj. Genl.

APPENDIX B

Fort Marion, Florida
Notes of an inspection of the work
(Feby. 7th, 8th, 10th and 11th, 1868)

General Remarks. The work is built of Coquina, a limestone conglomerate of seashells which is quarried on the seabeach opposite St. Augustine. The top and faces of the coquina walls were originally covered with plaster or stucco 3/4" to 1" thick, as well as the casemate walls, while the floors of the casemates and sally-port and the barbette terreplein were also made of coquina and earth rammed in layers. The plan of the fort shows four bastion fronts and a demi-lune covering the gorge. A covered way surrounds the work except on the Eastside, where a water battery of modern construction located in the ditch replaces it. The entrance to the fort is through the S.E. angle of the covered way. The batter of the scarp is about 5/1. The height of the scarp to the crest of the superior slope is about 30'. The fort has one tier of casemates for quarters and a barbette tier for guns. The bastions are not casemated but are made solid between the walls with earth, except in the N.E. bastion which is partially casemated. The casemates are nearly all in a leaky condition owing to the fact that the barbette terreplein has been worn and weathered, so as to prevent proper drainage and to admit water through to the arches below.

Casemate--Sally-port--The arch shows extensive leakage and has a large longitudinal crack 1" wide in the Crown, through which water drips during and after rain. There are other leaks across the arch some six or seven in number. The plaster is partially destroyed. The door-jambs are much worn particularly near the floor. The floor was originally about 12' thick, made by ramming coquina and earth, but has been worn through particularly on a line between the doors. The inner gate slides from South to North and is in working order if the grooves were cleaned out. The outer gate is in need of repair and the drawbridge requires renewal. The machinery of the draw is entirely gone.

Casemates

The casemates are numbered below, beginning with the casemate next the sally-port on the West, and ending with the one next the sally-port on East.

No. 1. The floor is worn through about the doors and fireplace in the N.W. Corner. The casemate is used as a guard room and communicates both with the sallyport and the interior of the fort. The arch of casemate is obscured with soot and smoke and cannot be described. A temporary chimney has been erected in the N.E. Corner which half obstructs the window. The fireplace of this is gone. The doorways are much worn and the plaster on the walls is in bad condition. Beams which extend across the casemate have been let into the walls at the springing line of the arches--supposed to be for a flooring for storage. The S. end of the casemate floor for about 6' is wet, and evidences frequent leakage.

No. 2. The arch and walls are obscured with soot which comes from a temporary fire place in the N.E. Corner having a hole burned through into the fireplace in the N. Corner of casemate No. 1. A covering of joists and 2" plank protects the broken floor beneath. There are indications of leakage on the S. end of the floor and a drip in S.E. corner after rain. The wooden flooring extends to about 4' from this end. The plank requires repair and on the East side renewal. The holes for upper flooring appear in the springing lines. This casemate communicates with the interior of fort (where the doorway and window above it require repair) and also with casemate No. 3.

No. 3. Shows slight indications of leaks in N. side of arch. Otherwise appears dry. For half its length from the door it is floored with plank as No. 2., and holes are in the springing lines for upper flooring. The wall all around up to 6' from the floor requires new plaster. An excavation has been made in the West end in a S. W. direction and the Earth piled in the S.W. & N. W. Corners. The gallery is about 15' in length and the soil taken out is a mixture of earth & coquina. It is supposed to fill the S.W. bastion. The casemate is lighted with a small window on the S. side.

No. 4. Shows signs of extensive leakage wth constant dripping during and after rain. It is lighted on the W. end by a small window. Plaster of arch is gone. The floor is broken and [illegible]. A bench of coquina 4' high and 10' long extending across the casemate occupies the west end. The drip is about the end of the bench and on the South side of the casemate. The door opening into the interior of the fort has a small window about it. The window and doorway in fair condition.

No. 5. Is lighted by a small window in W. end, one over the door and one on each side of it. The sill of door is worn through and the window sills [illegible] worn. The casemate is floored with joists and 2" plank for half its length from door. Holes for upper flooring half the length from W. end. Coquina floor in W. end much worn & uneven. No signs of leakage in this casemate. The plaster on arch and in portions of walls is gone.

No. 6. There is a small leak on the doorway & indications of leaks on W. end of arch. The casemate is used as a storeroom by the Ordnance Sergeant and is floored with plank except about 8' from the door. It is lighted by a small window on the W. end and another over the door. The jambs & sills of door and windows are much worn. The coquina floor is in fair condition as seen except immediatedly in front of the door.

No. 7. Is used as a magazine. There is no leak except slight signs on S. side of arch near the door. A wooden magazine has been constructed in the casemate. The walls and arch are in good order. Near the door portions of the plaster are broken off. Casemate lighted by a window over the door.

No. 8. No leaks--Plaster is gone from the Arch and destroyed in places on the walls. Coquina flooring disintegrated and uneven. The window formerly in W. end is closed with masonry. The sill of door is worn through, and fires have been made against the W. end.

No. 9. There is no actual leak. The ceiling is obscured with soot. Fires have been made in the W. end and burnt out a hole 3' by 4' x 18"

deep in wall. The wall on N. side near the W. end is covered to a considerable extend with green mould. The coquina floor is destroyed. The jambs of the door & window much worn as well as the sills. The plaster of walls all around is full of small holes and much worn. The damp shows though the arch on the N. & S. sides its whole length.

No. 10. The jambs of door are much worn and the sills gone. The coquina floor is partially disintegrated and much worn. There are holes in the springing lines for upper flooring. The whole arch and walls are mouldy and wet. The window in W. end has been injured by prisoners. There is no actual leak.

No. 11. Exhibits black mould on the N. side of the arch its whole length. Also from the pier in the N.W. corner to the opposite wall. A hole about 3½' square has been made in the N.W. end and penetrates about 8'. The excavation shows earth and shell mixed and this is supposed to fill the bastion. The piers of the arch from side of door to opposite angle are broken and chipped.

No. 12. The coquina floor is in fair condition but damp. Holes for upper flooring at the springing lines. The whole interior of the casemate shows extensive leakage. The walls and arch are covered with green mould and are very wet. Plaster on walls is much injured. That in the arch appears still firm. The jamb and sill of door are badly worn.

No. 13. Signs of leakage over the whole arch. Plaster of walls is partially disintegrated and full of small holes. The coquina floor has large holes in it and is broken and worn through about the door and the S.W. corner. The door and window sills are much worn.

No. 14. Ceiling much obscured with soot. Temporary chimney and fireplace in S.E. Corner. Marks of leakage all over the floor where the water has dripped from the arch. Intended originally for a chapel and has a sort of pulpit in N. end, and small niches behind it and either side of the door. Has a doorway into No. 15. About and above the door to interior of fort was ornamental work of plaster which is washed away and

much worn by weather. The coquina floor is destroyed and covered with a flooring of plank which is also rotten.

No. 15. The arch is somewhat damp and the N. end much so. The plaster is rough and full of holes. Coquina flooring is pretty good except for about 7' from N. end. The doors and window much worn and broken. Sill of door into No. 14. worn through. The floor has been patched with brick in S.E. corner and is worn through in front of door to interior of fort.

No. 16. No actual leak but signs of damp over the whole arch. The walls and arch in the N. end obscured with soot. Holes for upper flooring in springing lines. Mortar of wall is full of small holes and rough. Coquina floor rough and uneven, and broken through in two places. Jambs & Sills of windows worn and broken. Lintel of door patched with mortar.

No. 17. Tolerably dry. Indications of damp over the arch which is obscured with soot. Plaster on arch and walls nearly gone. Holes similar to those for flooring but in N. end. Floor of coquina is uneven and broken.

No. 18. The whole arch and walls shows marks of extensive leakage in damp and black and green mould. The mortar is full of holes and rough. The coquina floor is damp and worn so far as seen. A flooring of joists and 1½" plank commences 10' from the door. Two large longitudinal cracks ½" wide run half the length from the door on either side of the centre of arch. Used as a storeroom for Ordnance implements. Arch of doorway into No. 19 much worn and broken. The mortar of walls is full of holes from 4" to ½" in diameter and in some cases extending into the wall 2" x 6".

No. 19. Is very wet. Lighted only from doorways of Nos. 18 & 20. The floor is of sand and temporary boarding. Mortar of walls is broken and rough.

No. 20. Is a small casemate under the throat of the N.E. bastion. The arch or other covering has fallen in and is covered with boards on the parade above. The walls show evidence of weather and there was probably much leakage before the arch fell.

No. 21. Is a dark casemate with a low arch only lighted from the door which is about 3' x 3' and somewhat broken. The floor is of sand. The coquina arch and walls show dry and clean except the joints where the pointing is black. This dungeon was not known until 1838 [sic] when the fall of the arch of No. 20 led to its discovery.

No. 22. Is very wet and damp. The arch and walls are covered with green, black and white mould. The plastering is full of holes and nearly gone. The coquina is rough and uneven. The doorway badly worn and broken. A temporary chimney and fireplace have been constructed in the S.W. corner.

No. 23. Is very wet and mouldy over the whole arch and walls. The mortar is almost destroyed. Coquina floor rough and uneven. The jamb and sills of door & window broken and worn.

No. 24. Is tolerably dry. Mortar disintegrated and crumbling. East end of the arch is damp. The floor is destroyed, rough and uneven. The window sills and doorways are much worn and broken.

No. 25. The arch and walls are wet and damp. The plaster nearly gone. Floor wet and destroyed. Doorways and window broken and worn.

No. 26. The arch of doorway between 25 and 26 has a crack ½" wide near the top through its length (5'). The corners are broken. Casemate tolerably dry showing damp only at the East end, and in joints on N. side of arch. The mortar of walls is partially disintegrated and discolored. Coquina floor is almost gone--. This casemate has a window (opening on the stairs to barbette) in N.W. Corner.

No. 27. Is very wet. There is a drip of water near the middle of the arch on the West side. The S. end is mouldy and discolored. The coquina floor is in pretty good condition except near the middle where it is broken. Chimney and fireplace in N.E. Corner, and window in N. end. The mortar of walls and arch is broken and disintegrated.

No. 28. Is only lighted from No. 27. Has a chimney in N.W. Corner. The arch is damp but shows no actual leak. Floor rough and uneven. Mortar full of holes and partially disintegrated. The arch of doorway of No. 27 is worn and broken. South end of casemate wet and mouldy.

No. 29. The arch seems dry except in two places near the middle. The East wall has been broken in two places by prisoners. The excavation terminates in Earth and indicates solidity of the bastion. The coquina floor is destroyed. The wall and arch were not stuccoed. The W. end is damp and shows considerable discoloration. The casemate is only lighted from doorway of No. 28.

General Remarks

At the time of this inspection it had rained two days and the casemates were wetter than they generally are. The mortar of the walls and arches was originally about ½" or 3/4" in thickness but in all cases is broken and pitted with holes, and in the damper casemates has disintegrated and crumbled.

The floors were constructed by pounding chips of coquina and earth to the depth of 3" or 4". Where a break occurs the floor has been undermined by rats.

Barbette terreplein

N.W. Bastion.--The original flooring of cement has been replaced by brick in this bastion near the throat, but the brick are uneven and

irregular and the grass is growing between them. Near the middle is an old gun platform of coquina with a granite pintle block 2' square, pintle plate 3/4" thick and 25" in diameter and 2" pintle. About the platform the brick are gone. The brick of the terreplein of the curtains adjoining is about 14" or 16" lower than that of the bastion. There are two drains through and under the parapet of each face, but they do not conduct much water, which must pass down to the casemate arches beneath.

A narrow passage through the salient angle leads to a Sentry box 3' in diameter, which has been renewed about 3' high but not covered as the others.

North Curtain.--The terreplein shows much wear and effect of weather and is uneven and full of holes. The drainage is deficient so that the water has to be swept off after rains. There are two drains through the parapet one under the extreme right embrasure and the other under the second from the left. The flooring was made in the same way as that of the casmates but is considerably thicker. The ends of the layers are in place exposed. Two temporary chimneys stand at equal distance from the angles and each other. Indications of settling are seen toward the East end as though from some settling of the piers beneath.

N.E. Bastion.--The terreplein is worn into ridges & hollows where water stands after a rain. Settling has taken place about the middle and the drains through the face of the parapet do not properly carry the water. A front pintle block, plate and pintle with a traverse circle is situated about the middle of the N. face, but the circle was either set beneath the level of the terreplein or has sunk, as the water stands upon it. In the angle stands a tower some 20' to 25' in height and 5' in diameter with walls about 18" thick. Across the throat of this bastion is a platform of timber which covers the hole occasioned by the fall of the arch of casemate No. 20 beneath. The platform is about 12' x 30'.

East Curtain. Shows the same indications of wear and weather in hollows where the water collects, particularly in the N. half and in front of the shanties' which stand against the rear wall and have been used as

temporary quarters. Some of these holes are 10" and 12" deep. The drains under the parapet are but partly efficacious and the water has to be swept off. The terreplein by wear of the original surface is on the N. half about 5" or 6" below the level of the S. half, and between about midway is a ridge from 3" to 5" high. Cause not known. The drains in the S. half carry off most of the water and the surface is not so uneven as in the N. half. Cracks appear across the terreplein probably caused by the settling of the piers as they are over the piers and the crown of the arches. These cracks vary from ½" to 2" in width and have been enlarged by washing of water.

S.E. Bastion. The smoothness of the original surface has been destroyed and prevents proper drainage. The N. End of the E. face has settled about 12" or 14" below the S. end. A brass 6 pdr. on field carriage stands on the E. face, and a 6-pdr. Parrott on the S. face. Two temporary chimneys are on the S. face against the parapet. A narrow passage leads from the extreme angle to a small sentry box of coquina 3' in diameter originally intended as a belfrey.

South Curtain. Condition of terreplein about the same as rest. Large cracks varying from 1" to 2" across it and partly filled with sand. Two permanent chimneys stand close together near the E. end. Shanties against rear wall. The drainage is inefficient. Surface uneven and full of holes in many places giving a hollow sound to the foot.

S.W. Bastion. The surface of coquina cement is nearly all destroyed and shows merely sand and earth. No drainage. A settling has taken place near the throat in consequence of the attempt to excavate in the casemate beneath. A pintle block with plate and pintle lies near the middle. Across the salient angle a platform of coquina & about 18" high has been constructed with about 25' radius, and angle as center. A sentry box overhangs the scarp at the angle and is reached by a narrow passage.

West Curtain. The condition of the terreplein is somewhat better and appears to drain, but is broken in places. Near the throat of the S.W. Bastion is a platform of coquina for a front pintle gun carriage with a

radius of circle 10'. The north half of the terreplein is more rough and uneven.

Remarks--The terreplein can best be repaired in the same manner in which it was originally made.

Parapets

N.W. Bastion.--The parapet of left flank is about 5' in height and 4'8" in thickness. The stucco on inside and top is gone and the embrasures worn on cheeks and sole. There is a large crack from 2" to 4" wide on the flank near the angle with left face. The banquette tread is much injured by weather and time and has settled away from the parapet. The height of left face as far as the first embrasure is same as preceding. The remainder has been renewed from the height of 2' to that of 4'10". The repairs are of coquina filled in with brick and roughly done. The Right face has been repaired roughly and is of unequal height averaging about the same. About 15' from angle with flank, the height rises to 5'10", and is in fair condition. The banquette in angle with flank is somewhat broken and needs repair.

Right flank.--Height of parapet 5'3". In good order except at embrasure the sole of which is worn. Portions of the stucco work appear.

North Curtain.--Parapet 6'2" in height and 5' thick, in fair condition except in the embrasures. The banquette surface is worn in places and edged with brick, some of which require renewal. The height of the parapet varies to 5'9" at the ends of the curtain.

N.E. Bastion.--Left flank--As far as the first embrasure height about six (6'), and thickness 4'7". At the embrasure height descends to 4'10". Repairs have been made from this point to the angle from 2'6" up.

Left face.--Parapet same as the repaired portion of flank to about 10' from tower where the height rises to 6'. Is in fair condition. The tower is in good condition except for injuries made by small shot holes.

Right face.--Parapet 3'3" high and 3'10" thick. In fair condition. Superior slope and crest injured by weather and broken. Has five small embrasures through it about 12" by 8" near level of terreplein. Right flank.--About the same. Has two small embrasures.

East Curtain.--Height and thickness same as previous face. Has five small embrasures through parapet. In the N. half about 13' of parapet near the middle has been rebuilt. The top cornice requires renewal as in the case with nearly the whole. Near the S. end a portion of the upper part of the parapet has been broken.

S.E. Bastion.--Left Flank. Parapet same as preceding. Has three small embrasures through it.

Left face.--Same parapet.--Has 5 small embrasures. Near the middle about 2' of coquina is gone from top for 6' or 7'.

Right face.--Height 5'11" and width 4'10". Has a crack about 2" wide near angle with flank. Is in fair condition except about the embrasures. Portions of stucco still adhere. Banquette worn and settles away from parapet. The flag staff stands in banquette in angle with flank.

Right flank.--Parapet 6'2" high, 4'10" wide. Is cracked near angle with face, otherwise in fair condition. Banquette has settled away from parapet.

South Curtain.--Parapet 5'9" high and 4'9" thick. In fair condition. Soles of embrasures need repair and some of the blocks about them renewing. Banquettes are broken and need repair.

S.W. Bastion. Left flank. Parapet 5'4½" high and 3'4¼" thick. In fair condition. Banquette settled away from parapet & requires repair.

Left face. Parapet 5'11" high & 3'4½" thick. Has a crack from 1" to 2" wide near angle with flank. Parapet is in bad condition throughout and requires much repair. Upper stones broken and worn. Banquette nearly

destroyed. The pointing is out. About 5' has been renewed across the salient. Some 10' adjoining the upper courses gone, with several cracks.

Right face.--Parapet 5'10" x 3'4"--upper course requires renewal. Pointing gone. Has been repaired from about 25' from Salient to angle with flank from 2' high to top. Repairs leave the height irregular. Right flank. Same remarks as to height and conditions.

West Curtain. Parapet 5'8" high and 3'7" thick. Near S. end the top course needs renewal, otherwise the parapet is in fair condition except in and about the embrasures. Banquettes require repairs. Several cracks close together about 40' from the S. end.

Rear Wall of Barbette

The rear walls are about the same on all four sides. Dimension 3'4" high and 18" thick. Requires repair on top throughout. The upper surface is rounded with cement, and this is broken and loose. On the E. Curtain over casemates 21 & 22 the wall is broken down nearly to its foot and some 16' or 18' requires rebuilding. The temporary quarters which stand against the wall are of wood and shingled and about 9'3" x 8'5".

Interior Walls of Fort

North Side. Shows much wear and weathering particularly near the level of parade. The door sills are all worn and washed away. The stucco has generally retained its hold but broken and destroyed in many places, and particularly about the doorways. Holes have been pierced to admit of stovepipe to the casemates and the smoke from these has blackened the walls. These need pointing and along the foot rebuilding.

East Side.--Is somewhat the same condition but worse. The wall requires pointing and considerable repair up to 6' or 8' from the ground. The

door sills and jambs and window frames are nearly gone and need renewal. The arch under the stairs leaks badly and the stairs themselves are much worn and need renewal and repair. The oven adjoining the stairs is cracked 1" to 4" wide.

South Side. Near the level of the terreplein the wall needs repair. The jambs of Sally-port door are broken and need renewal. Two small rooms under that portion of the stairs on this side are intended either as Coal bunkers or prisons. Both leak through the stairs. Face of the wall requires pointing, and renewal of door sills.

West Side. Same as North side. Window and door frames, particularly the sills require renewal, and wall repointing.

General Remarks

The drainage of the parade is mostly through the ground. The drain runs through and under the Sally-port but does not appear to carry off any water.

A Cistern stands in the S.W. Corner of parade, the water of which for some reason is not good.

The Main bridge requires new plank and sills.

Scarp Wall of Main Work

The side piers of jambs and the scarp wall at main entrance badly worn near the bottom but the wall is not weakened thereby. To repair them would require 3 or 4 cub. yds of new masonry to be inserted in lieu of the old masonry to be cut out. Lintel over gateway cracked through 1/8" wide, crack old and not recently enlarged. No crack in the scarp above lintel. No cracks in the Curtain or flanks of gorge front of a serious character. Some of the top cornices of parapet loose & require resetting.

Vegetation has been allowed to grow on the scarp wall of curtain under the drip of the discharge pipe from the terreplein, causing local injuries to masonry.

In the right face of gorge scarp there are three cracks from top to bottom, one near center of face and one near each end, the one nearest the salient being the widest, varying from ½" to 3/4". These are all old cracks and do not appear to have enlarged for years. May be repaired by pointing.

In left face of gorge scarp there are two cracks from top to bottom, similar to those in right face and can be repaired in same way. On both faces a few of the top stones of parapet require relaying.

In scarp of left face, West front, there are two cracks from top to bottom, one very small about 1/18" wide near the salient, the other near the center 3/4" wide. Both old, show no recent enlargement, can be repaired by pointing.

In left flank West front, are two cracks from top to bottom, one very near the reentering angle, 1/2" wide, old, without recent enlargement, the other near shoulder angle ½" to 2" wide, old, but has slightly enlarged within last few years. Can be repaired by pointing and inserting several new stones.

The scarp of Curtain, West front, shows but one crack scarcely perceptible, & very old. The stone on this curtain shows very much weathering, being worn away in many places. Severed niches leaving the mortar of the joints in bold projections. Vegetation has been allowed to grow from top to bottom under the drips from terreplein, six in number, injuring the masonry.

In Scarp of Right Flank, West front, there is one crack from top to bottom near the shoulder angle 1/4" wide at bottom & 1/4" at top. An old crack, no recent enlargement, can be repaired by pointing.

In right face, W. front, there is one crack from top to bottom near the middle, from 1/2" to 1" wide. Old, no recent enlargement, can be repaired by pointing.

The parapet wall of Curtain, W. front is in very good order. Top cornice requires renewing on rest of front with the exception of right flank.

In the left face, North front, are two cracks from top to bottom, one near centre ½" wide, no recent enlargement, can be repaired by pointing, & one about 10' from salient ½" to 2" wide toward top, and old crack, to be repaired by pointing and the insertion of 8 or 10 new blocks. Parapet requires renewal of top with exception of about 10' in length.

In left flank, N. front, are two cracks from top to bottom ¼" to ½" wide, one near reentering angle & one near salient, both to be repaired by pointing. Parapet in good order.

Curtain of N. front. No cracks. Drip from terreplein has injured wall in one spot which requires pointing. Parapet in pretty good order.

Right Flank, N. front one old crack from top to bottom ¼" wide, to be repaired by pointing. Parapet has been repaired to about 1-1/2' below the original height.

Right Face, N. front, shows no extensive cracks, but the mortar is badly out of the joints. Requires repointing. Parapet has been repaired and finished to within 1½' of original height except about 10' of the old parapet next the salient, in good order.

In scarp of East front there are two cracks in the right face from top to bottom to be repaired by pointing. All the masonry on this front shows extensive weathering. Requires pointing & patching. About one third of the top course of parapet requires relaying, with from 25 to 30 running feet in length of new stone.

The masonry of the scarp wall is of the same character on all the fronts, Ashlar, not in courses, stones vary from 6" to 2' in rise and from 1½' to 3½' in length on the face. On the East front the parapet wall is only about half the height on the other fronts.

Demi-lune

Place of Arms. About 15' of the right hand wall has been renewed from the ditch inwards, but is again cracked. The remainder requires pointing only. The gate posts of bridge over demi-lune ditch requires repair for some 5' from foot, and the gate-posts at other end of D-L. bridge have been injured. The wall on left side of passage to demi-lune bridge requires six or seven new blocks of Coquina.

Interior of Demi-lune

Wall needs pointing. Upper courses of wall on gorge require renewal. The interior of demi-lune is grown up with grass,--as well as a banquette against gorge wall. The parapet is in good order.

Gorge Scarp of Demi-lune

The right half of gorge scarp has been repaired at top. Has a crack 1/2" wide under head of bridge (main), and one or two small cracks. Can all be repaired with pointing.

The left-half of gorge scarp has no cracks, but requires pointing. The remainder of demi-lune scarp requires pointing.

Water Battery

Covered Way and Gun Platforms

The parapet of the water battery which is about 13'8" in thickness is of concrete, faced on the inside with coquina & on outside with coquina down to the water and below with granite.

Sup. slope about 1/6. Is in good order generally and requires little other repair than occasionally renewing the stucco. The platforms are of uniform dimensions, front pintle--made of coquina--with interior of shell concrete, & are numbered below from North to South.

No. 1. Has 8" Sea Coast Howitzer mounted on front pintle. Wood carriage unserviceable. Platform as above in good order, requires but slight repair of Stucco.

No. 2. Same platform. No repairs needed.

No. 3. Gun mounted same as No. 1. The right side of platform and parapet in front of gun worn from being used as a path to the Sink.

No. 4. Platform requires slight repairs on top of plastering. In the N.E. Angle of the Battery, the parapet is somewhat worn by stepping upon it, and about 2' South from angle it has been injured by pistol shots.

No. 5. The platform has been destroyed, leaving only the circle which is in good order.

No. 6. Mounted 32 pdr. rifle. Wood Carriage, unserviceable. Platform worn on either side from stepping upon it, and requires plastering on top.

No. 7. Same gun and same condition.

No. 8. Platform a little worn on right side.

No. 9. Same gun and condition as No. 6 and 7.

No. 10. Platform in good condition. Iron rail of circle gone.

No. 11. Platform good.

No. 12. Platform requires plastering on top. Half of iron rail gone.

No. 13. Platform worn on both sides. Iron rail gone.

No. 14. Platform partially destroyed. No iron on circle.

No. 15. Same as No. 14.

No. 16. No platform or circle.

No. 17. Platform broken on one side. No iron or circle.

No. 18. No platform or circle.

No. 19. do do.

No. 20. do do.

Covered Way. Wall to West of demi-lune broken for about 15' for a road. Wall about 5½' high and 19" thick. Injured on top and requires renewal. Opposite Right face of demi-lune the wall is 5' high. Top course requires renewal. Considerable repair & pointing needed. There is large crack in the wall at the angle of preceding wall with that in front of left face of S.W. Bastion. The crack is from 4" to 8" wide and the wall must be rebuilt at this point. At the jog South of the S.W. salient of the Fort is another large crack which renders rebuilding necessary for about 5' x

18". At the S.W. angle of covered way is a break in the wall for a pathway. Rebuilding 5' long x 3' high x 18" thick. A crack on line with right flank of S.W. Bastion and another corresponding on the other side of the angle renders rebuilding necessary for about 1'. Wall 6' high and 18" thick.

Opposite N. end of W. Curtain the wall requires rebuilding for about 20'. It has been thrown down by thrust of Earth in front. Angle on line with right flank of N.W. Bastion broken for about 6'. On right side of demi-lune of Covered Way some 20' needs rebuilding. Both of the angles to the right are broken.

The Shot Furnace near East Curtain is in good order. Capacity for shot 7".

On the covered way of north front, there are two 10" Columbiads mounted on unserviceable wooden platforms. One opposite the middle of North Curtain and the other on the prolongation of the capitol of the North West Bastion.

Respectfully Submitted

s/Q. A. Gillmore
Major of Engineers
Bt. Maj. Genl. U.S.A.

Sent with my report)
dated May 12th, 1869)

APPENDIX C

GLOSSARY

applicateur. Fort Marion: workman engaged in applying asphaltum to roof surfaces of arches.

architrave. Beam or lowest division of entablature, which extends from column to column. The term is also applied to the moulded frame around door or window.

archivolt. Mouldings on face of arch, following its contour.

arrondisment. (French: arrondssement) Rounding (noun).

askew arch. Fort Marion: segment arch which springs from oblique piers, and twists gracefully in its length to seat its weight fully upon the skewbacks.

ballister. Small pillar or column supporting handrail or coping. Series of such is called a balustrade.

baluster. See ballister.

banquette. Raised way, or foot bank, running along inside of parapet, on which riflemen stand to fire on enemy.

barbette. Platform in fortification on which guns are mounted to fire over parapet.

barracks. Large building for lodging of soldiers; barracks (plural): building or buildings for that purpose.

barrel vault. Fort Marion: brick semicircular arched covering of greater length than breadth.

bastion. Work projecting outward from main enclosure of fort, consisting of two faces and two flanks, and so constructed that it is able to defend by flanking fire the adjacent curtain or wall which extends from one bastion to another.

bastion towers. Fort Jefferson: section of the bastion enclosing the spiral stairway.

batten. Narrow strip of wood or scantling used in various ways: at Fort Jefferson, to rest upon piazza joists and provide additional support for flooring.

batter. Backward slope of retaining wall.

battery. Any place where cannon or mortar are mounted for attack or defense.

bead. Fort Jefferson: narrow rounded moulding or protecting band at masonry corners.

belt. Strip or band.

breakwater. Fort Marion: counterscarp (moat) wall, seawall built to exhaust force of waves.

breast-height wall. Fort Marion: interior slope of parapet, against which the garrison lean in firing.

breastwork. A defense work of moderate height, hastily thrown up, of earth or other materials.

brick facing. The outer or exposed portion of brick wall.

caballero. (Spanish) Sort of fortification, or part of fortification.

carriage. Fort Marion: wheeled stand or movable support of gun.

casemate. Bomb proof chamber.

cistern. Receptacle for storing water; reservoir.

coal rig. Coal storehouse and apparatus for depositing coal in bunkers of vessel.

cofferdam. Water tight structure of pilings, used in engineering for excluding water from area excavated, so that foundations may be built dry.

communication arch. Fort Jefferson: arched opening that pierces casemate pier and gives access to adjoining casemate. These openings are near the rear of gun room or casemate, away from the arc described by traverse of gun carriage, which impeded progress through main and larger connecting casemate arches.

contrabands. Escaped black slaves, termed "contraband of war."

coping. Highest or covering course of masonry in wall, often with sloping edges to carry off water.

cobel. Fort Jefferson: projecting brick, generally used for support of element above, although occasionally for ornamentation.

cordon. Coping of scarp wall, which projects a few inches beyond face of wall.

cornice. Horizontal projection which crowns or finishes the work to which it is affixed.

counterscarp. Exterior slope of ditch or moat opposite the scarp; moat wall: see scarp.

curtain. That part of rampart and parapet which extends between two bastions or gates.

dentil. Tooth-like cube in cornice.

elliptical. Arch, the rise of which follows oval curve above the long horizontal axis of an ellipse.

embrasure. Opening in a fort wall from which to fire guns.

embrasure cheek. Vertical side or jam of an embrasure.

embrasure iron. Iron protecting frame about outer opening of embrasure.

embrasure shutters. Iron shutters to close embrasure.

emplacement. Position of guns within fortification.

enrockment. Fort Marion: protective layer of loose stone to prevent undermining of counterscarp foundation.

entablature. Fort Jefferson: upper part of the architecture, comprising architrave, frieze, and cornice.

facade. Face or elevation of building.

fascine. Bundle of sticks or fagots bound together and used for fortifying ditches, building earthworks, etc.

filter closets. Fort Marion: opening in casemate pier where was placed apparatus to filter water conducted from terreplein to casemate cisterns.

flagging. Pavement of flagstones; sometimes used to denote a single flagstone.

flagstone. Large flat paving stone; at Fort Jefferson, a "Blue Stone Flagging," about six inches thick.

front. Fort Jefferson: designation of a side of the hexagonal figure; curtain. The sides of the hexagon are numbered, the angles (or bastions) lettered.

gabion. Large cylindrical bottomless basket filled with earth and used in building earthworks.

girder. Main beam in a floor.

gorge. Entrance into a bastion; usually synonymous with rear.

grillage. Arrangement of sleepers and crossbeams forming a foundation in loose or marshy soil. At Fort Marion, the grillage was placed under casemate and bastion piers, and extended between those elements to form the under-structure for cistern floors.

groin. Curved arris (sharp edge) formed by the intersection of vaulting surfaces.

grudgeon. Pin, wedge or pivot placed at the end of a shaft to prevent pulley from slipping.

gun circles. See traverse arc.

hot shot furnace. Furnace in which round shot was heated. Apparatus within the oven delivered the red hot balls to artillerists who by means of longs conveyed them to muzzle loading cannon. These missiles could set a wooden vessel on fire, or wreak havoc in a magazine. They were capable of skipping upon water several times and still retaining enough heat to start a blaze.

howitzer. Short, light, large bore cannon, in which the hollow projectile could be placed by hand.

jamb. Upright side of a doorway, window, or fireplace.

joist. Horizontal timber to which boards of floor or laths of ceiling are fastened.

linstock. Pointed, forked staff, shod with iron at the foot, to hold lighted match for firing cannon.

lintel (lintle). Horizontal member spanning an opening and carrying superincumbent weight by means of its strength in resisting crosswise fracture.

loopholes. Narrow aperture for observation or defense.

lunette. Detached bastion.

magazine. Building or room in wich powder and explosives are kept in a fortification or ship.

magistral. Line from which the positions of various units of the fortification are determined.

mitred. Joined on a slanting line at the corners.

moat. Deep ditch around a fort, usually containing water.

mortised. Joined (as timbers) by putting a projecting part into a hole made to fit.

pan-coupe. Fort Jefferson: cant-wise slope of wall or skirt on parapet below mouth of gun to deflect shell fire.

parade. Courtyard or enclosure in fortification where troops are drilled.

parapet. Wall crowning curtain to protect soldiers from enemy fire.

pediment. Triangular piece over the entablature, which fills in and supports the sloping roof.

permanent buildings. Fort Jefferson: those buildings on Garden Key designed as integral units of the fortification or for the use of its garrison.

piazza. Veranda.

pier. Fort Marion: mass of detached masonry, distinct from a column, from which an arch springs.

pilaster. Rectangular column or pillar, inserted partly in or attached to a wall.

pintle. Pivot about which the chassis of the gun carriage swings.

pintle stone. Stone in which pintle is set.

plinth. Lowest square member at the base of a column; projecting face at the base of a wall.

postern. Entrance (usually subterranean) beneath the parapet and through the rampart of a fortification. Fort Jefferson: term that engineers used as synonymous with sally port or entrance.

primage. Small sum of money paid to a shipowner in addition to payment for carrying goods, as for the care of the goods.

purlin. Horizontal beam in a roof resting on the principal rafters and supporting the common rafters and roof covering.

quarters. Lodging: at Fort Jefferson, usually dwelling place for officers.

quoin. Term applied to corner stone at angle of building; hence, the angle itself. Also: support at breech of cannon.

rampart. Broad embankment round a place, upon which the parapet is raised.

ravelin. Detached work with two embankments which made a salient angle. It is raised before the curtain on the counterscarp of the fortification.

recess. Niche or hollow in the wall.

reference. Fort Marion: established level or elevation; engineers used the mean low water level as elevation (or reference) zero, and made their computations of height upon that basis. A point five feet below low water level was at reference minus five feet; ten feet above low water was similarly designated as a reference ten feet.

revetment. Facing of wood, stone, or any other material, to sustain an embankment when it receives a slope steeper than the natural slope; also a retaining wall.

riser. Upright part of a step.

rusticated. With reference to stonework, made with grooved joints or roughened surface.

salient. Projection.

sally port. Gate in fortification, through which besieged troops might rush forth. See postern.

scarp. Slope of the protecting ditch or moat which touches the wall or parapet; inner slope of the protecting ditch at the foot of the parapet, nearly perpendicular.

segmental arch. Arch, the curve of which forms less than half a circle. This type of low arch the engineers usually referred to as "flat"; technically speaking, the soffit of a flat or straight arch is on the same level with its skewbacks--it is horizontal.

semi-circular arch. Arch, the curve of which forms a half circle. Sometimes called round arch.

shoal. Fort Marion: shallows off shore.

skewback. In masonry, a stone block, steel plate, or the like having a sloping face against which an end of the arch rests.

soffit. Ceiling or under surface.

subsidence. Sinking or settling.

surbase. Moulding around the top of a pedestal or where the wall of a masonry building rests on its foundation; interior; moulding or chair rail along the top of a wainscot or bassboard.

temporary buildings. Fort Jefferson: structures on Garden Key erected for use of the workmen, and to be demolished as the permanent units replaced their utility.

terreplein. Main upper level of a rampart, where guns, shielded by a parapet, are mounted; roof of the fort.

tiebeam. Beam which acts as a tie in connecting the lower ends of rafters.

transom. Piece of wood or iron connecting the checks of some gun carriages.

traverse arc. Arc of part of a circle described by movement of gun carriage about the pintle or center point; the stone support and iron

track upon which the gun carriage rolls to turn the gun right or left. By traversing the arc, the gun thus commands a horizontal range of about ninety degrees. Traverse arcs were laid in casemates and terreplein fronts.

traverse circles. The complete circle described by movement of gun carriage about the pintle or center point; the stone support and iron track upon which the gun carriage rolls to turn the gun right or left. By traversing the circle, the gun thus commands a horizontal range of three hundred sixty degrees. Traverse circles were laid on the bastion terreplein, Cf. traverse arc.

traverse iron. Iron track embedded in the traverse stone, and forming an arc upon which the wheels of the gun carriage roll.

traverse magazine. Fort Jefferson: magazine built athwart the terreplein.

tremie. Caisson-like device for laying concrete under water. The tremie used at Fort Jefferson was in the general shape of a truncated pyramid, the base of which rested on the sea bottom, and defined the limits of the mortar bed. Mortar was lowered through the upper opeining of the apparatus, spread evenly on the bed, and rammed. Unlike a caisson, the tremie was not waterproof, and the experimental blocks laid at Fort Jefferson by that method were comparatively soft and porous.

traverse stone. Fort Marion: granite stone cut in the form of a small segment of a circle, so that with its mates it comprised the traverse arch.

triangular arch. So-called arch, the sides of which are straight and meet in a peak.

Venetian blind. Window shade or blind made of horizontal slats of wood or cords, turnable so as to admit or exclude light and air.

vault. Arched roof.

voussoirs. Truncated, wedge-shaped blocks forming an arch.

wainscot. Paneled wooden lining on walls.

watertable. Projecting course of masonry or moulding to throw water away from a wall.

zero level. Fort Marion: mean low water level; see reference.

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Section III:
Castillo de San Marcos:
The National Park Service Years, 1933-1979

By
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A. FORT MARION DESIGNATED A NATIONAL MONUMENT

President Calvin Coolidge, by Proclamation on October 15, 1924, declared Fort Marion to be a national monument. This designation encompassed 18.09 acres containing the fort and a portion of the surrounding fort green. The War Department administered the new national monument under a lease agreement with the Saint Augustine Historical Society and Institute of Science (SAHS). The SAHS agreed to preserve, protect and interpret Fort Marion for the American people. This arrangement was altered on June 10, 1933, when President Franklin Delano Roosevelt by Executive Order No. 6166 transferred jurisdiction of Fort Marion to the National Park Service (NPS) in the Department of the Interior. This began a period of dual administration of the fort by the SAHS and the NPS. This arrangement lasted until July 1, 1935.[1]

1. Fort Marion Comes Under the Administrative Jurisdiction of the National Park Service

Back in August of 1933, however, the curator of Fort Marion, William Harris, was notified by War Department officials that any further correspondence in regard to Fort Marion should be addressed to the NPS rather than the Army. The Secretary of the Interior, Harold L. Ickes, continued the War Department arrangement with SAHS designating Harris as the "Custodian of Fort Matanzas and Fort Marion" for twelve dollars a year. At the same time, Herbert Kahler, a NPS employee, was dispatched from the Chickamauga and Chattanooga National Military Park to St. Augustine to take charge of Civil Works Administration (CWA) projects for the NPS at Forts Marion and Matanzas. Kahler was to supervise two skilled workers, two semi-skilled workers, and one foreman in carrying out repairs and maintenance work, and give general guidance to Harris's work. Upon his arrival in St. Augustine, Kahler discussed the proposed CWA work with Curator Harris. The proposed work included: removal of 8,000 cubic feet of soil from the moat, repair of the fort terreplain,

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1. Noble to Harris, August 7, 1933, National Archives (NA), Record Group (RG) 79, NPS Central Classified File 1933-49, Castillo de San Marcos. Wirth to Holland, August 2, 1954, NA RG79, NPS Central Classified File, 1933-49, Castillo de San Marcos.

replacement of the drawbridge, and installation of a floodlight system around the fort. Harris believed that all of these projects were approved. Then, in December, 1933, it was discovered that these projects were never approved, and so this program of work was resubmitted as a proposal to the newly established Public Works Administration which had superseded the CWA.[2]

Also in December, a Historic American Building Survey (HABS) Team arrived in St. Augustine to make architectural drawings of Fort Marion, the city gate, and several other historical structures around the town. The HABS team consisted of five members, supplemented by members of the park staff, who gave assistance and guidance during the project. This work was scheduled for completion in April, 1934. The measured drawings for the city gate, however, were not finished until May, and the work at Fort Marion was completed three weeks later.[3]

Between January and July of 1934, a number of recommendations were made by NPS employees concerning possible improvements for the newly acquired national monument. These suggestions included: installation of a sprinkling system for the fort green, filling the moat with water, moving the SAHS's collection to one casemate, restoring the drawbridge, and constructing a coquina boundary fence on the north side of the park. While these particular suggestions were not immediately acted upon, other actions were undertaken to improve the appearance of the fort. The city of St. Augustine agreed to

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2. Noble to Harris, August 7, 1933, NA RG79, NPS Central Classified File, 1933-49, Castillo de San Marcos; Landru to Kahler, December 12, 1933, NA RG79, NPS Central Classified File, 1933-49, Castillo de San Marcos; Interview by Castillo de San Marcos Historian Luis Arana with former Castillo de San Marcos Superintendent Herbert Kahler and former Castillo de San Marcos Historian Albert C. Manucy, January 20, 1979; Kahler to Chatelain, December 15, 1933, NA RG79, NPS Central Classified Field, 1933-49, Castillo de San Marcos: Chatelain to Harris, December 28, 1933, NA RG79, NPS Central Classified File, 1935-49.

3. Kahler to Perry, May 2, 1934, Maps File, 103-02.2, Administrative Office, Castillo de San Marcos; Kahler to Landru, February 13, 1934, Maps File, 103-02.2, Administrative Office, Castillo de San Marcos.

replace some palm trees which had been cut down, and remove numerous commercial billboards which had been erected on the fort's grounds.[4]

The lease agreement between the War Department and the SAHS ended on June 30, 1934, and the Department of the Interior renewed it for another year as the NPS was not prepared to take over daily operations at the fort. This lease was to last for one year with the SAHS managing the daily operations of Fort Marion and Fort Matanzas under the supervision of the NPS. One provision of this lease allowed the Director of the NPS to terminate the agreement upon thirty days written notice to the SAHS. Upon notification, the SAHS would remove the society's property from the fort.[5]

During this year, the NPS officials began gradually taking more responsibility for the care and preservation of the fort. In July, 1934 Historical Technician Kahler placed wire screens over the chimney vents at Fort Marion to keep bats out of the casemates. Kahler then turned his attention to the removal of a small white building on the south salient of the fort's water battery wall. This structure was kept by the local lighthouse keeper to store oils for the beacons in St. Augustine Harbor. Kahler wrote to the Superintendent of Lighthouses that the building should be demolished and, if necessary, another structure constructed at the rear of the fort. The Superintendent of Lighthouses for the 6th District of the Lighthouse Service, H.L. Beck, replied that the storehouse, along with a small wharf at Fort Marion, were no longer required to service the beacons in St. Augustine Harbor. He promised

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4. Kahler to Chatelain, January 22, 1934, Fort Marion Notes File, 105-02-10, Administrative Office, Castillo de San Marcos; Kahler to Chatelain, June 9, 1934, Fort Marion Notes, 105-02-10, Adminstrative Office Castillo de San Marcos; Randolph to Kahler, March 24, 1934, Fort Marion Notes File, 105-02-10, Administrative Office, Castillo de San Marcos; Olinus Smith, Fort Marion North Boundary Location, May 31, 1934, Fort Marion Notes File, 105-02-10, Adminstrative Office, Castillo de San Marcos.

5. Lease between Department of the Interior and St. Augustine Historical Society and Institute of Science, July 1, 1934, NA RG79, NPS Central Classified File, 1933-49, Castillo de San Marcos.

that a demolition crew would be sent to take care of the matter when they completed their present work assignments.[6]

Kahler, now promoted to Acting Custodian of Fort Marion, undertook an inspection of Fort Marion and found nine informational signs on or by the fort. He believed that none of these signs were placed there by the War Department. Instead, they were put up by local groups. He recommended that in about a year, the existing signs be replaced by new ones bearing the NPS emblem.[7]

In August, Kahler repaired one of the 1927 ventilators installed in present-day room 20, and completed work on improving the fort's entrance. He also found the stairs to the San Carlos watchtower in the northeast bastion in need of repair and took corrective measures. Acting Custodian Kahler then turned his attention to the question of office space for himself and his staff. He wanted the office located in or near Fort Marion. One possible location, in his opinion, was one of the casemates. To refit the casemate for office space, installation of electrical wiring and fans for ventilation would be necessary. The disadvantage of using one of the casemates for office space was that they were poorly lighted and damp. Another possible office location would be the caretaker's cottage which lay west of Fort Marion circle. No final decision was reached, at this time, on which location would be used for office space.[8]

During September, 1934, Kahler reported that iron bars had been removed from the so-called "Seminole Room", now known as room 4,

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6. Kahler to Chatelain, July 10, 1934, Fort Marion Notes File, 105-02-10, Administrative Office, Castillo de San Marcos; Kahler to Beck, July 16, 1934, Fort Marion Notes File, 105-02-10, Administrative Office, Castillo de San Marcos; Beck to Kahler, July 19, 1934, Fort Marion Notes File 105-02-10, Administrative Office, Castillo de San Marcos.

7. Kahler to Chatelain, August 10, 1934, Fort Marion Notes File, 105-02-10, Administrative Office, Castillo de San Marcos.

8. Kahler to Harris, August 23, 1934, Fort Marion Notes File, 105-02-10, Administrative Office, Castillo de San Marcos; Kahler to Toslon, September 7, 1934, Fort Marion Notes File, 105-02-10, Administrative Office, Castillo de San Marcos.

in Fort Marion. The next month the park staff dismantled a barbecue stand on the fort's grounds. Kahler also was concerned that the women's and men's washroom did not have any wash bowls or easily accessible mirrors. The only mirrors were in the pay toilets, and the only sink was one in the janitor's closet which was usually dirty. He suggested that funds be provided for the purpose of refitting these washrooms. In October, Thor Borresen, a historical technician, inspected Fort Marion with Kahler, and he recommended that restoration work be carried out on the doors, windows, drawbridge, and chapel of the fort.[9]

That November, Kahler with Harris examined the fort's casemates for possible office locations. Kahler concluded that the casemates were cold, damp and dark. To serve as office space, the casement required the installation of a lighting system, stove, and waterproofing. Harris believed that no amount of work could make the casemates suitable for offices. Kahler's immediate solution to this problem was to rent office space in St. Augustine with the intention of eventually moving into the caretaker's cottage on the fort's grounds.[10]

The new year began with the NPS staff planting rye grass around the fort. Kahler again requested that funds be allocated for removal of alluvial fill from the moat. He planned to carry out this work in such a way as not to harm the water battery or shot furnace. During the course of the year, NPS officials decided not to renew the lease agreement with the SAHS, and so notified that organization's officers to that effect on June 7, 1935. The SAHS members then began removing

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9. Kahler to Chatelain, October 9, 1934, Fort Marion Notes File, 105-02-10, Administrative Office, Castillo de San Marcos; Kahler to Towers, September 24, 1935, Fort Marion Notes File, 105-02-10, Administrative Office, Castillo de San Marcos; Kahler to Chatelain, October 17, 1934, Fort Marion Notes File, 105-02-10, Administrative Office, Castillo de San Marcos.

10. Kahler to Chatelain, November 10, 1934, Fort Marion Notes File, 105-02-10, Administrative Office, Castillo de San Marcos.

their exhibits which occupied three casemates on the west side of the fort.[11]

2. The National Park Service Takes Over All Operations at Fort Marion

The park superintendent now established an office in the first casemate east of the sally port which is presently designated as room 29 or the west quadroom. This casemate had exposed electrical circuitry on the walls and ceiling with two drop cord lights in its center. Heat was supplied by an iron stove placed in the fireplace in the northeast corner of the room. At this time, a wooden floor was laid in another casemate which served as the souvenir shop. This casemate became the present room 28 or east guardroom.[12]

3. Work on Fort's Comfort Station

Shortly after the NPS moved into Fort Marion, in the summer of 1935, planning work began for the refitting of the casemates to house one administrative office and two comfort stations within the fort. Junior Architect John C. LaBey conferred with Superintendent Kahler on the matter of the comfort station. They came up with two schemes. The first scheme was to use two casemates with one being used by Black and white women and the other used by Black and white men. The second scheme was to use three casemates with Blacks being separated entirely from the whites. This scheme would further provide space in the rear of the casemate for storage purposes. The final agreement was a compromise

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11. Manucy to Harrington, January 7, 1935, Fort Marion Notes File, 105-02-10, Administrative Office, Castillo de San Marcos; Kahler to Chatelain, December 10, 1934, Fort Marion Notes File, 105-02-10, Administrative Office, Castillo de San Marcos; Duham to Crammerer, June 18, 1934, NA RG79, NPS Central Classified File, 1933-49, Castillo de San Marcos; Crammerer to Dunham, June 7, 1935, NA RG79. NPS Central Classified File, 1933-49, Castillo de San Marcos.

12. T.L. Bailey, "Final Report on the Construction of Two Comfort Stations and One Administrative Office Within the Existing Rooms at Fort Marion," November 30, 1937, Construction Completion File, Administrative Office, Castillo de San Marcos, p. 3; Albert Manucy, "Completion Report on Rehabilitation of Doorways at Castillo de San Marcos, 1953-54," May 10, 1954, Construction Completion File, Administrative Office, Castillo de San Marcos, p. 2.

in which it was decided that white toilet facilities would be in one casemate with Black facilities in another.[13]

The next few months were spent in working out construction details between the park staff and the NPS Eastern Division, Branch of Plans and Design, on the restrooms. Discussions centered on whether or not to heat the comfort stations with electric or oil heating, and whether asphalt tile or linoleum be used as a floor covering. Also discussed was what material should be used in constructing the partition walls. These issues were resolved, and construction plans were prepared by the NPS Eastern Division, Branch of Plans and Design. The project was put out for bid with three contractors submitting proposals. The opening of the bids came on June 2, 1936, with the contract awarded to the Kendrick Engineering Company which made a proposal of $11,859.[14]

Work began on the comfort stations on August 10, with the removal of the flooring, older plumbing fixtures, and partitions in the casemates. The women's comfort station, with a partition for white and black women, was placed in present room 24 and the men's, also partitioned, in present room 25. A hole was opened in the east wall of the fort at present room 25 for the vent pipes and water lines to be run through to the outside. Just before this action, Superintendent Kahler made an inspection of these casemates along with the one to be used for the administrative office. The administrative office is presently room 1 immediately west of the sally port. He found that all casemate ceilings showed signs of water seepage from the parapet, and he feared that this

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13. LaBey to Peterson, October 16, 1935, Fort Marion Notes File, 105-02-10, Administrative Office, Castillo de San Marcos; LaBey to Peterson, October 30, 1935, Fort Marion Notes File, 105-02-10, Administrative Office, Castillo de San Marcos.

14. Kahler to Taylor, December 7, 1935, Fort Marion Notes File, 105-02-10, Administrative Office, Castillo de San Marcos; LaBey to Vint, December 22, 1935, Fort Marion Notes File, 105-02-10, Administrative Office, Castillo de San Marcos; Kahler to Vint, June 8, 1936, Fort Marion Notes File, 105-02-10, Administrative Office, Castillo de San Marcos.

condition would prevent a satisfactory interior plastering job. While solutions for this problem were being formulated, work began on excavation of a trench and hole in the surface of the south covered way west of the ravelin for the exterior electrical and water service. Then a circulating heater was ordered for the room. The concrete walls then were poured for the septic tank in the water battery with this work being hampered by water seepage into the excavation. After some difficulty the problem was overcome.[15]

4. Work on Water Seepage from Terreplein

The problem of water seepage from the terreplein led park officials to evaluate several alternatives for alleviating the situation. First, they experimented with various types of sealants on the cracks above the rooms to be remodeled. Using the results of these tests, the park officials narrowed the possible choices to three proposals. The first proposal was to waterproof the terreplein and place flashing around the perimeter to prevent ingress of water. The second proposal was to waterproof the interior rooms which would require furring of the walls and roof. The third proposal was to clean and smooth the ceiling surfaces, but not to plaster them. Thus any water leakage would not damage the ceiling. It was decided to try the third method for the restrooms. However, the terreplein above the office would be a built-up with asphalt as waterproofing in order that the entire casemate could be plastered.[16]

During this construction work, Deputy Chief Engineer Oliver G. Taylor found the existing electrical system in need of a

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15. Bailey, "Final Report on the Construction of Two Comfort Stations and One Administration Office Within the Existing Rooms at Fort Marion," November 30, 1937, Construction Completion File, Administrative Office, Castillo de San Marcos, p. 7; Bailey to Gillen, August 13, 1936, Fort Marion Notes File, 105-02-10, Administrative Office, Castillo de San Marcos; Tolson to Kahler, September 24, 1936, Fort Marion Notes File, 105-02-10, Administrative Office, Castillo de San Marcos.

16. Kahler to Taylor, June 6, 1936, Fort Marion Notes File, 105-02-10, Administrative Office, Castillo de San Marcos; Swanson to Vint, September 2, 1936, Fort Marion Notes File, 105-02-10, Administrative Office, Castillo de San Marcos.

complete renovation if a proposed floodlight system was installed. He was instructed that since the installation of a floodlight system was tentative that the existing electrical system would adequately serve for the present electrical requirements. Superintendent Kahler asked that the new wiring be concealed in conduit laid in the floor in the office. This request was granted. An inspection of the new administration office and comfort stations was conducted on November 21. The work was found to be completed in a satisfactory manner. Office equipment was moved into the administrative office on November 22, and the comfort station were opened to the public on November 23, 1936.[17]

Early in November, F.F. Gillen, Chief of the Construction Section for the Branch of Engineering of the Eastern Division, NPS, inspected the fort. He believed that a major problem with the fort would be waterproofing of the terreplein. He found the ceiling in the new office space already had two or three leaks. His solution to this problem was to recommend a terreplein covering construction of a watertight roof consisting of a five-ply membrane roof with copper flashing and counter flashing. Gillen wanted a layer of quarry tile in mastic to be placed on top to protect the membrane from people walking on the terreplein.

Another improvement that Gillen recommended was the excavation and refilling of the moat. This work would require installation of tidal gates in the water battery to maintain the water at a four-foot level.[18]

5. Archeological Work on City Gate and Moat

Starting in January of 1937, park officials had archeologists commence on work to determine the location of the city moat. Work began

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17. Taylor to Kahler, June 13, 1936, Fort Marion Notes File, 105-02-10, Administrative Office, Castillo de San Marcos; Taylor to Peter Kendrick Engineering Company, October 9, 1936, Fort Marion Notes File, 105-02-10, Administrative Office, Castillo de San Marcos; Cross to Peter Kendrick Engineering Company, October 16, 1936, Fort Marion Notes File, 105-02-10, Administrative Office, Castillo de San Marcos.

18. Bailey, "Final Report of Two Comfort Stations and One Administration Office Within the Existing Rooms at Fourt Marion," p. 7, Taylor to Kahler, December 12, 1936, Fort Marion Notes File, 105-02-10, Administrative Office, Castillo de San Marcos National Monument.

around the city gate and digging proceeded easterly following the Spanish defense line, known as the Cubo line. At Fort Marion, the archeologists found evidence that the moat ran for a distance of 100 feet westward of the fort's covered way. Also, they were able to determine the stratigraphy of the glacis slope.[19]

This archeological work was followed by excavation of the fort's moat. The moat was to be lowered to a depth of two feet below the existing level. Mud taken from the moat would be used in mucking the fort glacis slope. At the same time, work began on repairing the drawbridge. The drawbridge work was completed on December 29, 1937, and with the moat excavation completed shortly afterwards. Soon after this work was completed, the new water level in the moat began causing erosion of the ground around the bridge piers. This made the bridge unsafe and required immediate repair work on the piers which was completed in May 1938.[20]

Also, in 1937, restoration work began in October on the city gate. With the beginning of the restoration work, the city gate was closed to through vehicular traffic. Besides these major projects, minor work occurred inside the fort. The room east of the sally port, presently room 29, was given a new doorframe and door. A concrete floor was laid with a short concrete ramp leading into this room.[21]

6. 1938 Work at Fort Marion

In January 1938, the Works Progress Administration (WPA) began planning to construct a parking lot on the fort green. The entrance and exit were to be on St. Marcos Avenue and the parking lot

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19. City Gates General File, 105-02.1, Administrative Office, Castillo de San Marcos.

20. Johnston to Kahler, August 23, 1937, Emergency Relief Administration File, 105-02-10, Administrative Office, Castillo de San Marcos.

21. "City Gates Opened Temporarily This Evening to Motor Traffic," July 20, 1937, Fort Marion Notes, 105-02-10, Administrative Office, Castillo de San Marcos.

was to be 315 feet long and 60 feet wide. Local citizens' groups objected to the placement of the parking area on the fort green. These concerns were expressed to the Florida congressional delegation, who took action to temporarily halt the project before any construction occurred.[22]

In April, a fifty foot cypress flagpole was positioned on the terreplain against the back of the parapet, midway along the south curtain, right above the gate replacing a pipe flagpole. Park officials in August 1938, inaugurated an admission fee collection program. The physical impact of the program consisted in the addition of a coin box, iron railings, and informational signs in the sally port. Work inside Fort Marion included the replacement of the termite damaged chapel doors, presently room 14, with replica cypress ones.[23]

Outside the fort in the covered way in front of the southeast bastion's south face stood a storm warning tower built by the United States Weather Bureau during the period of Army occupation. This tower was dis-assembled and reassembled at a site off the fort's grounds. Also on the fort's grounds, a program was undertaken to prune, brace, and treat diseased trees.[24]

7. 1939 Work at Fort Marion

NPS personnel bagan in February 1939 to repair the fort's terreplein. The repair procedure decided upon entailed the laying of a four-inch slab of concrete, then applying a layer of asphalt, followed by five additional layers of felt covered with asphalt. On top of this was set 19" x 19" x 2-1/4" concrete tiles caulked with pitch. The Public Works Administration (PWA) laborers began removing the modern covering from

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22. Kahler to Smith, January 8, 1938, Emergency Relief Administration File, Administrative Office, Castillo de San Marcos.

23. "New Flag Pole At Old Fort," St. Augustine Record, April 6, 1936, Press Release File for 1938, Administrative Office, Castillo de San Marcos.

24. Emergency Relief Administrative File, Administrative Office, Castillo de San Marcos.

the terreplein. Three test pits were excavated to study the construction of the terreplein. These test pits were backfilled and a waterproof membrane placed over the terreplein surface with the exception of the so called "fern room." Here a waterproof membrane was not placed over the casemate in order that the ferns inside would have sufficient moisture to grow. Next the banquette firing steps were removed and the southeastern sentry box was stabilized with fifteen tie bars. The final terreplein construction differed from the preliminary plan in several aspects. First, a three inch concrete base was poured over a two inch wire mesh, then five layers of asphalt-saturated felt were placed on top of the concrete. Finally, an asphalt grout was applied on the surface followed by the placement of cement and coquina tiles. Then copper flashing was inlayed around the parapet walls and scuppers. Most of this work was completed in December with the rebuilding of the banquette continuing into 1940.[25]

Other activities in 1939 included the removal of a modern electrical bell which was used to assemble visitors for tours, the taking down of pipe rails in the San Carlos watchtower, and removal of a bell of Spanish design which hung in the tower. A continuing request by the park staff was for installation of a floodlight system at Fort Marion. Some concerns about this request were expressed by Historical Technician Albert Manucy, who believed that the installation of a floodlight system would not be in keeping with maintaining the historic appearance of the fort. The Coordinating Superintendent, Edward Freeland, overruled this objection, and recommended that a project to install floodlights be undertaken. By November, work commenced on preparing the fort's electrical system for installaton of floodlights. This work consisted of an archeological excavation of a shallow underground trenches in which

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25. Albert C. Manucy, Terreplein Construction Fort Marion Notations on Its Original Character, (St. Augustine, Florida; Fort Marion, 1939), pp. 1-19.

electrical conduit was laid. Planning and work on the electrical system continued into 1940.[26]

During 1939, testing was done to determine the architectural details of the fort's foundation by Engineer Olinus Smith. Tests indicated that the base of the structure was twelve to fourteen feet in width, but only eighteen inches below water level in depth. Smith then discovered that the outlet from the septic tank through the seawall had been broken and required repair. He further suggested that the courtyard soil be removed to a depth of two or three inches to allow for a smooth and uniform surface.[27]

During work on a casemate, flooring samples were removed and sent to the National Bureau of Standards for analysis. The test results showed the floor to be composed of shell, lime, and sand. Officials of the National Bureau of Standards suggested that a modern replacement of the original flooring material could be made using a mixture of oyster shells with white cement. If this mixture was used, it was recommended that magnesium fluosilicate be employed to reduce the resulting floor dust.[28]

During the year, the park requested permission to add a Venetian blind to the "fern room" to promote the growth of the ferns, and plant flowers on the top of the city gate and other places around the fort. These suggestions were not approved.[29]

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26. "Feeland Discusses Development Program at Fort Marion," July 4, 1939, Press Release File, Administrative Office, Castillo de San Marcos; Manucy to Kahler, November 24, 1939, Emergency Relief Administration File, Administrative Office, Castillo de San Marcos.

27. Smith to Regional Director, September 23, 1939, Emergency Relief Administration File, Administrative Office, Castillo de San Marcos.

28. National Bureau of Standards to Director of the NPS, November 6, 1939, Emergency Relief Administration File, Administrative Office, Castillo de San Marcos.

29. Crowe to Superintendent, November 13, 1939, Memos for Superintendent File, Administrative Office, Castillo de San Marcos National Monument; Manucy to Superintendent, November 27, 1939, Emergency Relief Administration File, Administrative Office, Castillo de San Marcos.

The park superintendent during the year continued to request funding for improvement of the existing parking lot, and the reconstruction of the drawbridge. Park officials wanted a lifesize drawbridge exhibit built, but the NPS Branch of Historic Sites rejected this in favor of reconstructing the existing drawbridge as accurately as possible. Work on this project began the next year when Architect Thor Borresen conducted an investigation in June of 1940 of the sally port bridge area. His purpose was to determine construction and operation of the historic drawbridge. Before Borresen could complete his work, however, he left the NPS.[30]

8. 1940 Work at Fort Marion

Early in 1940, new wooden members were used to replace rotting timbers of the drawbridge. The work was completed in February with replacement of the piers and footings. During the project, older wooden piles were discovered below the mud in the moat and removed.[31]

In January, archeological work commenced to determine the level and surfacing of the original parade (courtyard) of the fort. Another aspect of the job was to make trenches for the installation of electrical cable. The need for a new electrical system had been under discussion for some years, but concern was expressed by park professionals that any electrical work should be done only after certain protective measures were implemented. These protective measures included the burial in a shallow trench, 6" x 6", of the electrical cable in order that this modern intrusion would not detract from the historic scene. The cable, if feasible, would be placed in the interstices of the masonry wall so that no

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30. Johnston to Regional Director, December 6, 1939, Fort Marion Notes File, 105-02-10, Administrative Office, Castillo de San Marcos; Thor Borresen, "Archeological Investigation of the Vestibule and Draw Bridge Landing, At Fort Marion, St. Augustine, Florida," circa 1940, Fort Marion Notes File, 105-02-10, Administrative Office, Castillo de San Marcos; Borresen to Vinten, March 21, 1942, Fort Marion Notes File, 105-02-10, Administrative Office, Castillo de San Marcos.

31. Albert C. Manucy, "Narrative Report of Junior Historical Technician Albert Manucy, Fort Marion for February 1940," Narrative Report File, 107-01, Administration Office, Castillo de San Marcos.

historic fabric would be disturbed. Any plaster or masonry disturbed during the project would be replaced by duplicate material. The existing lighting system was unshielded, and this would be changed to indirect lighting which would enhance the visitors' experience at the site. The work was delayed when in March the electrical cable did not arrive at the fort.[32]

When installation of the electrical cable began, it was discovered that the electrical design plan was incompatible with reconstruction of the drawbridge. The problem was that a concrete manhole under the existing bridge and a concrete conduit crossed the counterbalance pit, then entered the fort through a wall in the administrative office file room. If the electrical system plan were completed as designed, it would prevent the historically accurate restoration of the drawbridge. To alleviate this problem, park officials recommended that a marine cable be installed to carry electrical and telephone service across the moat underwater. This recommendation was approved and work was completed in July 1940.[33]

As the electrical cable work neared completion, Junior Historical Technician Albert Manucy completed a report on the condition and current use of the fort's casemates. The first room west of the sally port entrance, present room 1, was the historian's office and library. This room contained a concrete floor of modern construction. The next room west, present room 2, was being proposed for an exhibit area, and contained a temporary concrete tile floor. This floor was placed on sand which cushioned an older surface from possible damage caused by the large amount of visitor traffic. The next room, present room 3, was to

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32. Manucy to Superintendent, February 26, 1940, Memos to Superintendent File, 107-01, Administrative Office, Castillo de San Marcos; Borresen to Regional Director Region One, March 12, 1940, Fort Marion Notes File, 105-02-10, Administrative Office, Castillo de San Marcos.

33. Freeland to Regional Director Region One, June 1, 1940, Fort Marion Notes File, 105-02-10, Administrative Office, Castillo de San Marcos; Albert C. Manucy, "Narrative Report of Junior Historical Technician Albert C. Manucy, Fort Marion, for July 1940," Narrative Report File, 107-01, Administrative Office, Castillo de San Marcos.

the rear of the gorge wall of the southwestern bastion. It had a floor of tabby and coquina chips. The same condition existed in the next room, present room 4, known as "the Indian room." The two rooms designated as "the Powder Magazines", present rooms 10 and 11, had sand floors. Next to these rooms were the northeast storeroom which was closed to the public. This room had several layers of tabby flooring in which each layer was separated by a sand cushion. Technician Manucy recommended that this room be given an experimental tabby floor. He suggested that a mixture consisting of one part cement, one part unslaked lime, and amounts of sand and shell to be determined by experimentation be used to duplicate the original appearance and texture. Three rooms, present rooms 18, 19 and 20, were described as the "dungeon" rooms and contained black sand floors. The next room mentioned was the janitors' rooms, present room 26, which was under the arch and contained a new cement surface over an older tabby floor.[34]

Before this room survey, Manucy in his April monthly report had mentioned other room use changes at the fort. Two rooms, which previously housed the carpenter shop and the tool room, were moved to quarters in the Alcazar building. These rooms were cleaned and opened to the public. The room next to the historian's office, presently room 2, served as the office for the Emergency Relief Administration's architect. In April, the room was vacated when the architect moved to the Alcazar building.[35]

Other recommendations and changes made during the year by the park staff included a suggestion to place metal markers around the fort for a selfguided tour. Another recommendation was for the ticket office to be relocated. The existing ticket office occupied the Dutch type door in the east wall of room 1. The public reached the ticket office

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34. Manucy to Superintendent, June 8, 1940, Fort Marion Notes File, 105-02-10, Administrative Office, Castillo de San Marcos.

35. Albert C. Manucy, "Narrative Report of Junior Historical Technician, Albert C. Manucy, Fort Marion for April 1940," Narrative Report File, 107-01, Administrative Office, Castillo de San Marcos.

through a series of pipe railings separating the entrance and exit lanes. Assistant Historical Technician Borresen, before leaving the service, had suggested that a ticket office be built in the demilune. He based this suggestion on the fact that the Spanish in 1762 replaced the small ravelin with the present ravelin. They constructed a small arched room for use as a powder magazine on the west side of the gorge to serve the guns shich might be placed on the ravelin. He further wanted the one inch black iron pipe removed from the stairway leading into the demilune and replaced with a wrought iron gate of a simple design. Next, he wanted the concrete patchwork removed from the stairways leading down to the moat in order to reveal the wear marks in the coquina stone. These suggestions were never implemented.[36]

Also, in 1940, a new parking lot was constructed at Fort Marion. That same year, the park staff recommended to regional officials a programs of placing markers around the fort. Superintendent Edward Freeland added to this recommendation a suggestion that the entire fort be treated as a museum and furnished in a style appropriate to the year 1740.[37]

9. 1941 and 1942 Work at Fort Marion

By January 1941, Junior Historical Technician Manucy had completed a plan for a series of temporary exhibits to be used at the fort. These exhibits were to be placed in the second room west of the sally port presently designated as room 2. This room was described as being 16' x 34' with three entrances. Electrical floor outlets had been placed in the room in 1940 and the floor was covered by concrete tiles measuring 18" x 18". The walls of this room were plastered and painted

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36. Thor Borresen, "Recommendation Relating to the Construction of a Ticket Office in the Demi-Lune, Fort Marion; October 22, 1940, Fort Marion Notes File, 105-02-10, Administrative Office, Castillo de San Marcos.

37. "NPS Makes Many Improvement in the Park Area Around Fort Marion," Newspaper Clipping File, Administrative Office, Castillo de San Marcos.

with white cold water paint. The temporary exhibits were in place by July 1941.[38]

The park staff continued to make repairs on the fort during the next several months. The drawbridge counterweight pit was excavated and a wooden floor placed over the resulting hole. A new door was placed between the outer and inner guardrooms presently designated as rooms 28 and 29. Problems were discovered with the telescope on the terreplein and a recommendation was made for the removal of this devise.[39]

The major project for the year was the research, design, and installation of temporary markers for the self-guided tours of the fort. A total of twenty-six markers were made of wood, and were fastened to a site by means of clamps so that they could easily be removed. This installation work continued until June 1942.[40]

In February 1942, the flagstaff at Fort Marion was found to be in a deteriorated condition requiring replacement. Superintendent Freeland successor Coordinating Superintendent C.R. Vinten recommended that the flagstaff be constructed of pine rather than cypress as the latter

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38. Albert C. Manucy, "Temporary Exhibits for Fort Marion," January 17, 1941, Fort Marion Notes File, 105-02-10, Administrative Office, Castillo de San Marcos, pp. 2-3.

39. Albert C. Manucy, "Narrative Report of Junior Historical Technician, Albert C. Manucy for July 1941," Narrative Report File, 107-01, Administrative Office, Castillo de San Marcos; Freeland to Manucy, February 12, 1941, Narrative Report File, 107-01, Administrative Office, Castillo de San Marcos.

40. Albert C. Manucy, "Plan for Temporary Marker System Fort Marion," September 1941, Completion Report File, 105-02-10, Administrative Office Castillo de San Marcos.

had proven susceptible to dry rot. A new flagstaff was completed and installed in June 1942.[41]

Another recommendation made by the park staff was a proposal to increase the water level of the moat by eight or ten inches. The purpose of this proposal was to eliminate the tidal action which was eroding the moat wall footings. Their solution was to place cypress planks across the culvert's intake to prevent the flow of water from moving in and out with the tides. These planks would occasionally be removed to flush the moat so that it would not become stagnant. The park staff further recommended that a bell be installed in the watch tower to signal the start of tours. Neither of these suggestions were acted on.[42]

B. FORT MARION NATIONAL MONUMENT DESIGNATED CASTILLO DE SAN MARCOS NATIONAL MONUMENT

President Franklin D. Roosevelt on June 5, 1942, signed into law a bill changing the designation of Fort Marion to Castillo de San Marcos National Monument. This bill was identical to one first considered in 1940. The purpose of the legislation was to revive the usage of the historic Spanish name for the fort.[43]

1. Castillo de San Marcos in World War II

As in past wars, Castillo de San Marcos saw service in World War II. The United States Coast Guard requested permission from the

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41. Vinten to Gadsby, February 18, 1942, Construction Project File, Administrative Office, Castillo de San Marcos; Vinten to Manucy, June 3, 1942, Superintendent File, 1939-49, 107-01, Administrative Office, Castillo de San Marcos. At this time, the Superintendent of Castillo de San Marcos began supervised a National Park Service organizational grouping known as the Southeastern National Monuments. On assuming these administrative duties, the superintendent was designated as the coordinating superintendent.

42. Vinten to Regional Director Region One, February 18, 1942, Construction Project File, Administrative Office, Castillo de San Marcos; Vinten to Manucy, March 25, 1952, Narrative Report File, 107-01, Administrative Office, Castillo de San Marcos.

43. U.S., Statutes at Large, LVI, Part 1, 312-313: U.S., Congress, House, Committee on the Public Lands, Changing the Designation of the Fort Marion in the State of Florida, 77th Congress, 1st Sess, 1941, H. Report 299 to accompany H.R. 3937, p. 1-2.

Department of the Interior to use the Spanish fort for training purposes. Coordinating Superintendent, Vinten answered the request in July of 1942, by listing stipulations for the use of Castillo de San Marcos by the military. First, portions of the fort green could be used by the military for drilling and training purposes provided that no permanent damage was done to the monument grounds. Second, guns could be mounted on the Castillo de San Marco terreplein and in the parking area only if no permanent damage resulted from these actions. Finally, Vinten offered the northwest powder magazine of the fort to serve as a storage area for ammunition if this would not endanger the lives of park visitors or staff. Later in the year, the requirements of the United States Coast Guard and the NPS were refined. The final agreement allowed the United States Coast Guard to conduct only light infantry drills on the northern portion of the fort green, and gave the Coast Guard use of four rooms within the Castillo de San Marco to be utilized as classrooms. The designated classrooms were the third room, presently room 7, north of the southwest corner of the parade, the fifth and sixth rooms, presently rooms 7 and 8, in the west faces off the parade, and the first room, presently room 12, east of the parade's northwest corner. It was further recommended that all equipment used in these rooms be installed in such a manner that the historic fabric would not be harmed. It was emphasized that this room usage only be of a temporary nature.[44]

Also during 1942, the superintendent suggested that a bronze plaque on the city gate and another one in the courtyard of the Castillo de San Marco be removed. In 1972, the bronze plaque attached to the south face of the east pillar of the city gate was replaced by a new one on the occasion of the tricentennial of Castillo de San Marcos. The other plaque remains on the south wall of the fort above the doorway to the sally port. He further recommended that asbestos mortar be used in

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44. Vinten to Director, July 9, 1942, Memos from Superintendent, 1939-49, File, 107-01, Administrative Office, Castillo de San Marcos.

repairing the fireplace in the guardroom, presently designated as room 29, along with some copper sheathing being installed in the fireplace.[45]

The discussion on the guardroom fireplace continued into the next year with measured drawing of the room being undertaken in June. Then in November, 1943, work began with reinforcement iron bars being placed in the fireplace. Other work that year included the installation of a light in the so-called "prison room", now known as room 27, which was off the slide lecture room, now designated as room 28. Next, plans were completed and submitted for review for stabilization work on the fort's footings. Along with this project, the superintendent wanted permission to fill the moat with rip-rap and install tidal gates near the water battery.[46]

In 1943, Castillo de San Marco continued to be used by the United States Coast Guard. In July, the gunners school was moved from the casemates in the fort, and these rooms were used as an officers' training school. The military continued to drill on the fort's terreplein and parade. In March 1944, the United States Coast Guard relocated away from the fort and removed all classroom installations.[47]

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45. Vinten to Regional Director, December 21, 1942, Memos from Superintendent, 1939-49, File, 107-01, Administrative Office, Castillo de San Marcos; Eaton to Vinten, December 9, 1942, Memos from Superintendent, 1939-49, File, 107-01, Administrative Office, Castillo de San Marcos.

46. Albert C. Manucy, "Narrative Report of Assistant Historical Technician Albert C. Manucy, Castillo de San Marcos for June 1943," Narrative Report File, 107-01, Administrative Office, Castillo de San Marcos p. 1, Albert C. Manucy, "Narrative Report of Assistant Historical Technician, Albert C. Manucy, Castillo de San Marcos for May 1943," Narrative Report File, 107-01, Administrative Office, Castillo de San Marcos, p.1; Albert C. Manucy, "Narrative Report of Assistant Historical Technician Albert C. Manucy, Castillo de San Marcos for April 1943," Narrative Report File, 107-01, Administrative Office, Castillo de San Marcos, p. 1; Vinten to Assistant Historical Technician Manucy, April 29, 1943, Fort Marion Notes File, 105-02.1, Administrative Office, Castillo de San Marcos.

47. Albert C. Manucy, "Narrative Report of Assistant Technician, Albert C. Manucy, Castillo de San Marcos for July 1943," Narrative Report File, 107-01, Administrative Office, Castillo de San Marcos; January 1944, Historians' Narrative Reports, November 1943-October 1952 File, 107-01, Administrative Office, Castillo de San Marcos.

During May of 1944, the superintendent prioritized the park needs as follows: first, placement of tide control structures near the water battery; second, restoration of sally port floor; third, construction of two drawbridges over the moat; fourth, building of new parking area with walks to the fort; fifth, obilterating the old parking area; sixth, relocating the cashier's booth; seventh, resurfacing the parade, and; eighth reconstructing the casemate doors.[48]

Besides this priority list, the park recommended an addition series of projects. These projects were accompanied by a detailed write-up describing the work required and the resulting benefit to the park. One of these projects called for removal of all wild grass and weeds from the fort green, and replacing them with St. Augustine blue grass. The purpose for this action was to establish a permanent year around grass, and stop the excessive mowing required to maintain the weeds and wild grasses in a neat appearance. Another project called for the repairing of the footings along the curtain and moat walls of the fort. This work would consist of putting stones back in place, repointing masonry, and placing rip-rap around the fort's exterior scrap. It was feared that if the work were not undertaken that structural failures could result from the present situation. Another of the projects involved the northern portion of the fort green where catch basins drained into the bay. Here the covers for the catch basins were in a deteriorated condition and the pipes leading to the bay contained numerous breaks. These breaks leaked in heavy rainstorms causing sink holes. The project proposed to alleviate these problems by rebuilding the catch basins, installation of new cast iron covers for the catch basins, and repairing the entire sewer line.[49]

Another problem was that the doors and their casemate frames the courtyard were in need of repair or replacement of parts. The park staff recommended a project in which the defective portions of the doors

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48. Vinten to Regional Director, May 31, 1944, Development File, 109, Administrative Office, Castillo de San Marcos.

49. Ibid.

and frames were to be replaced using the originals as models for replicating the historic fabric. Another project planned for the Castillo de San Marcos was the treatment of the concrete tiles on the terreplein with a glare reducing preparation. The existing tiles created such a high glare that visitors could not enjoy the view from the terreplein. Also, on the terreplein, the banquette, which had been restored in 1940, were exhibiting considerable wear and presented a safety hazard to visitors. The reason for this wear was that the soft coquina stone wore quickly under the tread of thousands of visitors. The park superintendent recommended that the coquina banquette be replaced by harder stone.[50]

Other proposed projects included the rehabilitation of the floodlight system which would consist of purchasing parts for the floodlights and repairing faulty cables. Another proposal called for the installation of an effective alarm and communications system between the cashier's booth and the administrative office. Still another project was for repainting of the administration office, museum, and souvenir room. Other proposals called for the stabilizing the city gate and waterproofing the structure.[51]

During the year, a small temporary shelter for service men was constructed on the fort green where they could wait while hitching a ride from passing vehicles. In October, a hurricane struck St. Augustine damaging trees on the fort green, and the water battery seawall. The park staff clean up activities and damage repair lasted into the next year.[52]

Early in 1945, the superintendent again submitted a list of proposed projects for Castillo de San Marco. These projects were the same as requested the previous year. Later in the year, additional

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50 Ibid.

51. Ibid.

52. Vinten to Harmon, June 17, 1944, Memos from Superintendent, 1939-49, File, Administrative Office, Castillo de San Marcos; Vinten to Manucy, October 28, 1944, Memos from Superintendent, 1939-49, File, 107-01, Administrative Office, Castillo de San Marcos.

projects were added to the list. Funding was requested for enlarging the parking area, constructing coquina walks to connect the fort with the parking area, and obliterating the remnants of an older parking area.[53]

2. Post-War Work at Castillo de San Marcos

In 1946, the park staff again put together a series of recommendations for projects to be undertaken in the coming year. The northwest bastion had a crack from the top of the parapet wall to the moat footings. The park staff had observed this crack for several years and had established a monitoring program to measure the rate of movement or settlement of the crack. They determined that the crack was not moving and so did not require repair, but it was observed that the flashing and mortar had pulled away from the coquina walls on the terreplein. The park staff recommended that the latter situation be corrected. Also, rehabilitation was recommended for the casemate doors and banquette of the fort. However, the first priority of the park was to repair and repoint the masonry walls and footings of Castillo de San Marcos.[54]

When work was undertaken, the first projects considered were the repair of the banquette and floodlight system. These jobs were chosen because they were the least expensive to accomplish. Work began on them in late 1946 and completed in early 1947. Meanwhile, preparation commenced for work on the Castillo de San Marcos footings and tidal gates.[55]

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53. "Priority List, Project Construction Program," August 10, 1945, Development File, 109, Administrative Office, Castillo de San Marcos.

54. Appleman to Regional Director, September 15, 1946, Memos from Superintendent, 1939-49, File, 107-01, Administrative Office, Castillo de San Marcos.

55. Vinten to Manucy, September 17, 1946, Development File, 109, Administrative Office, Castillo de San Marcos; Vinten to Manucy, November 26, 1946, Development File, 109, Administrative Office, Castillo de San Marcos.

Coordinating Superintendent, Vinten in July of 1947 made an inspection of the Castillo de San Marcos to determine if the heavy visitor usage had caused damage to the ancient fort. He found that some damage occurred when visitors walked on some of the outer walls or picked at the rocks and mortar of the fort's parapets. This damage was slow, but destructive to the resource over a long period of time. The most striking damage done by visitors could be found on the banquette of the terreplein which visitor use wore down. To prevent further damage, the park staff experimented with ways to harden the exposed masonry so as to alleviate this problem. During the inspection, it was noted that within the casemated rooms that a concrete floor had been laid to prevent damage to the tabby surface in those rooms opened to visitation. The inner guardroom and prison could only be visited by parties accompanied by a NPS guide. The powder magazine was locked at all times, but visitors could view it from the doorway. The so-called "fern room", now designated as room 16, contained a railing which prevented full access to this casement.[56]

During that same year, work began on restoration of the city gate. Work commenced with the park staff recording the existing condition of the city gate and recommending treatment. They found that many masonry joints of the walls and tower were opened and that some of the stones were missing. They recommended that white cement be used in repairing the joints and that the holes be filled with a shell aggregate. This investigation revealed that the roof was deteriorated with loose stones and vegetation growth covering the top of the city gate. It was recommended that the stones be reset, the vegetation removed, and the roof resurfaced with white cement. The east sentry box's brick dome was found to have a sizable crack. It was recommended to fill the crack with white mortar. Work on the city gate began in October of 1947 and was completed by December of that year.[57]

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56. Vinten to Regional Director, July 30, 1947, Development File, Administrative Office, Castillo de San Marcos.

57. Albert C. Manucy, "Narrative Report of Historical Technician, Albert C. Manucy, Castillo de San Marcos for October 1947," Historian's Narrative Report 1943-October 1952, 107-01, Administrative Office, Castillo de San Marcos; Albert C. Manucy, "Narrative Report of Historical Technician for November 1947," Historian's Narrative Report 1943-October 1952, 107.01, Administrative Office, Castillo de San Marcos.

Another major project for 1947 was repairing the foundations of Castillo de San Marcos. The original plan called for grouting of the foundation joints then sinking a sheet pile wall around the outside of the foundation to anchor the soil beneath the structure. This was to be followed by laying a shell or stone berm against the foundation walls to protect them from any tidal action. When the day came for opening bids for this project, it was found that no company had placed a bid on the project. The park staff then began hiring people in October of 1947 on a force account to do the work. In January 1948, work started on Castillo de San Marcos and was finished in November. The foundation footings were repointed and a toe wall constructed. It was decided not to construct the sheet pile wall nor lay rip-rap around the foundation wall. By May of 1949, the only remaining work for this project consisted of building tidal gates for the water battery and a little wall repointing.[58]

This project was done with a variety of mortar mixtures. The compostion of the mortar varied with the location of the repointing work. The mixture used for underwater repointing consisted of one part cement to two parts sand, and was to be wet enough to be poured from a bucket. For low level walls that were above water level, the mixture consisted of one part cement, one part sand, and two parts shell to form a wet mix. The mixture used for capping broken stones consisted of one part cement, two parts sand, and three parts shell in a fairly dry mix. The repointing of the higher walls was done with a mixture of one part cement and three parts sand combined with enough water for good adhesion of the material. The coloration of the various mixes came from the use of white or gray cement combined with white or brown sand. The choice of color was determined by which blend would match most closely existing mortar. The mortar was applied to the walls with wooden tamps and floats to give it a historic appearance.[59]

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58. Albert C. Manucy, "Report on Masonry Stabilization at Castillo de San Marcos and Fort Matanzas from October 1947 to April 1949," Administrative Office, Castillo de San Marcos, pp. 3, 7, 10, 12, 16-20, 22, 26, 30-50.

59. Ibid. pp. 50-52.

Other work completed during 1947 included the replacement of the sixteen older outdoor markers with new copper markers. Also the wooden flooring over the counterweight pit in the sally port was replaced with a chemical treated timber floor which was purported to wear better in the Florida climate.[60]

Most of 1948 was taken up with repair of the Castillo de San Marcos foundation walls. In addition, the park staff worked on the storm sewer system on the north fort green and the sluice gates system which let water into the moat. That year the park staff requested funding be allocated for work on expanding the existing park lot, and replacing the wooden posts at the Castillo de San Marcos entrance and the city gate with concrete posts.[61]

In 1949, the park staff again compiled a list of needs for the park. The projects requiring funding included: the construction of a cashier's booth; the construction of two drawbridges with one at the ravelin and the other at the sally port as replacements for the existing fixed approach bridges; the removal of the modern concrete floors from the sally port and two guard-rooms followed by restoration of the historic floor grade; removal of twenty-two doors and frames in the fort, and replacing them with ones of a more authentic character; repointing and stabalizing the parapet and courtyard walls; installing a catch basin and storm sewer in low area of fort green; replacing the existing floodlighting system of four floodlights with sixteen new floodlights; and repointing and repairing the seawall and covered ways. In addition to these

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60. Albert C. Manucy, "Narrative Report of Historical Technician Albert C. Manucy, Castillo de San Marcos for June 1947," Historian's Narrative Report File, 107-01, Administrative Office, Castillo de San Marcos; Albert C. Manucy, "Narrative Report of Historical Technician, Albert C. Manucy, Castillo de San Marcos for October, 1947," Historian's Narrative Report File, 107-01, Administrative Office, Castillo de San Marcos.

61. Albert C. Manucy, "Proposed Planning Program for Southeastern Areas," July 22, 1948, Historian's Office File, 103-02.2, Administrative Office, Castillo de San Marcos; Albert C. Manucy, "Report of Historical Technician, Albert C. Manucy, Castillo de San Marcos for August 1948," Historian's Narrative Report File, 107-01, Administrative Office, Castillo de San Marcos.

projects, funding was requested to do archeological work on the parade prior to a proposed surfacing of the area with a coquina concrete mixture. The seawall and covered way were funded in 1949, and work began on them in that year.[62] In addition to these repairs, work began on installation of new sluice gates for the moat. Minor repairs in 1949, included the installation of a floodlight in the museum, presently designated as room 2. Also a pad was installed on the stone lintel of the low doorway of the dungeon, room 20, to prevent visitors from injuring themselves on the stone.[63]

During the year, Coordinating Superintendent Vinten made a study of how to improve the area around the city gate. He made several recommendations. First, he wanted the city of St. Augustine to remove the visual intrusion of the traffic light and accompanying wires from around the city gate. Second, he wanted the Florida Power and Light Company to remove their street light standard and wire. Third, he wanted the Florida State Road Department to remove the route marker signs from the city gate area.[64]

The question of the city gate again came up in 1950, when NPS employees became involved in discussions with city officials on how best to improve the area around the city gate. Superintendent Vinten recommended to the city officials that Fort Marion Circle be widened along with the removal of an obsolete light standard, and some old posts and chains in front of the city gate. Also, he wanted the culverts closed by

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62. Appleman to Regional Director, July 8, 1949, Development File, 109, Administrative Office, Castillo de San Marcos; Vinten to Regional Director, October 31, 1949, Development File, 109, Administrative Office, Castillo de San Marcos.

63. Albert C. Manucy, "Narrative Report of Historical Technician, Albert C. Manucy, Castillo de San Marcos for January 1949," Historian's Narrative Report File, 107-01, Administrative Office, Castillo de San Marcos.

64. Vinten to Historian, Castillo de San Marcos, August 16, 1949, City Gate File, 105.02.1, Administrative Office, Castillo de San Marcos.

the city gate, and the ditches north of the gate filled in. Finally, he suggested that concrete curbs be placed around the city gate.[65]

Work continued on repair of the seawall and was completed. Also, the missing stucco from the shot furnace was repaired along with the broken firing steps on the water battery. The park staff then began rehabilitation work of the floodlighting system. Before this work, the floodlighting system had been unused for two years because of electrical failure. The floodlight system was placed in working order by January of 1951.[66]

Planning began in 1950, on rehabilitation of the parade (courtyard) surface. The existing surface of sand, asphalt, concrete, and shell was in a deteriorated condition and presented a hazard to the visiting public. Park officials wanted the parade graded and some type of wear surface such as coquina shell concrete placed on the ground surface. Planning continued into the next year on this project.[67]

Early in 1951, work began on the street widening at the city gate of between seven and twenty-one feet. Next, the fort's seawall was repaired as it had been damaged by a hurricane. In July, the light fixtures in the restrooms, presently designated as rooms 24 and 25, were replaced with lantern-type fixtures more in keeping with the historic character of Castillo de San Marcos. The cashier's booth, signs, and a

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65. Vinten to Francis, September 21, 1950, City Gate File, 105-02.1, Administrative Office, Castillo de San Marcos.

66. Albert Manucy, "Historian's Narrative Report for March 1950," Historian's Narrative Report File, 107-01, Administrative Office, Castillo de San Marcos; Vinten to Regional Director, August 30, 1950, Memos from the Superintendent, 1945-1950, File, 107-01.1, Administrative Office, Castillo de San Marcos; Albert C. Manucy," Historian's Narrative Report for January 1951," Historian's Narrative Report File, 107-01, Administrative Office, Castillo de San Marcos.

67. Coordinating Superintendent, Southern National Monument to Regional Director, October 5, 1950, Development File, 109, Administrative Office, Castillo de San Marcos.

few other modern structures were covered up or temporarily removed in March when scenes for the movie Distant Drums was filmed at Castillo de San Marcos. Scenes were filmed inside and outside of the fort. After the film crew moved on, several concrete standards were used to replace the wooden sign standards as the old standards have proven difficult to maintain. Then in late 1951, tidal gates for the moat were installed.[68]

That year the park staff again outlined their desires in regard to future work projects. They wanted the maintenance and storage facilities removed from the Castillo de San Marcos to open more rooms to visitation. Other items requested included: funding of repair work for the casemate doors and frames, restoration of the sally port grade, restoration of the drawbridges, and construction of a better cashier's booth.[69]

A major project of 1952, was the rehabilitation of the Castillo de San Marcos Parade (courtyard). By July, new walkways were being laid. It had been decided that coquina concrete tiles be used in constructing the eight-foot wide walkways. The coquina tiles were of two varieties with one type measuring 24" x 24" x 2½", and the other type measuring 24" x 12" x 2½". These tiles were made of three parts clean coquina, two parts clean sand, and one part dark Portland cement with just enough water to adequately combine the ingrediants. Once poured into the forms, an application of coquina shell was added to the top to give texture. The parade surface was graded and seeded with grass in December of 1952.[70]

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68. Albert Manucy, "Historian's Narrative Report January 1951," Historian's Narrative Report File, 107-01, Administrative Office, Castillo de San Marcos; Distant Drums Movie Notes File, 105-02.1, Administrative Office, Castillo de San Marcos.

69. Vinten to Wolfe, October 26, 1951, Development File, 109, Administrative Office, Castillo de San Marcos; "Priority List of Projects 1951, Development File, 109, Administrative Office, Castillo de San Marcos.

70. "Monthly Narrative Report for November 1952," Historian's Narrative Report File, 107-01, Administrative Office, Castillo de San Marcos; "Specifications for Making of Coquina Concrete Flagging for Castillo de San Marcos," circa 1952, Administrative Office, Castillo de San Marcos.

Other work in 1952, included repointing of the covered ways and parade walls of the fort. Also, the concrete standards for the self-guided tours were given copper label signs. During the year, the St. Augustine City Commissioners adopted a resolution calling for the NPS to alleviate the traffic hazard caused by the existing parking lot at Castillo de San Marcos. This concern would not be resolved until several years later.[71]

3. Rehabilitation of Door and Frames at Castillo de San Marcos

A major project which began in 1952, was the rehabilitation of doors and frames. The project began with a study in September, followed by construction in October, with work on this phase completed in June of 1953. During this portion of the project, seven doorways and frames were rehabilitated. An investigation conducted before to new construction helped to determine the historic construction methods, and set a priority for door rehabilitation. After this investigation was completed, replica doors were given a white oil stain which was applied and wiped off. Next, a coating of linseed oil and lampblack was applied and wiped off the doors. The resulting finish had a silverish gray appearance, which made the doors look old to the visitor. Portland cement mortar was used to anchor the door frames, but care was taken not to disturb the original postholes. The rooms designated 2, 7, 9 and 21 by Historian Manucy were given 1740 door and frame restorations. The rooms designated as 6, 8, and 17 were given post 1740 door and frame restorations. In room 8, the door frame was restored only so far as the current tabby floor level, and in room 17, an ironbound door was hung.[72]

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71. Albert C, Manucy, "Historical Narrative Report May 1952," Historian's Narrative Report File, 107-01, Administrative Office, Castillo de San Marcos; "City Commission Adapts Resolution Requesting NPS to Correct Parking Hazard at Old Fort," St. Augustine Record, July 16, 1952, Castillo General File, 105-02.1, Administrative Office, Castillo de San Marcos.

72. Albert C. Manucy, "Report on Rehabilitation of Seven Doorways at Castillo de San Marcos," pp. 3, 10., 1954, Administrative Office, Castillo de San Marcos.

The second phase of this work began in January 1954, and lasted until April 1954. During this phase, the same procedures were used as in the first phase with a total of ten doors being restored and repaired. Historian, Manucy designated the doors restored as being in "Room 3 (east doorway), 12, 14, 22 (souvenir shop), 23, 27 (prison), 28 (guardroom doorway), X1 and X2 (latrines)."[73]

A minor project for 1953 was the installation of marker signs in the fort. Signs were installed in the sally port and in the inner and outer guardrooms designated by the park as number 28 and 29. Also, coming up during the year was the continuing issue concerned the building of a new parking lot. Park Superintendent Vinten requested that regional personnel come down to St. Augustine and help with solutions on the parking problem. Two regional officials did come and made two recommendations for a new parking area. Discussions on the matter continued through 1954, with no resolution being reached.[74]

Early in 1954, the Superintendent of Castillo de San Marcos wrote to Regional Director Elbert Cox concerning the condition of the window openings at the fort. He found the existing window frames rotting and lacking historic integrity. His solution to this problem was to replace the forty-five window frames, shutters, and iron bars in Castillo de San Marcos. Superintendent Vinten wanted the existing round steel window bars replaced with square wrought iron bars to give the windows a more historic appearance. The region gave approval for this plan in 1954, and work was completed two years later. Despite the approval round bars were installed instead of square wrought-iron bars.[75]

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73. Manucy, "Report on Rehabilitation of Doorways at Castillo de San Marcos," 1954, Administrative Office, Castillo de San Marcos. pp. 2-3.

74. Tobin to Vinten, October 14, 1953, Castillo General File, 105-02.1, Administrative Office, Castillo de San Marcos; Vinten to Regional Director Region One, November 18, 1953, Castillo General File, 105-02.1, Castillo de San Marcos; Vinten to Regional Director Regional One, March 29, 1954, Memos from the Superintendent, 1950-54, 107-01, Administrative Office, Castillo de San Marcos.

75. Vinten to Regional Director, Region One, February 2, 1954, Stabilization File, 109, Administrative Office, Castillo de San Marcos.

4. Work in the Early 1950s on Castillo de San Marcos

Other work in 1954, included the removal of the Binocular and Panoramic View Finders from the terreplein, and the placing of wire over the floodlights to protect them from vandalism. The park staff continued working on plans for restoring the drawbridges at the Castillo de San Marcos. A park recommendation for the year was to remove the archival storage, maintenance shops, and storage area from inside the fort to another location. This would open more rooms to the public and give better protection to park artifacts than could be afforded in the damp casemates of the fort.[76]

In 1955, a number of small projects were undertaken at Castillo de San Marcos. The workshop and mower rooms, presently designated as rooms 26 and 7 respectively, were rewired and fluorescent lights installed. In these same rooms, a fan heater replaced an older oil heater. The seawall was repointed and repaired along with the foundation walls. The gunners' room, presently designated as room 18, in the northeast portion of the Castillo was refinished. Planning work continued on the restoration of the drawbridge. Superintendent Vinten decided not to act on any plan to expand the parking area for the next several years.[77]

A variety of projects were undertaken in 1956. The ravelin walk was replaced with a three-inch concrete mixture using one part grey cement, two parts yellow sand, and three parts coquina shells. Larger floodlights were purchased and installed in hopes of deterring vandalism.

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76. Vinten to Regional Director, October 26, 1954, Castillo General File, 105-02.1, Administrative Office, Castillo de San Marcos; Vinten to Jones, April 21, 1954, Castillo General File, 105-02.1, Administrative Office, Castillo de San Marcos; C.R. Vinten, "A Plan for Increasing the Efficiency of Administration and for the Restoration of Orderly Operations Within Castillo de San Marcos," October 5, 1954, Memos from the Superintendent, 1950-54, 107-01, Administrative Office, Castillo de San Marcos.

77. Vinten to Regional Director, Region One, July 6, 1955, Administrative Correspondence File, 107.1, Administrative Office, Castillo de San Marcos; Superintendent to Regional Director Region One, January 25, 1955, Development File, 109, Administrative Office, Castillo de San Marcos.

Meantime, the city of St. Augustine continued planning for a traffic circle to be constructed around the city gate. The park superintendent believed that such a action would isolate the city gate from its historic setting. Despite these objections the city moved forward with the road work plans.[78]

An audio-visual system was installed in Castillo de San Marcos in 1956. Work on the original system was completed in June, additional work, however, was done in September. The system had a series of individual stations which were connected by wires with a cabinet containing ten tape reproducers in a central storeroom, initially room 7, in the Castillo courtyard. Individual units were located in the inner guardroom, by the parade well, in the chapel, in the gunner's room, in the northeast, southeast, southwest, and northwest bastions, in the "English room", and the next year in the ravelin.[79]

That year the park staff continued having problems with moisture seeping through the parapet and courtyard wall into the office and museum areas. In hopes of ending the problem in the office area, a layer of Keene cement was applied to the walls and ceiling. This was the painted and covered with a product from the Haynes Products Company known as "Formula 640." Also, this product was used over a coat of paint on lime plaster. It did nothing to prevent water seepage. When the park superintendent wrote to the company concerning this problem, company officials suggested that their product should have been applied before painting the walls and recommended that this procedure be followed in the future.[80]

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78. Castillo de San Marcos Survey Books, 1954-1957, November 6, 1956, Administration Office, Castillo de San Marcos, p. 27, Manucy to Vinten, February 6, 1956, Development File, 109, Administrative Office, Castillo de San Marcos.

79. "Castillo Push Button Tour," June 28, 1956, Audio-Visual Aids File, 109-01, Administrative Office, Castillo de San Marcos; Superintendent to Regional Director, Region One, September 12, 1956, Audio-Visual Aids File, 109-01, Administrative Office, Castillo de San Marcos.

80. Vinten to Haynes, November 26, 1956, Stabilization File, 109, Administrative Office, Castillo de San Marcos; Hanes to Vinten, November 29, 1956, Stabilization File, 109, Administrative Office, Castillo de San Marcos.

5. Planning for "Mission 66" at Castillo de San Marcos

On the national scene in 1956, the NPS began a program designated "Mission 66." The program's goal was to upgrade park facilities by 1966, which was the fiftieth anniversary of the establishment of the NPS. Each park established a list of needs to be accomplished by the anniversary year. The preliminary plan for the "Mission 66" as Castillo de San Marcos identified the following needs; the restoration of doors and frames at the fort, restoration of the sally port grade, restoration of the drawbridges, reconstruction of window shutters and bars at the fort, and stabilization of the terreplein paving. During 1957, the request for work on doors and frames was dropped. Additional items placed on the list were restroom rehabilitation, extension of the storm sewer lines, and work on cashier's booth.[81]

As this planning continued into 1957, construction work undertaken included repointing of counterscarp walls, repointing of the banquette joints, resurfacing of the sally port, tiling of the historians' office, repairing of the audio-visual system, repairing of the electrical system, repairing the floodlighting system, and repairing of moat gates. The audio-visual station in the ravelin was torn down and thrown in the moat by vandals during the year. This prompted park staff to experiment with various types of audio-visual units to determine which were most economical to maintain.[82]

In July of 1958, work began on restoring the sally port grade and construction of the drawbridges. The work entailed several conponents. First, archeological test pits were dug to discovered architectural details of the drawbridge and historic grade levels. This

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81. "Mission 66 Prospectus, Castillo de San Marcos," April 10, 1956, Administrative Office, Castillo de San Marcos, p. 18; Vinten to Manucy, August 12, 1957, Development File, 109, Administrative Office, Castillo de San Marcos.

82. Vinten to Regional Director Region One, March 12, 1957, Administrative Correspondence File, 107-01, Administrative Office, Castillo de San Marcos; Manucy to Regional Chief of Interpretation, March 19, 1957, Administrative Correspondence File, 107-01, Administrative Office, Castillo de San Marcos.

was followed by restoration of the floor grades. During this project, the floor grades in the office area along with inner and outer guardrooms were changed to better replicate the floor level of the Spanish Colonial period. Construction of the main drawbridge and the fixed bridge included work on the portcullis and track, the construction of the mechanical parts of the drawbridge, and construction of a counterweight pit. While the outer bridge was being constructed, the ravelin was repaired. Finally, work was done on the approach to the drawbridges and the interior doors and frames. The work was completed on September 30, 1960.[83]

Also during 1958, preservation work was undertaken by Walter Nitkiewiez on the chapel's two holy water fount and the coat-of-arms above the gate in an effort to preserve these items. It was decided to make a replica of the coat-of-arms in the ravelin and take down the original stone. A replica was made and installed. Another continuing project was the negotiations between the Florida State Road Department and the NPS regarding the road configuration at the city gate.[84]

In 1959, road realignment continued on the Fort Marion Circle. Also in that year, plans were made for reconstruction of the terreplein. The plan was to remove the existing terreplein surfacing and replacing it with a more historically accurate surface. The removal and resurfacing work began in May of 1960 and was completed in September of that year. The work began with removal of the concrete tile squares along with the asphalt membrane. These were replaced by eight-foot strips of a mixture of cement and coquina shell. While this project was underway, electrical conduit was laid for rehabilitation work on the audio-visual system. The message repeaters were moved from room 7 to room 1. The system had

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83. "Project Completion Report Restoration of Sally Port Grades and Construction of Drawbridges," October 13, 1960, Construction Completion File, Administrative Office, Castillo de San Marcos; Albert C. Manucy, "Notes on the Excavation of Colonial Floors in the Sally Port and Guardroom Area at Castillo de San Marcos," Administrative Office, Castillo de San Marcos, pp. 1-6, 15.

84. Nitkiewiez to Chief Museum Branch, April 15, 1958, Castillo General File, 105-02.10, Adminstrative Office, Castillo de San Marcos.

broken down some months before, and was restored to working condition at this time.[85]

Other projects that began in 1960 were the restoration of the one bunk in the outer and inner guardroom and restoration of thirty-three window frames. The window restoration projects consisted of removing the existing shutters, bars, and frames then installing new and more compatible materials. The project was begun in August 1960 and completed in April 1961. The year's work also saw the placement of several new copper markers near the drawbridge and in the guardrooms.[86]

The year 1961 saw the completion of the road work around the city gate. Another project completed was the resurfacing of the terreplein. Despite the resurfacing the casemates' ceilings still leaked. Plans were drawn during the year for improving the existing electrical system and by February 1962, a new electrical system was in place. This system contained aluminum conduit and brass boxes in which the electrical cables and outlets were placed. A chemical reaction occurred between these materials and the chemicals in the coquina stone fort which led to a rapid deterioration of the aluminum conduit. Finally after several inspections, it was decided that emergency rehabilitations of fort's secondary electrical system was required. The rehabilitation work was begun and completed in 1965.[87]

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85. Regional Director, Region One, to Director, September 17, 1959, Roads and Trails Widening Fort Marion Circle Castillo de San Marcos and Fort Matanzas File, D30, Administrative Office, Castillo de San Marcos; C.R. Vinten, "Completion Report of Construction Project for Construction of the Terreplein and Revising the Installation of the Audio-Visual System," December 20, 1960, Construction Completion File, 105-02.11, Administrative Office, Castillo de San Marcos.

86. Superintendent Castillo de San Marcos and Fort Matanzas to Director, May 31, 1960, Reports Annual, 1954-61, File, A26, Administrative Office, Castillo de San Marcos; C.R. Vinten, "Reconstruction Shutter and Bars, Castillo Windows," May 16, 1961, Construction Completion File, 105-02.11, Administrative Office, Castillo de San Marcos.

87. Superintendent Castillo de San Marcos and Fort Matanzas to Director, May 31, 1961, Reports Annual, 1954-61, File, A26, Administrative Office, Castillo de San Marcos; James M. Strump, "Rehabilitation of Electrical System Castillo de San Marcos," January 18, 1966, Construction Completion File, 105-02-11, Administrative Office, Castillo de San Marcos.

6. Sound and Light Show at Castillo de San Marcos

Early in 1962, park officials were approached by Gerald M. Simon in regard to a sound and light show at Castillo de San Marcos. The show would use stereo sound in combination with lighting to interpret the historic Spanish-French-English conflict for empire in the New World. Park Superintendent B.C. Roberts reluctantly agreed to the project, but insisted that any damage to the fort be minimal. He further stipulated that most of the fixtures used be of a temporary nature to be removed and stored after every performance. The main seating area for the public was planned for the southwest bastion with one casemate serving as control room. Electrical wiring and fixtures were placed in the north parapet of the fort, the terreplein, the parade, the drawbridge, and the fort green. Installation of the equipment was not completed until August and the show closed for mechanical repairs in September. The sound and light show continued on a seasonal basis until 1965 when it was decided to terminate operations. The clean up process involved the removal of equipment, repair of the fort fabric, leveling of the surfaces where metal anchors had been located, and repair of the fort ground. This was completed in early June of 1965.[88]

Another project undertaken in 1962 was an experiment in waterproofing the terreplein with a chemical spray. This treatment failed to prevent moisture seepage. In January of 1962, construction began on a temporary parking area. An artesian well was discovered during the work and pipes laid to carry the water away from the area. The job was completed in February and the area opened to visitor parking.[89]

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88. Regional Director to Director, September 8, 1961, Sound and Light Correspondence File, C38, Administrative Office, Castillo de San Marcos; Superintendent Castillo de San Marcos to Regional Director, March 19, 1962, Sound and Light Correspondence File, C38, Administrative Office, Castillo de San Marcos; Roberts to Rolleston, June 4, 1964, Sound and Light Correspondence 1965, C38, Administrative Office, Castillo de San Marcos.

89. Superintendent Castillo de San Marcos and Fort Matanzas to Director, June 14, 1962, Reports Annual, 1954-1961, File, A26, Administrative Office, Castillo de San Marcos.

7. Reconstruction of Cubo Line

Several major projects were begun in 1963 at Castillo de San Marcos. One was the reconstruction of 265 feet of one of Spanish defense barriers known as the Cubo line. In June 1963, the location of the Cubo line on the fort green was determined by archeological research with reconstruction being planned from the fort glacis to highway A1A. Coincident with the archeological work, historical research was done on the Cubo line. Using the data gathered in January 1964, a full scale conjectural reconstruction of the pine and plain log wall, which was the center of the defensive line, was built. This full size model was disassembled and molds made of its component parts. These molds were used to cast concrete simulations of the logs. Work then commenced on excavating earth for the moat of the defensive line, making firing steps, and grading a glacis fronting of the moat. Hurricane Dora halted work and caused some minor damage to the reconstruction. Despite this set back, the job was completed by December of 1964, and permanent interpretive signs being placed along the Cubo line in August 1965.[90]

The park staff began making tentative plans in 1963 to improve the physical setting of the city gate and to re-establish its historic relationship with the fort. Actually work on the city gate did not begin until November of 1964. Then curb lines were marked and pavement within this area removed. In January 1965, work continued with clearing the area of obsolete telephone cables. Next the moat was excavated and the masonry portion of the city gate was repaired. Further work was done on the parapet and banquette along with installation of electrical power, floodlights, water, and a storm sewer with a sump pump. A portion of the Cubo line was reconstructed abutting the city gate along with interpretive devises such as a message repeater, marker, walkways, and bench. The project was completed in August of 1965.[91]

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90. "Completion Report, Cubo Line," March 23, 1966, Construction Completion File, 105-02.11, Administrative Office, Castillo de San Marcos.

91. "Completion Report, City Gate Improvement," January 11, 1966, Construction Completion File, 105-02.11, Administrative Office, Castillo de San Marcos.

8. Reconstruction of British Period Room

Another project began in 1963 was the reconstruction of the British period second floor in the casemate designated as room 12 and stabilization of the latrine in Castillo de San Marcos. The second floor put into the casemate at the time of the British occupation between 1763-1784 was replicated with as little speculation as possible. The work consisted of placing a yellow pine floor and stairway in the casemate. Then this room and the latrines were whitewashed. In addition, the latrine's floor was leveled with sand. This construction work was mostly done in 1963 with the stabilization of the latrines being finished in October of 1965.[92]

Minor changes at the Castillo de San Marcos in 1963 included the moving of the historians' office from inside the fort to the monument's office in the post office in downtown St. Augustine. Other projects in the planning stage included a proposal for the construction of an administrative building, a proposal for construction of an utility building, a proposal for construction of a sewer system, a proposal for construction of a sprinkler system for the grounds, a proposal for the construction of a parking area, a proposal for the construction of a cashier's booth, a proposal for the waterproofing of the terreplein, and a proposal for rehabiltation of the courtyard rooms and walks.[93]

During 1964, a number of projects were initiated by the NPS in preparation for the 400th anniversary celebration of the founding of St. Augustine to be held in 1965. One of the projects was the construction of a permanent cashier's booth. This booth originally was built in the doorway in the wall between the sally port and room one. Later the booth, a square, wooden box veneered with coquina, was located in the

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92. Roberts to Regional Director, Southeast Region, August 2, 1963, Construction Programs Correspondence, D22, Administrative Office, Castillo de San Marcos; Roberts to Regional Director, November 13, 1964, Construction Programs Correspondence, D22, Administrative Office, Castillo Administrative Office, Castillo de San Marcos.

93. Roberts to Regional Director, Southeast Region, November 19, 1963, Construction Programs Correspondence, D22, Administrative Office, Castillo de San Marcos.

sally port to the right as one entered, under the portcullish track overhead, but not totally in the way of the door of the outer guardroom. A local architect drew up plans for a new booth to be built between the sally port and room one which served as the administrative office quarters for Castillo de San Marcos. Construction began on June 30, 1964, and completion occurred in October of 1965.[94]

The installation of a sprinkler and storm drain system for the fort green began in July of 1964. The sprinkling system consisted of four-inch cement pipe, two-inch plastic pipe, and 121 sprinkler heads. Also installed were two catch basins to serve as a storm drain system. A well was dug and pump purchase to supply the water to the sprinkler. Completion of the project was halted temporarily by Hurricane Dora. The job was completed in October of 1965.[95]

9. Construction of Administration and Utility Building

This year saw the beginning of construction for an administration and utility building. The building was constructed on the northwest corner of the Monument grounds. It contained twelve rooms along with rest room and storage closets. The work on the structure began in July 1964 and was completed in December 1964. The staff moved into the new headquarters in January 1965. At this same time, a parking lot and courtyard was constructed for the new administration facility. Alterations and additions to the building however, continued into 1967.[96]

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94. "Completion Report Construction of Cashiers' Booth,"March 23, 1966, Construction Completion File, 105-02.11, Administrative Office, Castillo de San Marcos.

95. "Completion Report Installation of Sprinkler and Storm Drain System," March 23, 1966, Construction Completion Report File, 105-02.11, Administrative Office, Castillo de San Marcos.

96. "Completion Report Construction of Administration - Utility Building," March 28, 1967, Construction Completion Report File, 105-02.11, Administrative Office, Castillo de San Marcos.

10. Terreplein Reconstruction and Later Work

To prevent leaks in the casemates, the park undertook another effort at waterproofing the terreplein. This work included resurfacing of the terreplein and banquette, along with the installation of flashing and scuppers. The project commenced on March 4, 1964, and problems soon developed. The work crew had no experience in resurfacing terrepleins and so the project progressed slowly. Another factor which hampered the project was the poor quality of the workmanship. Quality increased gradually over time as the workmen gained experience. While the job was in progress, however, cracks developed in the new surface material and it was discovered that womens' shoe heels damaged the surface.

Another problem was that the waterproofing treatment, "Laycold," left a glaring white appearance when dry which was not compatible to the historic fabric of the fort. This wearcoat was placed over a layer of jute membrane. The work was completed on July 27, 1964, with the exception of the southwest bastion. Here the waterproofing was not completed until after the removal of the bleachers for the sound and light show. This work was completed in September of 1965. The waterproofing failed to prevent further moisture seepage into the casemate rooms including the "fern room" which had been cleared of vegetation.[97]

An unexpected event during 1964 was Hurricane Dora which struck Castillo de San Marcos on September 7, 1964, causing damage to trees and the fort grounds. The clean up operation commenced on September 10, 1964, and was completed on November 15, 1964. The work at Castillo de San Marcos consisted of repairing the fort's drainage

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97. "Completion Report Waterproofing of the Terreplein," March 28, 1967, Buildings - Project Completion Reports, 1965, D3423, Administrative Office, Castillo de San Marcos; F. Ross Holland Jr. and Russell Jones, Special History Study Masonry Forts of the NPS (Denver: DSC, 1973), p. 49; Coordinating Architect Nutt to Chief Architect Eastern Office, Design and Construction Branch, October 26, 1964, Construction Program Correspondence, 1964, File Administrative Office, Castillo de San Marcos.

system, cleaning tidal debris from the seawall, and removing damaged trees and limbs from the fort grounds.[98]

In 1965, extensive work began on the fort grounds. The work included: the planting and sodding of grass and shrubs around the new parking log; planting and sodding of grass and shrubs around the new administrative building; planting and sodding grass and shrubs around the city gate; sodding grass around the new sidewalks; and restoration of the southwest glacis of the fort. This work began in April of 1965 and was completed in August 1965.[99]

With completion of the road relocation project came the construction of a new parking lot for Castillo de San Marcos. The work included not only the parking lot, but installation of a sewer line, and street lights, and burial of electrical conduits for walk lighting. At this time, sidewalks and curbs were constructed both at the parking lot and at the entrance to the Castillo. The work began in March and ended in June of 1965. Also in June, trees and palms were planted on the northern portion of the fort green to screen the private residences and administration building from the fort. Also the entrance and access walks at Castillo were rehabilitated. This project continued until 1967.[100]

Another project started in 1965, was the rehabilitation of the parade casemates. The work began in May and continued until March 1966 when funds were exhausted. Fourteen casemates had been rehabilitated when the program was halted. Fifteen other casemates required work and funds were scheduled for 1970 to complete the tasks.

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98. "Cleanup and Restoration of Services For Visitor Use," June 9, 1966, Construction Completion Reports File, 105-02.11, Administrative Office, Castillo de San Marcos.

99. "Completion Report, Grading Grassing and Planting," October 5, 1965, Completion Reports File, D2623, Administrative Office, Castillo de San Marcos.

100. "Relocation of Castillo Drive Including Cost of Parking Lot and Walks," October 28, 1965, Completion Reports File, D2623, Administrative Office, Castillo de San Marcos.

In room one, the interpretative office, the walls were painted, woodwork restained and ironwork repainted. Room two, known as the museum, had the walls cleaned and stabilized. Then the walls were repointed with a mortar made of one part white cement, three parts sand, and color to match the existing surface. Next the woodwork was restained. Finally, the floor was given a simulated tabby floor with a sand barrier placed over the older floor. The tabby concrete was made by combining one part cement, three parts conquina shell, with sand. Then over the wet surface burnt oyster shells and charcoal were scattered to give the floor a historical appearance. This was followed by lightly grinding the floor surface with a terrazzo grinding machine to expose the shell aggregate. The same treatment was given rooms three and six. The only difference being that the walls in room three were painted with a light coat of white masonry water paint. The walls of room four were cleaned and stabilized and the floors were patched with a soil cement. This same treatment was given to rooms twelve, thirteen, fourteen, fifteen, and sixteen. In rooms ten and eleven, the walls were cleaned and stabilized. Beside having their walls cleaned and stabilized, rooms eight and nine had their floors covered with a loose coquina sand mixture to protect them from visitor traffic. Rooms ten and eleven required their walls to be cleaned and stabilized.[101]

Several minor projects carried out by the park staff in 1965 including the replacement of copper interpretive signs with aluminum signs with raised letters. An audio station was relocated from room eighteen to room nineteen. Another audio station was removed from the gunner's room.[102]

The next few years were filled with routine maintenance matters. Exterior and interior walls were cleaned of vegetation and

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101. "Completion Report, Rehabilitation of Courtyard Rooms," March 1966, Building Project Completion Reports, 1966, Administrative Office, Castillo de San Marcos.

102. "Superintendent's Monthly Narrative Report," January 1965, Monthly Narrative Report for Castillo de San Marcos File, Administrative Office, Castillo de San Marcos.

repointed. Worn coquina stones were replaced with new ones. In December 1971, a lift station and sewer line was constructed in the water battery. The project was completed in February 1972.[103]

Maintenance work continued with the seawall being repointed, the moat drains repaired, and the drawbridge repaired in 1974. Repointing work was done throughout the fort including the parade casements, covered way, and bastions. Also the smoke shelf in the fireplace of the west guardroom was stabilized. Repointing work required various mortar mixtures. For the interior rooms, a formula of two parts sand and one part lime mortar was used. The seawall was repointed using two or three parts coquina shells mixed with one part cement and occasionally substituting one part mortar instead of the cement. To match the historic coloration, the park maintenance crew mixed yellow sand or small amounts of lamp-black into the repointing compound. Also, during the next few years the cracks of the terreplein were filled with a product called Sikaflex-lasealant.[104]

Much of the same type of routine work was done in 1975. Patchwork, repointing and vegetation removal were done to several interior rooms, the north scarp, the southeast bastion, the fort's foundation, the west scarp, and the city gate. Also some trees were removed from the covered way as their roots were damaging the fortifications. That year some new formulas were used for the repointing compound and the simulated tabby mixture. A floor ramp in one of the casemates was poured from a mixture composed of three part shell and one part cement. The foundation walls were repointed with a compound of three parts coquina shell and one part cement.[105]

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103. "Lift Station and Sewer Line," February 1972, Completion Reports File, D2623, Administrative Office, Castillo de San Marcos.

104. John Harley, "Masonry Record CASA and FOMA, May 1974 - August 1976," Administrative Office, Castillo de San Marcos, pp. 1-3, 5, 7, 9, 11, 16, 20, 22, 24, 26, 28, and 36.

105. "Staff Meeting," January 22, 1974, Staff Meeting Minutes CASA and FOMA, 1974-76, File, Administrative Office, Castillo de San Marcos; Harley, "Masonry Record CASA and FOMA, May 1974 - August 1976," Administrative Office, Castillo de San Marcos, pp. 47, 49, 68, and 79.

11. Preservation Work at Castillo de San Marcos

In 1976, a new cashier's booth was constructed and positioned just outside the ravelin bridge. Also, a NPS Museum conservator, Walter Nitkiewiz, visited the park and made recommendations on how best to preserve certain decoration features of the fort. Nitkiewicz observed that the east holy water fount in the chapel which was previously treated in 1970 with barium hydroxide-urea was decaying. He believed this decay came from an overabundance of salt in this area and recommended that the fount be desalted. Other problems which he investigated were the growth of mold by the incised ship drawings in the east guardroom, the insect infestation in the sally port gate and fireplace lintel in the guardroom, and deterioration of the fiberglass replica of the Spanish coat-of-arms in the ravelin. Nitkiewicz cleaned the mold from the ship drawings with Tolene, then sprayed the room with a 5 percent solution of Acryloid 134 mixed with water. For the insect infestation, he recommended application of a commercial product known as Durotex which could be applied by brush to the affected area then painted over to seal in the insecticide. For the deteriorating coat of arms, he suggested another replica be made to replace the existing one.[106]

The next year Nitkiewicz returned to conduct experiments on protecting the graffiti in the east guardroom from decay. Various methods were tested on how best to apply a barium hydroxide-urea on the guardroom graffiti. After applying this chemical to the walls, Mystox, a fungicide, was used on the mold growth in the room.[107]

Another visitor to the park in 1977 was the Southeast Regional Horticulturist Lynch H.D. Boykin Jr. After looking over the fort, he suggested that six diseased and dead trees be removed. In addition, he

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106. Chief, Divison of Museum Services to Regional Director, April 6, 1976, CASA and FOMA File, D6215 M-H-S, Administrative Office, Castillo de San Marcos.

107. Chief, Division of Museum Services to Regional Director, Southeast Region, May 2, 1977, D6215, Administrative Office, Castillo de San Marcos.

wanted all trees or shrubs growing in or besides the fort walls removed. On the interior parade of Castillo de San Marcos, he suggested that if the grass there should prove difficult to maintain then is should be replaced by flagstones.[108]

The task of repointing the fort continued in 1977 with interior parade casemates, the seawall, northeast bastion, and southeast terreplein being repaired. This time the formula employed for the repointing was slightly different. For patches, the formula used was one part Portland cement, ASTM, C150 of the type I variety of white color to four parts lime, ASTM C207 of the type S variety with high plasticity and twelve to fifteen parts fine washed sand or coquina shell with just enough water to make the mortar workable. The color and texture would be made to match the original fabric by adding mud, burnt oyster shell, and naturally colored sand. This was the basic formula for patches smaller than one inch. For larger areas, one part lime and sand were to be replaced by cement. For masonry repointing, the same type of cement and lime were used, but the proportions were two parts cement to three parts lime and eleven to fourteen parts fine washed sand (ASTMC144) and crushed oyster shell. These were to be mixed as dry as possible with some mud or burnt oyster shells added for color.[109]

The terreplein was resurfaced that year mixing two parts Sikadur 20-mod A with one part Sikadur Mod B for a prime coat. Then fifteen gallons of wearcoat was mixed with five gallons lime paint and two gallons water, and applied in two coats to the primer coat. The cracks in the terreplein surface were filled with a polyurethane sealant.[110]

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108. Horticulturist, Southeast Regional Office to Chief, Division of Maintenance, Southeast Regional Office, March 2, 1976, A-54-SER-M.M., Administrative Office, Castillo de San Marcos.

109. "Castillo de San Marcos, Historic Resource Management Plan Draft," St. Augustine, Florida: Castillo de San Marcos, p. 5.

110. John Harley, "Daily Reminder 1977," Administrative Office, Castillo de San Marcos, pp. 163-164.

In addition, the park developed another formula for making tabby. The maintenance crew would combine lime and sand with an aggregate of oyster shell, coquina chips, or rubble. These ingredients would then be combined with water and tamped into place by means of a large pestle. For ornamental use, a layer of donax shell would be tamped into the top of the wet mixture. Then linseed oil would be rubbed into the surface causing the lime to rise and mix with the oil to produce a cream-colored crust. Normally, however, floors would be laid with the linseed oil omitted. For heavy use areas, a layer of oyster shells would be tamped in the wet tabby.[111]

During 1977, the park staff a historical resource management plan. The draft plan recommended a resurfacing of the terreplein. The purpose of this repair was twofold: first, to waterproof the interior and; second, to restore the historic appearance of the terreplein. Another recommendation was for the complete repointing and stabilization of the fort's walls along with the outer defense walls and city gate. The justification given was that over the years this work has been neglected and the project was necessary for the preservation of the resource. Another request was for a redesigning and relocation of the floodlight system. The existing system has deteriorated and needed redesigning to be more compatible with the historic scene. Another recommendation was that an addition be made to the administrative building of a artifact storage area to better protect the park's valuable collections. The artifacts were currently housed in a casemate in the fort. They now are stored in a wooden, air conditioned room built in casemate 7. The plan's final recommendation was for construction of a new fee collecting station. The new station would be relocated closer to the parking lot and redesigning to better blend with the historic scene.[112]

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111. "Castillo de San Marcos, Historic Resource Management Plan Draft." St. Augustine, Florida: Castillo de San Marcos, p. 5.

112. Ibid.

The park superintendent George Scheventer in 1977 wanted funding for the purpose of removing the terreplein surface down to the historic grade. The proposed work would require a study to determine the precise historic grade, following excavation work. Regional architect, John Garner believed this approach to be too expensive. He recommended that the cracks in the terreplein be cleaned and a sealant be inserted into the joints. This sealant would expand and contract with weather conditions in order to prevent further cracking and casement leaks. This project was carried out, but has not completely stopped the leakage problem in the casemates.

In May of 1978, the architectural firm of Herschel E. Shepard inspected Castillo de San Marcos. The ravelin was found to suffer from erosion of the fill and coquina surfaces. To stop this erosion, it was recommended that the two loopholes in the ravelin be closed. This would be followed by filling the ravelin to an even level, then constructing a trench for a catch basin and storm drain. The trenching would be done under the supervision of an archeologist. Next fill would be worked in contours, so that water would drain into the catch basin. Finally, the surface would be sodded with grass. This solution was not used, but rather a wooden deck and handrail was constructed over a portion of the ravelin. The rest of the ravelin was resurfaced with top soil and sod.[113]

Next inspected was the bastions and scarp walls of the fort. The walls were found to be out-of-plumb and large cracks were observed in the northeast and southeast bastion. Whether these cracks were caused by thermal movement or settlement could not be determined by visual inspection. Further testing was recommended before final preservation measures were decided on. Next the terreplein was viewed and found to be cracked with the casemates leaking. It was

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113. Shepard Associates, "Inspection and Report, Fort Matanzas, and Castillo de San Marcos," St. Augustine, Florida; Shepard Associates, 1978, p. 10.

recommended that a hotmopped waterproofing membrane or first quality sheet membrane be placed over the surface. The membrane however, should be separated into small independent sections thus allowing for thermal expansion. These joints should be filled a sealant then covered by a concrete slab replicating this historic fabric. The last feature viewed was the concrete ramp that led to the terreplein. This ramp had some minor cracking. It was recommended that the cracks be cleaned and grouted with epoxy grout to prevent moisture penetration.114

The investigation by Shepard Associates was part of a larger Development/ Study Package Proposal being put together by the DSC of the NPS and begun in 1977. Since then a combined team of Historical Architects, Historians, Civil Engineers, and Archeologists have been studying the problems, and have retained various professionals to act as consultants for the projects. This team is now preparing recommendations for furture work to be undertaken on Castillo de San Marcos.

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114. Ibid. pp. 9-13.

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St. Augustine. Personal interview by Castillo de San Marcos Historian Luis Arana with Former Castillo de San Marcos Superintendent Herbert Kahler and former Castillo de San Marcos Historian, Albert C. Manucy. January 20, 1979.

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ILLUSTRATIONS

Illustration 1 (page 481)

Pablo Castello, "Plano del Castillo del Presidio de San Agustin de la Florida, visto interior y exteriormente en el estado que se hallaba en 21 de Julio de 1763, cuando por orden de S.M. se entrego a la Gran Bretana: en que se indican tambien, lavadas de amarillo, las obras que se construyeron en 1762 las demas proyectadas para resguardo de su Puerta y defensa de aquel frente." Repository is Servicio Geografico del Ejercito (Army Geographic Service), Spain.

Drawing courtesy of Castillo de San Marcos National Monument, St. Augustine, Florida.

Translation of Map Text

Plan of the Castillo in the Presidio of St. Augustine in Florida, as seen inside and outside, in the condition existing on July 21, 1763, when by order of His Majesty it was delivered to Great Britain, wherein it is also indicated in yellow the works built in 1762 and others projected for the safety of its gate and defense of that front.

Explanation

A. Castillo de San Marcos
B. Bastion of San Pedro
C. Bastion of San Pablo
D. Bastion of San Carlos
E. Bastion of San Agustin, all of which are terrepleined.
F. Vaults for lodging the guard, which serve also as kitchens.
G. Jail.
H. Lodging for the Artillery Company, where the stores for the service of the batteries were kept.
I. Royal Treasury.
K. Royal Accountancy.
L. Chapel of San Marcos
M. Seven vaults in the east front which, together with a small one serving as powder magazine in the site marked ( ), are the only bomb proof vaults of the 28 that the Castillo has.
N. Ramp with simple arches to go upstairs and the only one for this purpose.
O. Well of brackish water, which is the only one inside the Castillo.
P. Well for the counterweights of the very ruined drawbridge.
Q. Footings for the pillars of the new bridge that was to be built.
R. Line of points showing the ravelin and the counterscarp that were demolished.
S. Ravelin that was built, capable of five cannons, with a small vault for munitions and stores, whose cordon, fixed bridge, portcullis, and draw are already in place, and its counterscarp is ten feet high.
T. Ditch that fills up at high tide.

V. Earth fill five feet high placed in the entire covered way to facilitate its defense and to make its design defensible by the Castillo cannons.
X. Counterscarp of the Castillo seven feet high, but which should be twelve in its entirety.
Y. Plazas de armas, of which only the one at the entrance was begun, and its wall was finished but lacks the firing step and its traverse and the corresponding earth fill to form its glacis.
Z. Part of the old covered way wall which should be demolished to form the indicated plaza de armas, as the adjacent one was built and is shown by the line of points.
&. Walk to the entrance of the ravelin, one and a half foot lower than the level of the covered way, in order to correct the excessive uneveness of the latter as shown by the profiles.

1. Projected guard room.
2. Old ruined pier.
3. Projected wooden pier for better conservation of the river bottom which has been noticeably affected by the stone pier due to the washing away of the sand.
4. Ruined line of sod, extending four hundred toises, which closes the land approach.
5. Barracks for the Indians.
6. Gardens in the block close by La Leche gate.
7. King's Smithy.
8. Paths ending at the street of the merchants.
9. Very ruined old wall.

Pablo Castello, Voluntary engineer

Illustration 2 (page 483)

Presumably anonymous, "Plano del Castillo de San Marcos situado a 29 Grados y 40 minutos de Latitud in the Florida del Este," 1785. This copy is the one provided by Spain upon request in 1884 for the purpose of repairing Castillo as far as "practicable to the conditions in which the Spanish left it." This Spanish-made copy can be recognized by the notation on the lower left-hand corner, which reads "Facsimile copy of the extant original in the General Topographical Depot of the Engineer Directorate, Madrid, November 24, 1884" and the absence of the engineer's signature. Repository was Deposito General Topografico, Direccion de Ingenieros.

Drawing courtesy of Castillo de San Marcos National Monument, St. Augustine, Florida.

Illustration 3 (page 485)

Fort Marion, St. Augustine, circa 1844. View of the fort from the Matanzas River, northeast bastion and water battery in foreground. Photograph made while the water battery was under construction, 1841-45.

Courtesy Beinecke Rare Book and Manuscript Library, Yale University Library, New Haven, Conn.

Illustration 4 (page 487)

Fort Marion, Florida, 1862-65. "The Ancient Sally Port, Civil War Garrison Gate of Fort Marion, St. Augustine, Florida. American guns were first turned against it when Oglethorpe led his expedition from South Carolina against St. Augustine in May 1740. Its style of architecture tells plainly of its origin and antiquity. . . ." This photograph found in Vol. II, p. 347, in Francis T. Miller (ed.), The Photographic History of the Civil War, 10 vols. (New York, 1911).

Courtesy Castillo de San Marcos National Monument, file A-3.

Illustration 5 (page 489)

Fort Marion, Florida, 1862-65. Gun, cassion, limber, and detachment of infantry turned into artillerists on the fort's parade. Note tents and "shebangs" for quartering troops on the terreplein of the north curtain. This photograph is found in Vol. II, p. 349, Miller's Photographic History of the Civil War.

Courtesy Castillo de San Marcos National Monument, file A-18.

Illustration 6 (page 491)

Fort Marion, Florida, 1862-65. Piles of cannon balls and dismounted gun tubes on the fort's parade. Note the garrison's tents and "shebangs" on the sea front's terreplain and the ramp in southeast angle of the parade providing access to the terreplein.

Courtesy Castillo de San Marcos National Monument, file A-2.

Illustration 7 (page 493)

Fort Marion, Florida, 1862-65. Ramp giving access from parade to terreplein at the southeast angle of the parade. There is a photograph in Vol. II, p. 349, of Miller's Photographic History of this area, dating to this period, showing tents and "shebangs" on the seafront terreplein but no hut in the foreground.

Courtesy Castillo de San Marcos National Monument, file A-14.

Illustration 8 (page 495)

Fort Marion, Florida, 1862-65. View across parade toward northeast angle. Note neat piles of cannon balls, soldiers, tents and "shebangs" on the seafront terreplein.

Courtesy Castillo de San Marcos National Monument, file A-12.

Illustration 9 (page 497)

Fort Marion, Florida, circa 1870. Photograph of northeast angle of parade and northeast bastion lookout tower. Note entrance to chapel, (casemate No. 14), absence of "shebangs" and tents from terreplein, neat piles of cannon balls, gun tubes and 10-pdr. Parrott unlimbered on parade.

Courtesy Castillo de San Marcos National Monument, file A-4.

Illustration 10 (page 499)

Fort Marion, Florida, 1875. Lt. Richard H. Pratt arrived in St. Augustine with the Plains Indians at 5 p.m. on May 21, 1875. In his Memoirs he wrote, "We arrived in the beginning of hot weather." Early in the first weeks of their confinement, there was considerable sickness and several deaths. A large one-room shed was erected largely by Indian labor to cover the entire space of the terreplein on the north front. Rough board beds were made and bed ticks filled with grass, and the whole party of prisoners moved up to better air. This greater freedom of movement and observation, with work and regular army drill exercises, soon drove bad health away.

Courtesy Castillo de San Marcos National Monument, file A-3015b.

Illustration 11 (page 501)

Fort Marion, Florida, 1877. Indian prisoners on fort parade, note terreplein shed, bars in certain windows, and military garb of prisoners. On April 5, 1877, Capt. Richard H. Pratt wrote Agent Miles, "I send a recent photo of the prisoners with Fox and myself. My phiz is blurred by moving and I enclose a lone photo."--Karen Petersen to Luis Arana, June 1, 1974, files Castillo de San Marcos National Monument, file A-3016.

Illustration 12 (page 503)

Fort Marion, Florida, 1875-78. Photograph taken from northeast bastion lookout tower, looking south across terreplein of east curtain and southeast bastion. Note the Indians then confined at the fort, the dry moat water battery, and shot furnace.

Courtesy Castillo de San Marcos National Monument, file A-3015-A.

Illustration 13 (page 505)

Fort Marion, Florida, circa 1878-85. View of the fort from southeast of St. Augustine gate. The southwest bastion is in the foreground. Note covered way, ditchs, glacis, and demilune. The shed has been dismantled and removed from the north front terreplein.

Courtesy Castillo de San Marcos National Monument, file A-1.

Illustration 14 (page 507)

Fort Marion, Florida, circa 1885. Sally port and bridge across the ditch. Note coat of arms over sally port embrasures and vegetative growth in the scarp.

Courtesy Castillo de San Marcos National Monument, file A-2237.

Illustration 15 (page 509)

Fort Marion, Florida, circa 1885. The north parade scarp from the parade. Note the piles of cannon balls, the numbers, in Roman numerals on the casemate doors, the lights instead of bars in certain of the windows, and the rapid deterioration of the masonry constituting the porticos framing the entrance to the chapel.

Courtesy Castillo de San Marcos National Monument, file A-414.

Illustration 16 (page 511)

Fort Marion, Florida, circa 1895. View from bridge looking south. The demilune and ordnance-sergeant's quarters are in the foreground and the city and St. Augustine seawall in the background. Note the seven dismounted 18-pounder cannon tubes.

Courtesy Castillo de San Marcos National Monument, file A-17.

Illustration 17 (page 513)

Fort Marion, Florida, circa 1885. View of the fort looking toward salient angle of northwest bastion. Note glacis, ditch, and the recently reconstructed sentry tower in the salient angle of the northwest bastion. The gun tube in the foreground is a 8-inch columbiad formerly emplaced in one of the salient angles of the covered way north of the fort.

Courtesy Castillo de San Marcos National Monument, file A-317.

Illustration 18 (page 515)

Fort Marion, Florida, circa 1885. Aerial view of fort from northwest, with northwest bastion in foreground. Note St. Augustine Gate, glacis, ditch, counterscarp, scarp, embrasures, and watch and sentry towers.

Courtesy Castillo de San Marcos National Monument, file A-2244.

Illustration 19 (page 517)

Fort Marion, Florida, between April 13, 1886, and April 1887. Tents on terreplein erected to shelter more than 440 Apache prisoners. Note ditch, counterscarp, scarp, lookout towers, covered way, and that the blacksmith shop found in the foreground of illustration 18 has disappeared.

Courtesy Castillo de San Marcos National Monument, file A-2969.

Illustration 20 (page 519)

Fort Marion, Florida, circa 1890. Aerial view of southwest bastion and south curtain. Note St. Augustine gate in foreground.

Courtesy Castillo de San Marcos National Monument, file 2585.

Illustration 21 (page 521)

Fort Marion, Florida, circa 1890. Aerial view of fort taken coincided with photograph found in illustration 20. This photograph features the northeast, northwest, and southwest bastions, north and west curtains, ditch, covered way, and glacis. Note the tents that had sheltered the Apache prisoners have been removed from the terreplein.

Courtesy Castillo de San Marcos National Monument, file A-2586.

Illustration 22 (page 523)

Fort Marion, Florida, circa 1893. This view of the fort's northeast, northwest, and southwest bastions, west curtain, glacis, and ditch was taken subsequent to the restoration of the fort and landscaping of the grounds accomplished under William M. Black's supervision in fiscal years 1891-92.

Courtesy Castillo de San Marcos National Monument, file 3254.

Illustration 23 (page 525)

Fort Marion, Florida, Water Battery, circa 1897. A 8-inch rifled Rodman and its iron front-pintle barbette carriage. Note shot furnace, dry moat, scarp of east curtain and northeast bastion, and northeast bastion lookout tower.

Courtesy Castillo de San Marcos National Monument, file A-9.

Illustration 24 (page 527)

Fort Marion, Florida, circa 1915. View of the entrance to the chapel casemate made after the fiscal year 1915 restoration undertaken under supervision of Major Ladue.

Courtesy Castillo de San Marcos National Monument, file A-522.

Illustration 25 (page 529)

Fort Marion, Florida, circa 1921. Photograph of bronze commemorative tablet "presented to U.S. Government by the Colonial Dames of Florida, at St. Augustine, Feb. 22nd, 1921." The plaque was positioned on the parade scarp above the sally port exit.

Courtesy Castillo de San Marcos National Monument, file C-24.

Illustration 26 (page 531)

Lt. H.W. Benham, "Plan of Fort Marion, St. Augustine, E. Florida," Feb. 1840.

Courtesy of the National Archives, Record Group 77, Fortification file, Drawer 72, Sheet 8.

Illustration 27 (page 533)

Lt. H.W. Benham, "Horizontal Section of Fort Marion, with the Principal Vertical Sections and Elevations," ca. 1840.

Courtesy of the National Archives, Record Group 77, Fortification file, Drawer 72, Sheet 9.

Illustration 28 (page 535)

Lt. H.W. Benham, "Plan, Section, &c. of the Water Battery of Fort Marion, St. Augustine, Florida," March 1844.

Courtesy of the National Archives, Record Group 77, Fortification file, Drawer 72, Sheet 18.

Illustration 29 (page 537)

Drawing depicting stabilization of footings at Castillo de San Marcos, 1944.

Drawing courtesy of Technical Information Center, Denver Service Center.

Illustration 30 (page 539)

Map depicting planting plan for trees at Castillo de San Marcos, 1956.

Drawing courtesy of Technical Information Center, Denver Service Center.

Illustration 31 (page 541)

Drawing depicting the adjusted road alignment around the Castillo de San Marcos, 1958.

Drawing courtesy of Technical Information Center, Denver Service Center.

Illustration 32 (page 543)

Drawing depicting the rehabilitation of the terreplein at Castillo de San Marcos, 1958.

Drawing courtesy of Technical Information Center, Denver Service Center.

Illustration 33 (page 545)

Drawing depicting terreplein waterproofing at Castillo de San Marcos, 1960.

Drawing courtesy of Technical Information Center, Denver Service Center.

Illustration 34 (page 547)

Drawing depicting the terreplein rehabilitation at Castillo de San Marcos, 1960.

Drawing courtesy of Technical Information Center, Denver Service Center.

Illustration 35 (page 549)

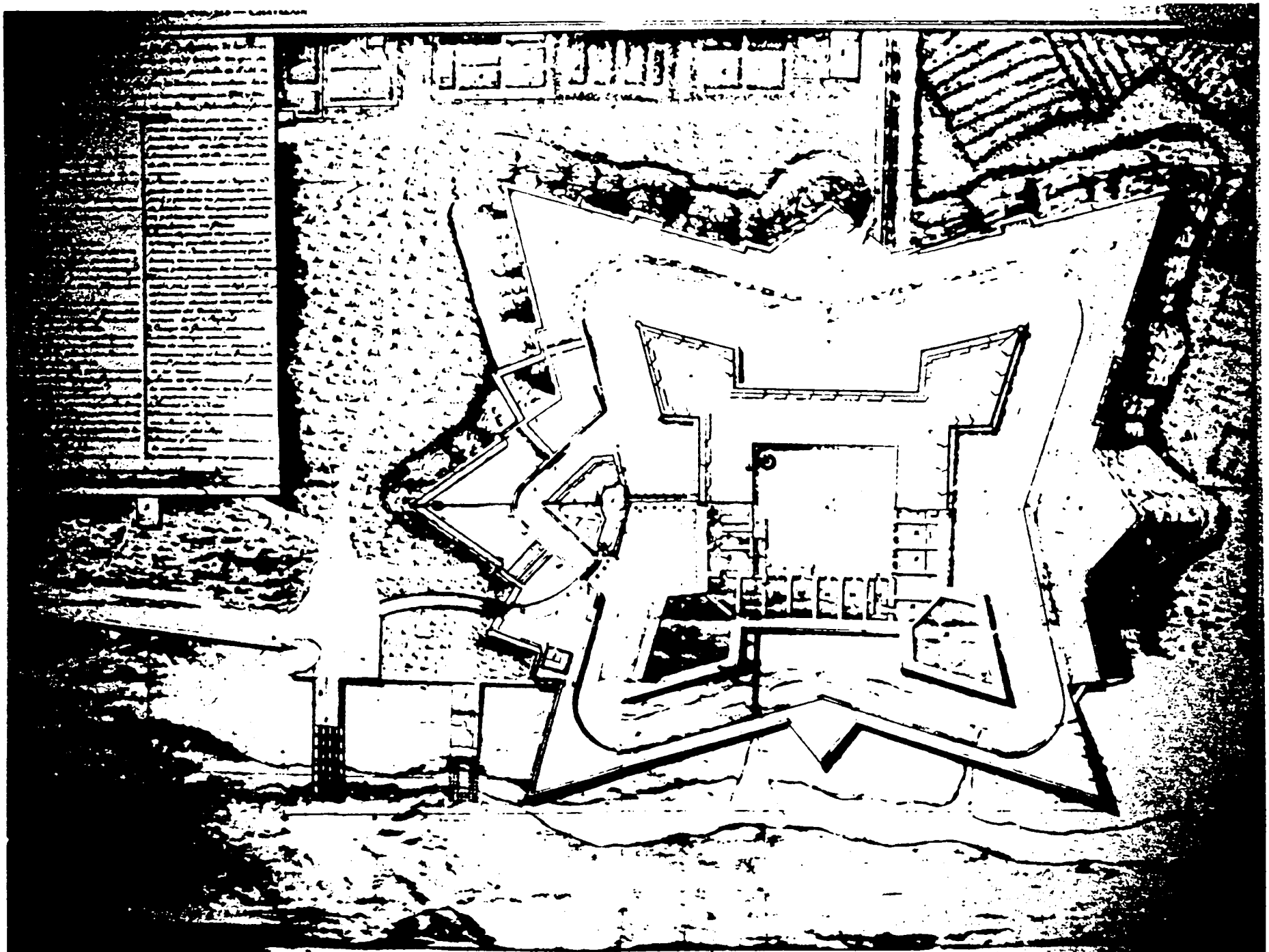
Drawing depicting electrical system rehabilitation at Castillo de San Marcos, 1966.

Drawing courtesy of Technical Information Center, Denver Service Center.

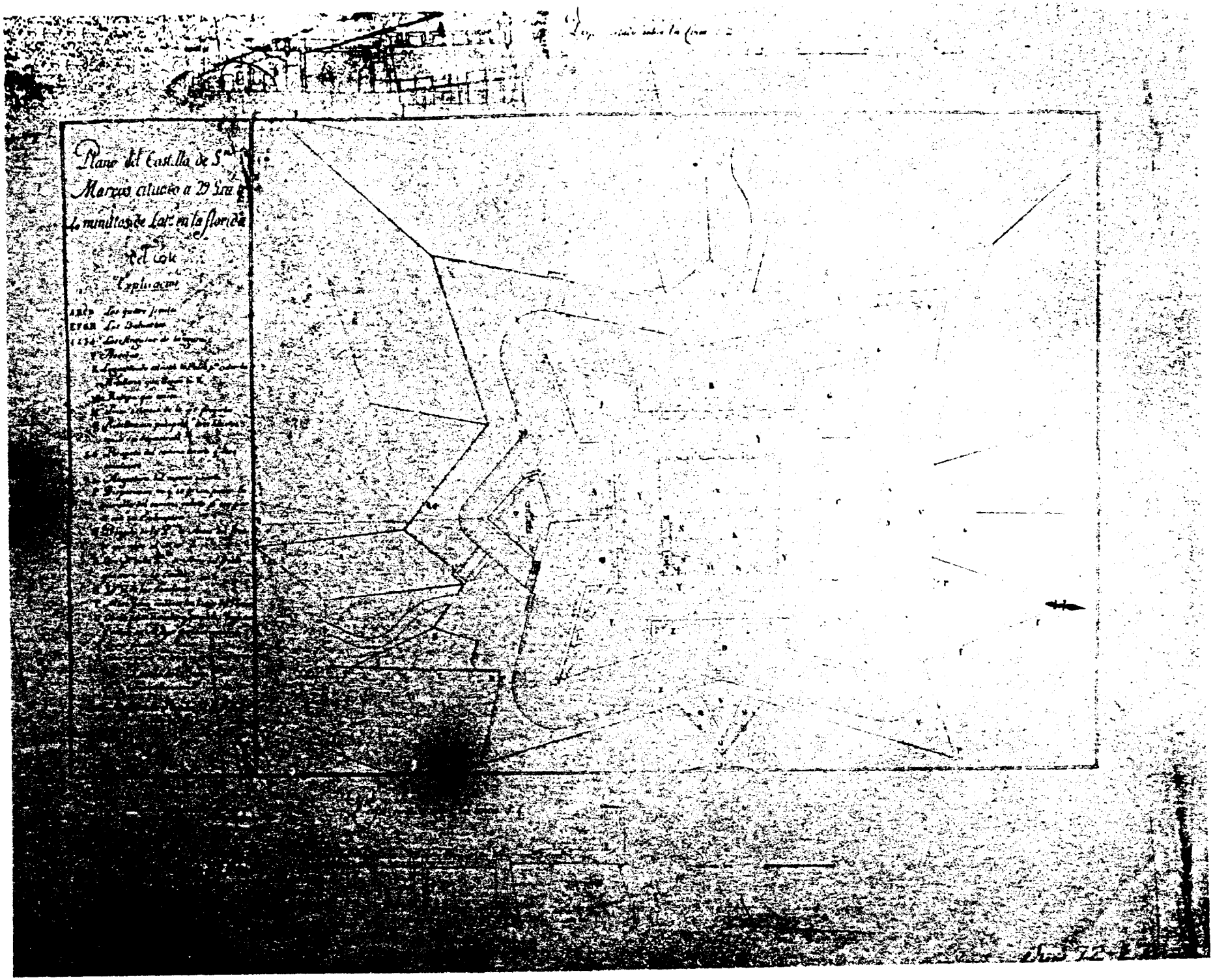
Illustration 36 (page 551)

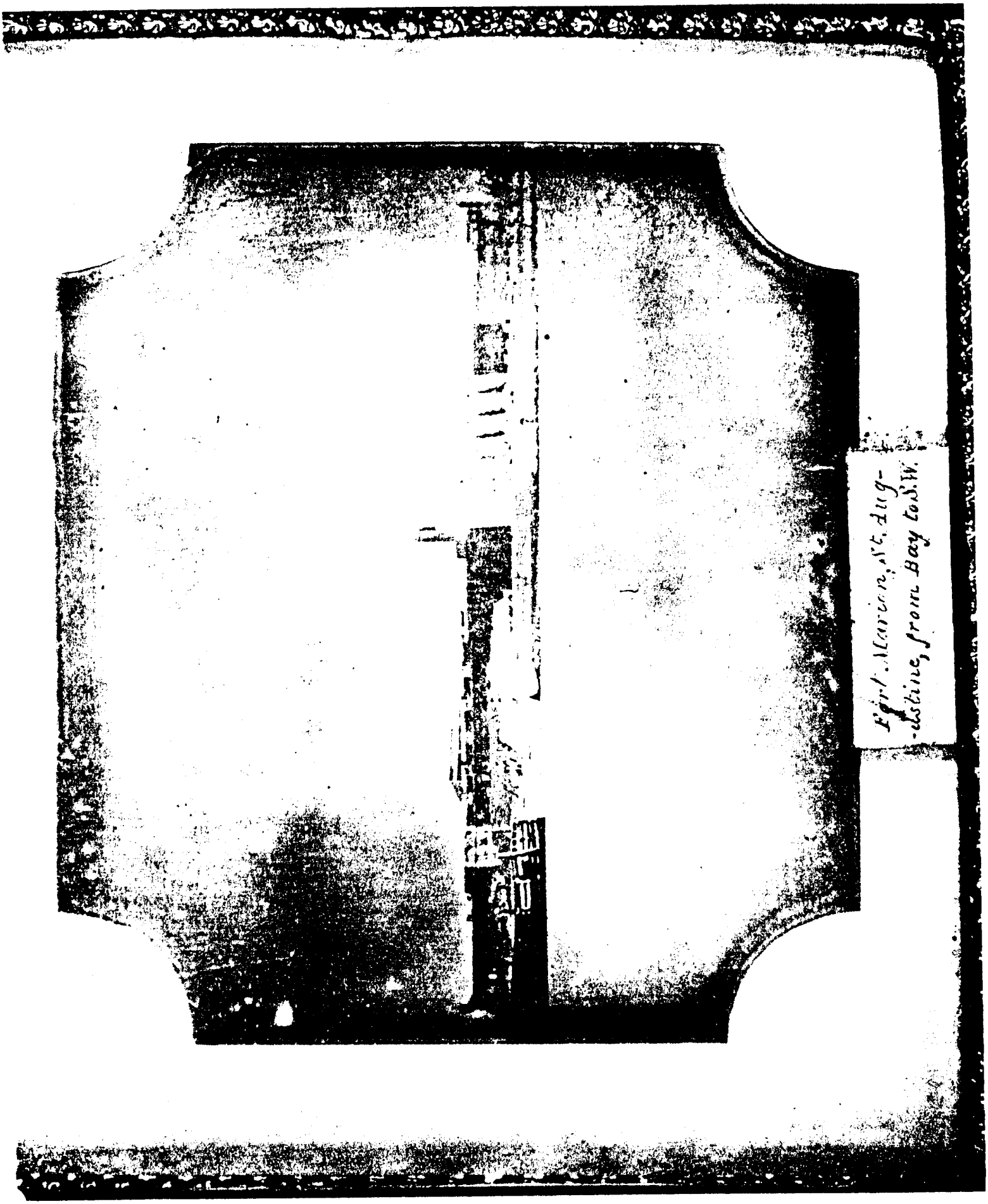
Drawing depicting casemate use at Castillo de San Marcos, 1977.

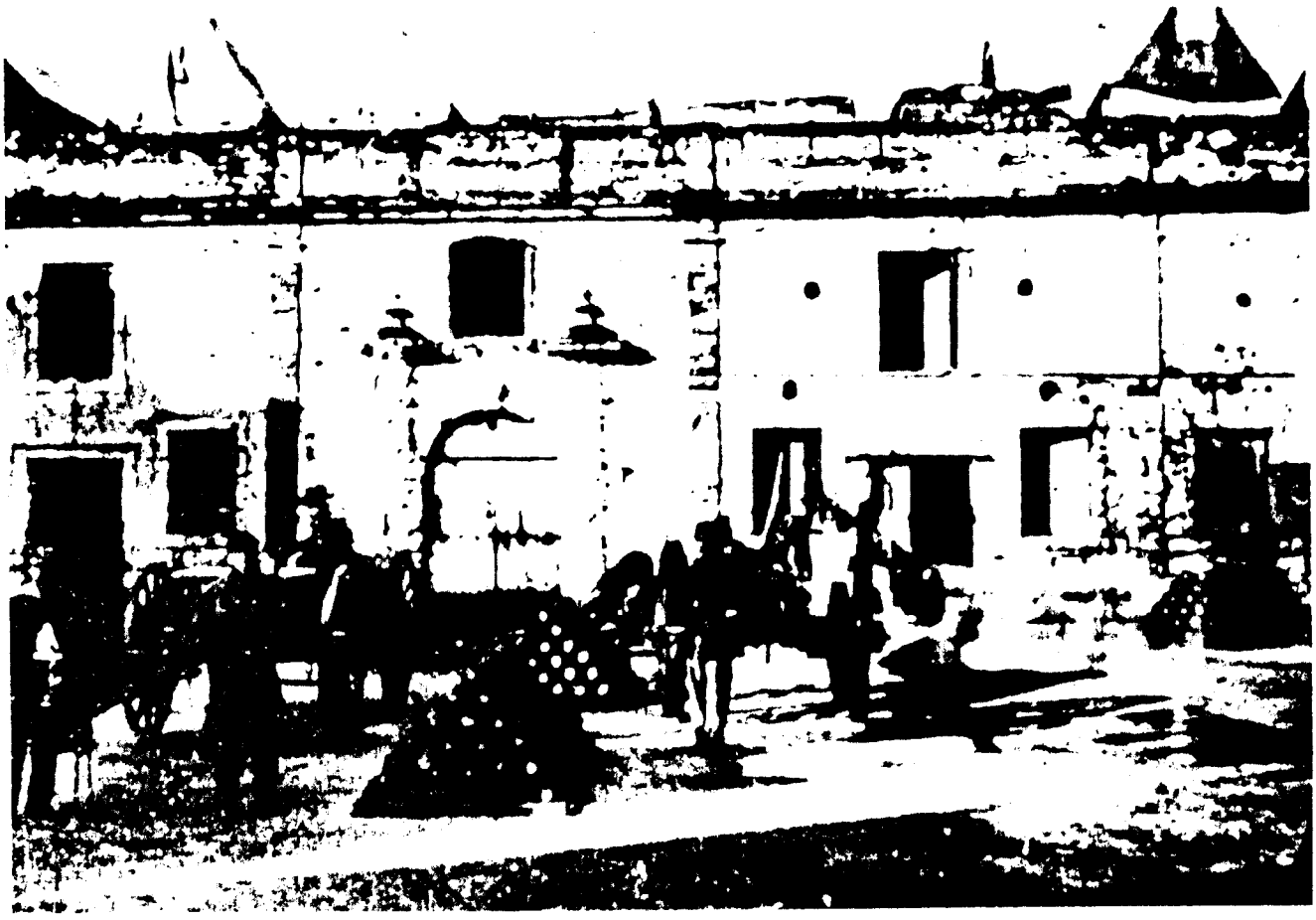
Drawing courtesy of Technical Information Center, Denver Service Center.

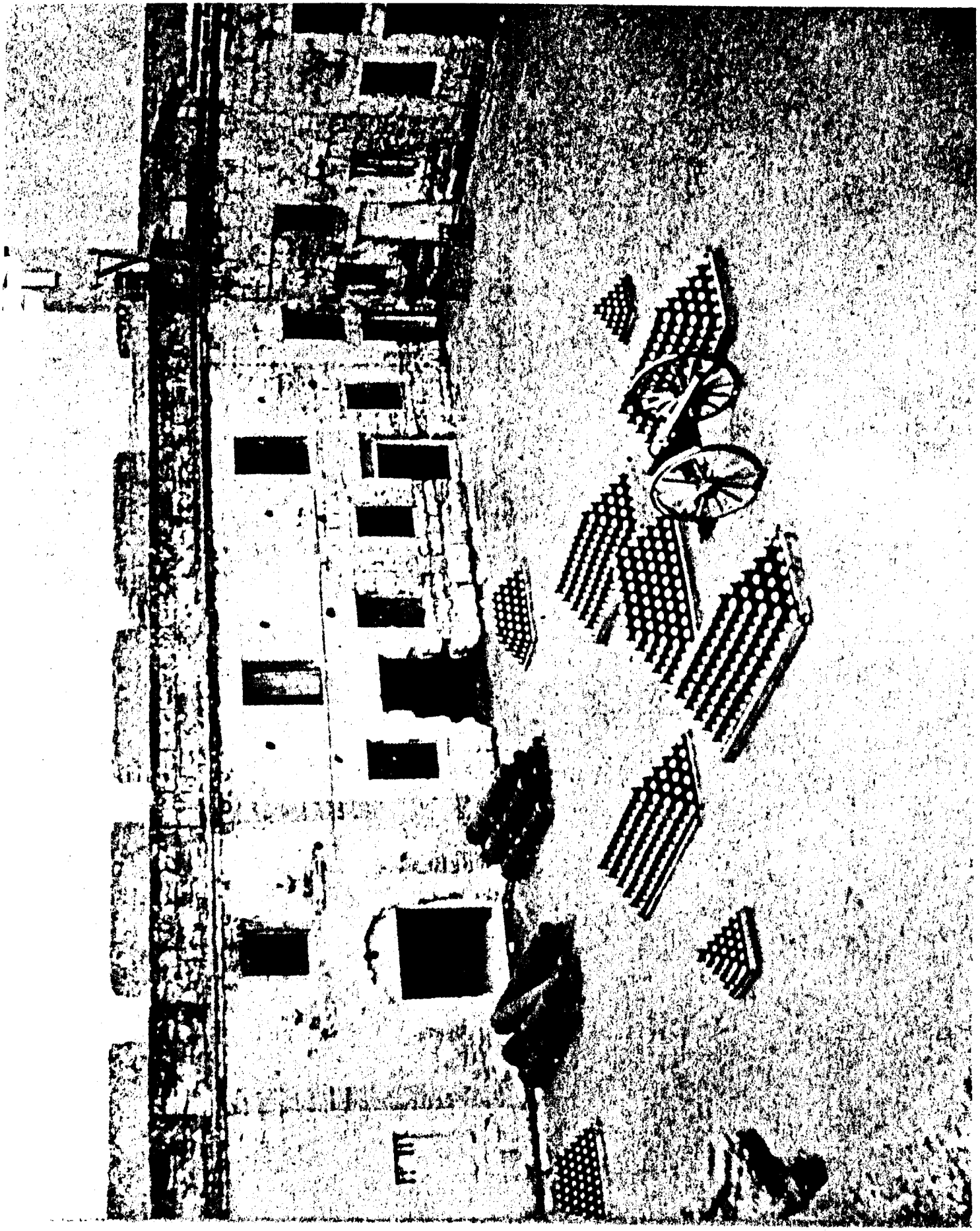


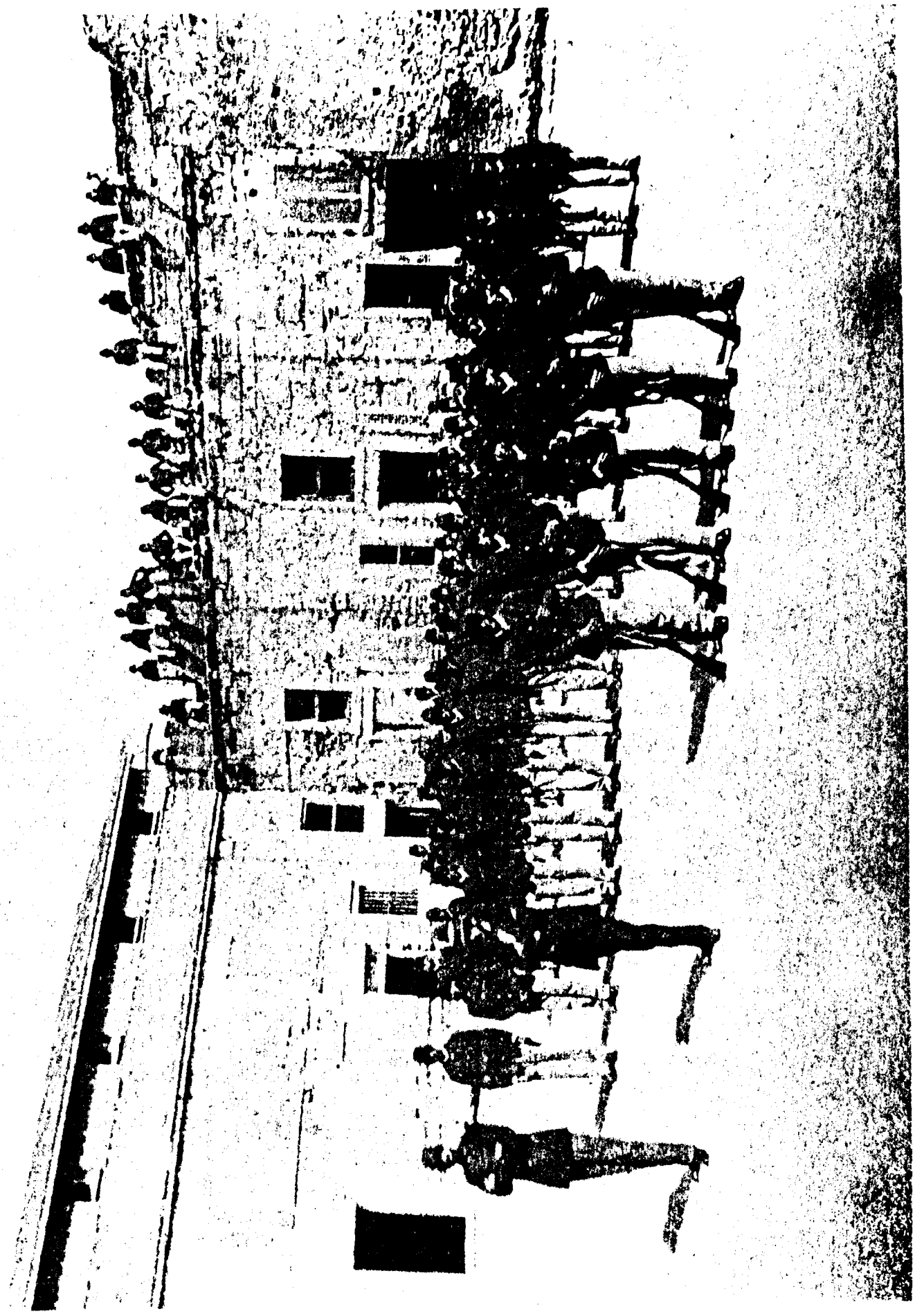
Pablo Castello, *Plano del Castillo del Presidio de S^n Agustin . . . .* [1764]; showing the fort at St. Augustine at the end of the first Spanish period. Original, manuscript, in Ministry of War, Madrid, LM 8a-1^a a,23; see Karpinski list, no. 37.

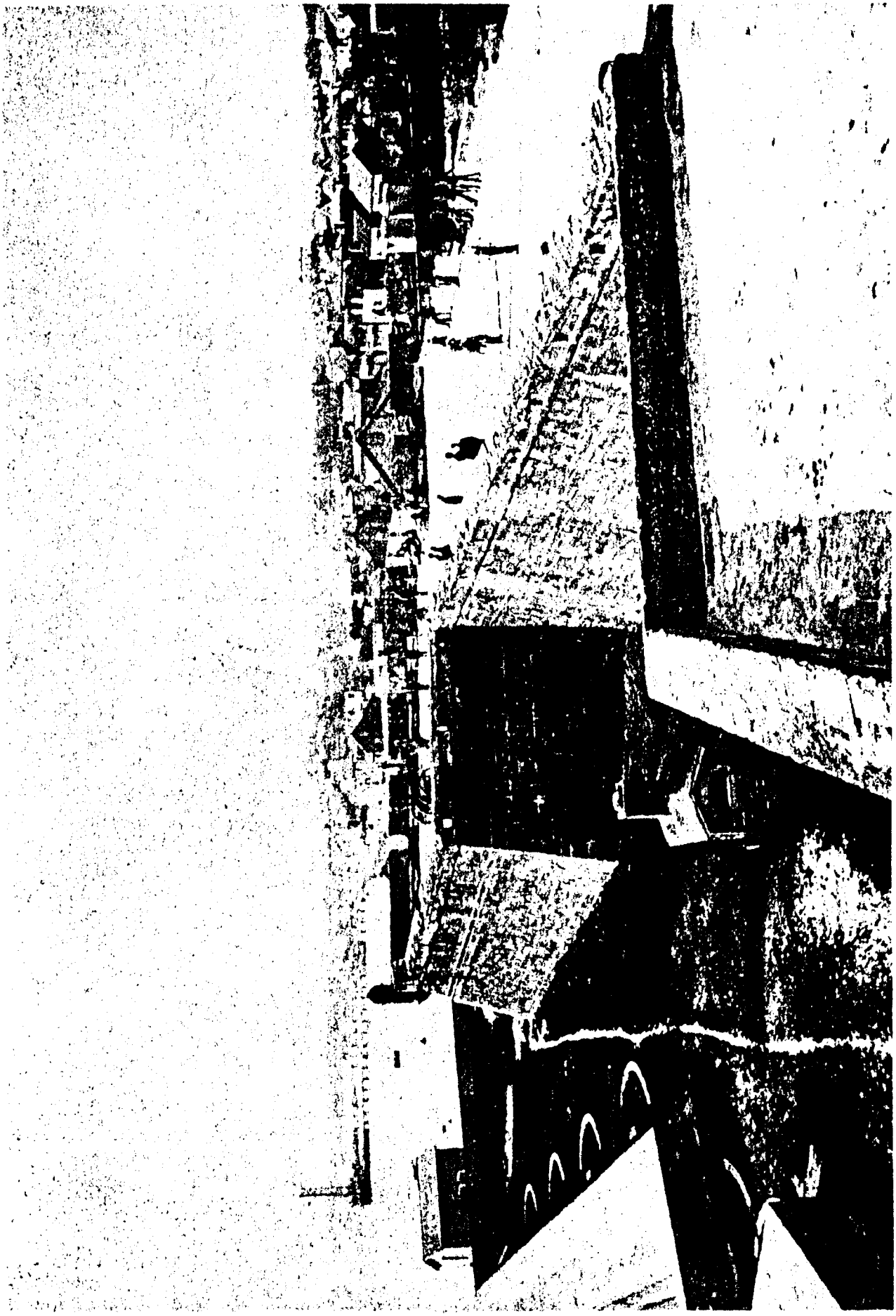

Plano del Castillo de S.n
Marcos situado a 29 Grs
4 minutos de Lat. en la florida
Explicacion

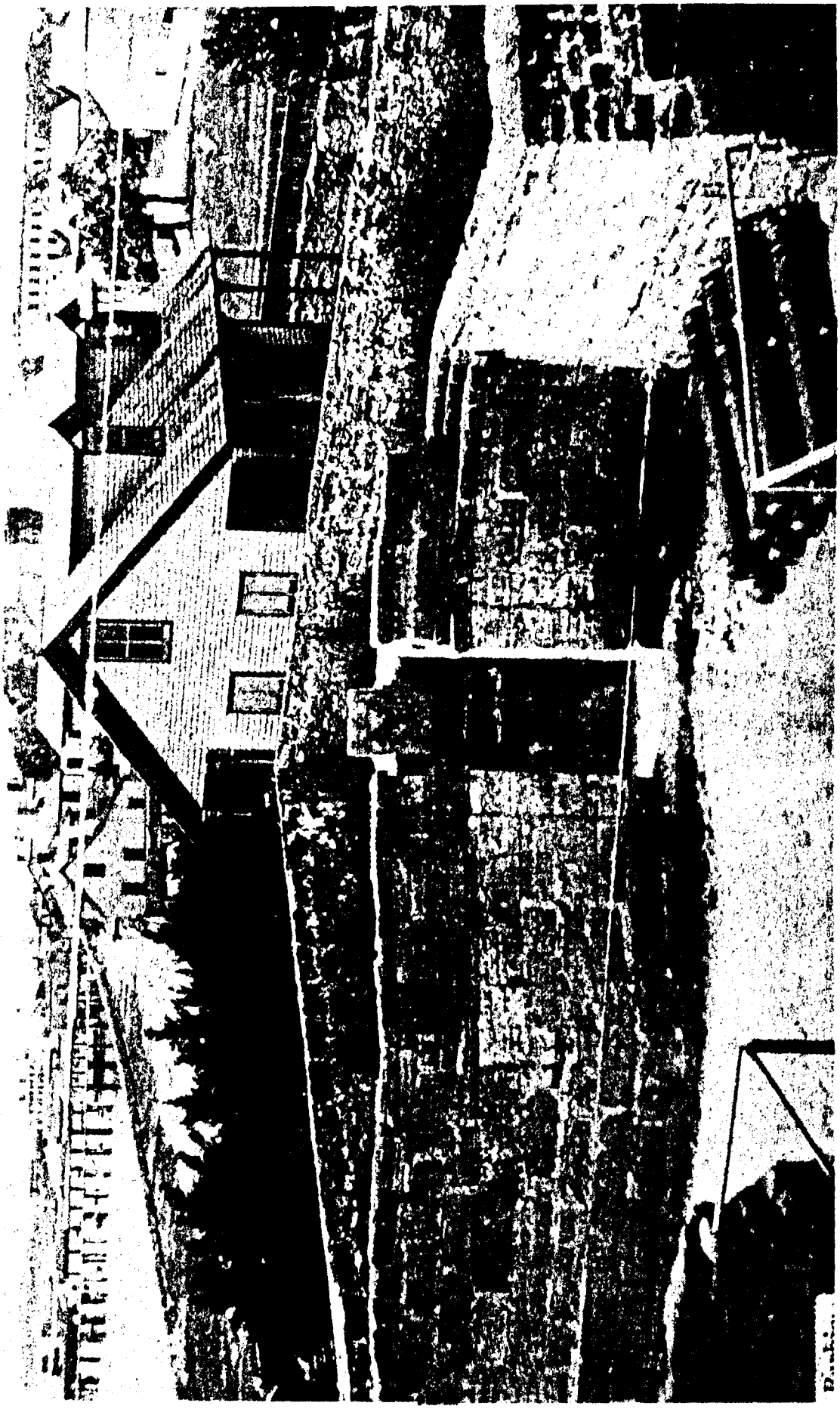

Fort Marion, St. Aug-
-ustine, from Bay to S.W.



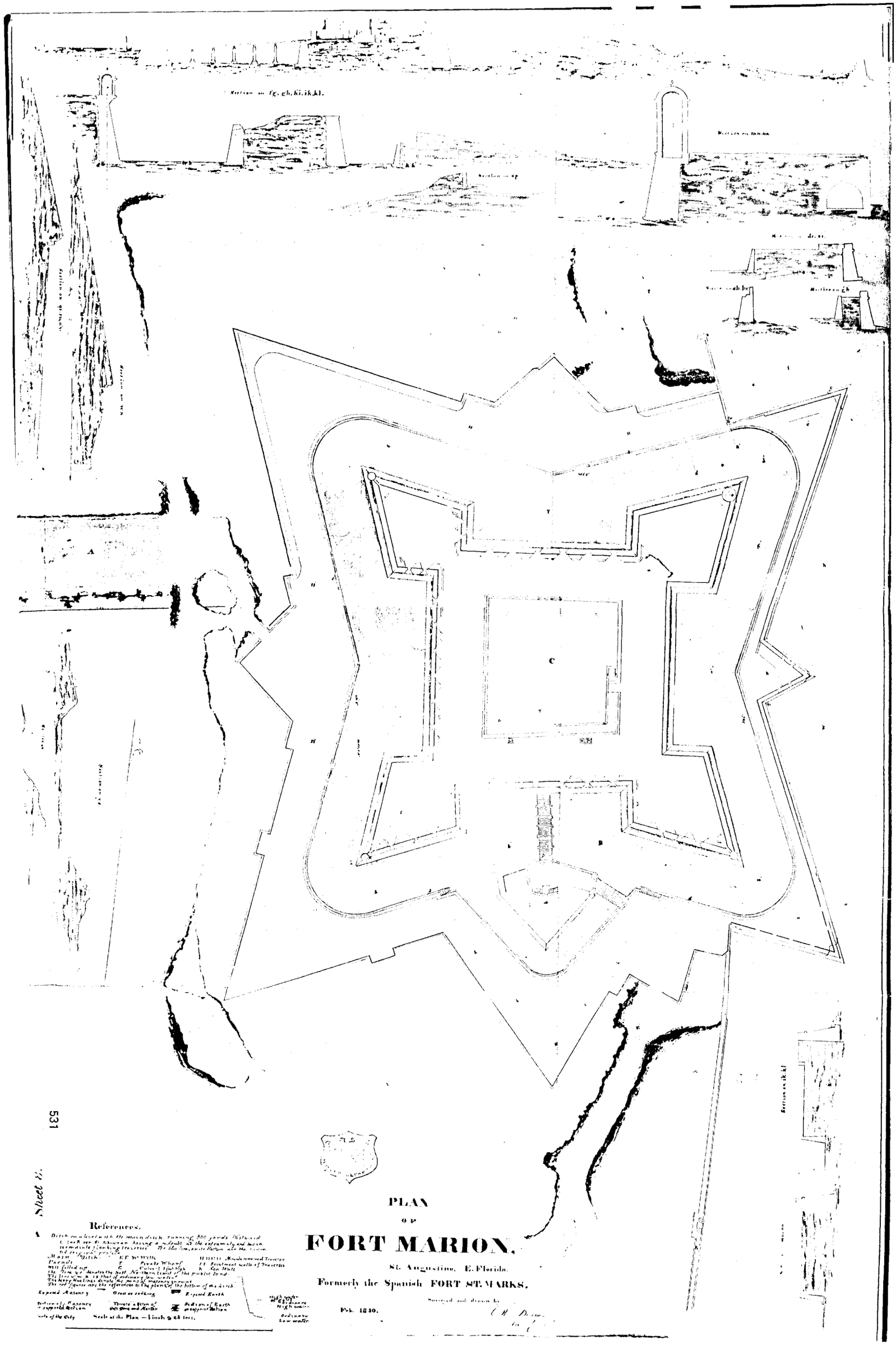








Fort Marion Tablet.
Presented to the U S Gouerment.
By the COLONIAL DAMES of FLORIDA.
At St Augustine. Feb. 22nd-1921
copyright
WOLFE-PHOTO


PLAN
OF
FORT MARION,
St. Augustine, E. Florida.
Formerly the Spanish FORT ST. MARKS.
Feb. 1840.
References.
Scale of the Plan — Inch to 25 feet.
Sheet 8.

Drawer 72.
Sheet 9.

HORIZONTAL SECTION OF FORT MARION:

With

The principal Vertical Sections and Elevations.

Section on ab

Section on cd. ef.

Section on fg.

Section on hi.

Section on kl.

Elevation of the West interior side.

Elevation of the North interior side.

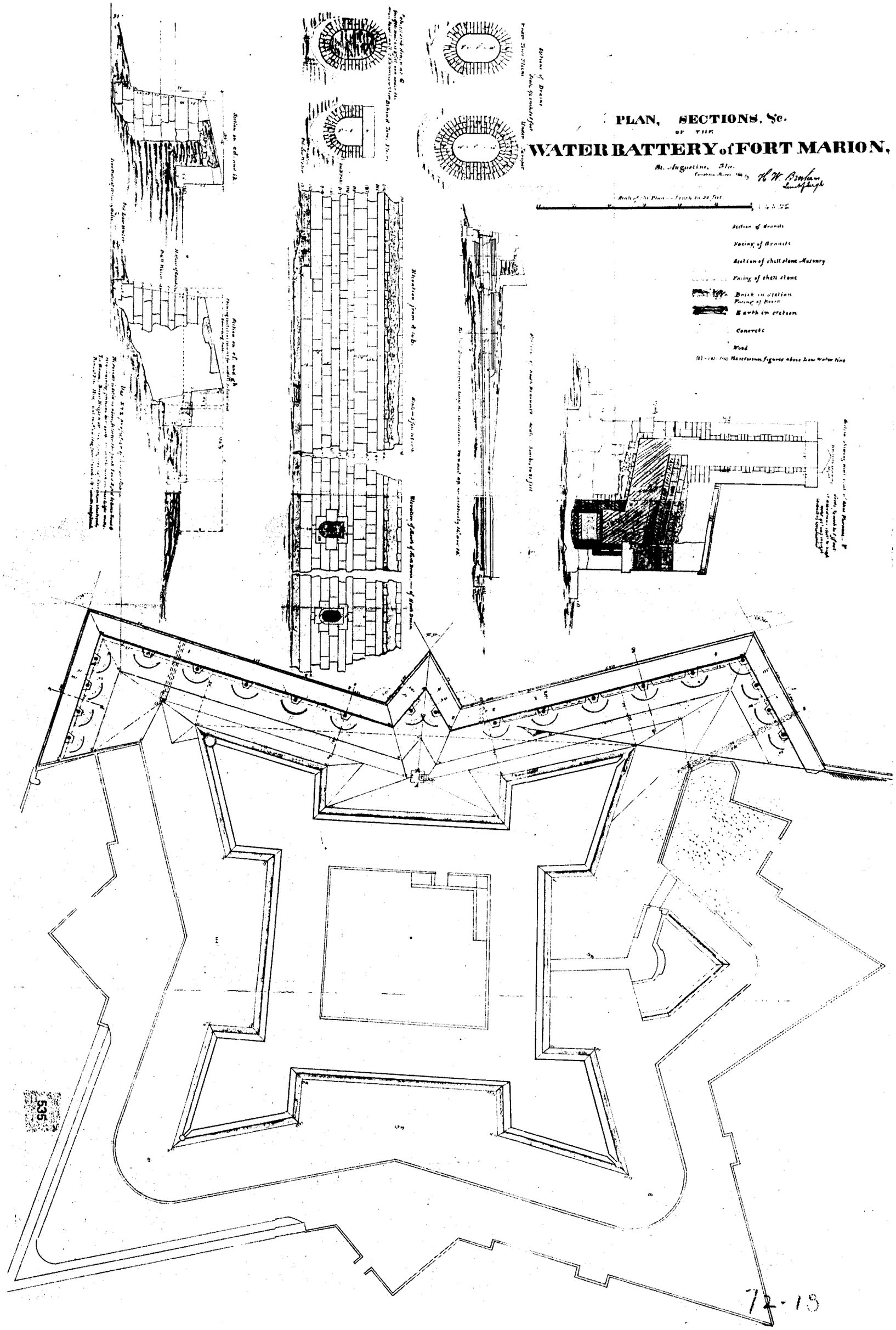
Elevation of the East interior side.

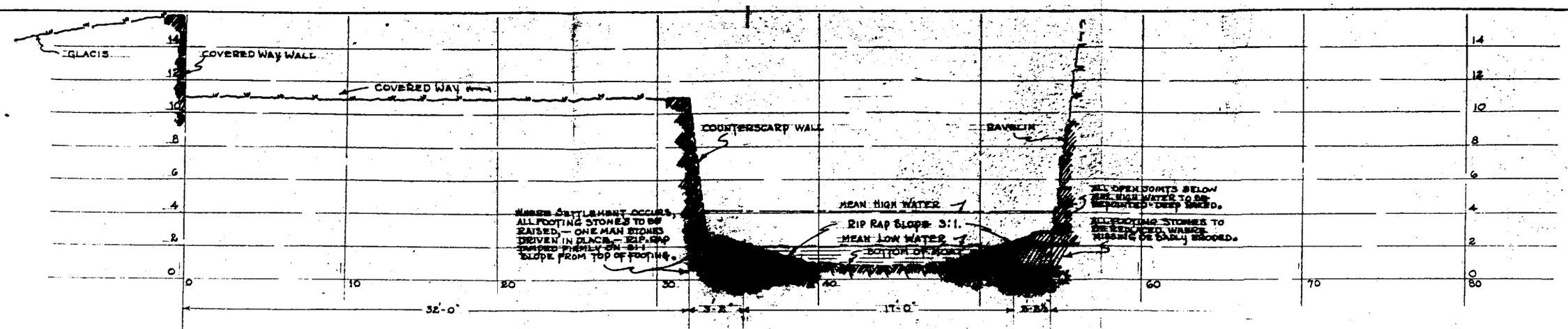
Elevation of the South interior side.

Elevation on the lines pq and qr on the Plan.

Elevation of Gateway.

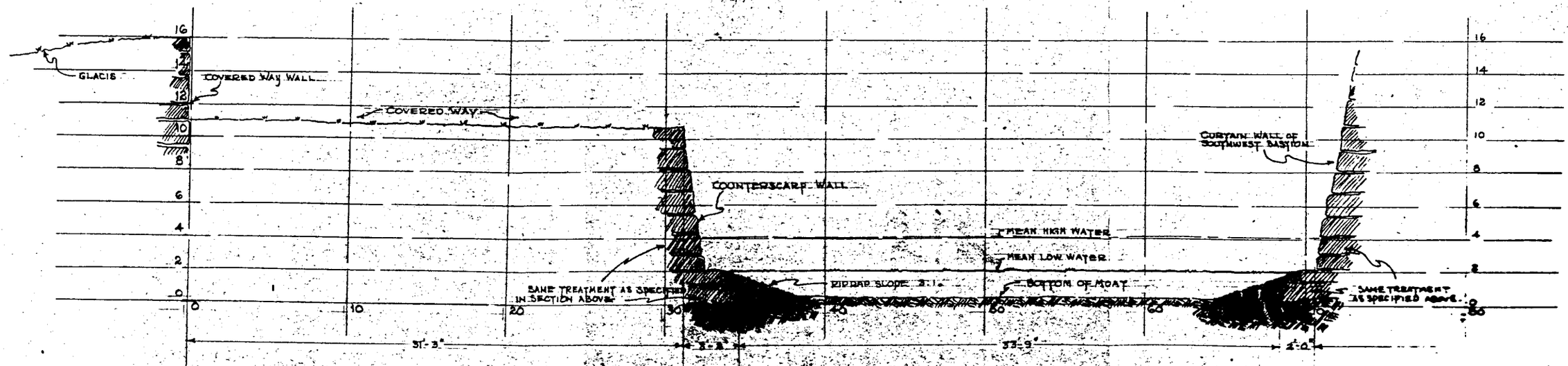
Elevation on the lines st. and tu. on the Plan.


PLAN, SECTIONS, &c.
OF THE
WATER BATTERY of FORT MARION,
St. Augustine, Fla.
H. W. Brisham
Section of Granite
Facing of Granite
Section of shell stone Masonry
Facing of shell stone
Brick in section
Facing of Brick
Earth in section
Concrete
Wood
The reference figures above Low Water line
535
72-19

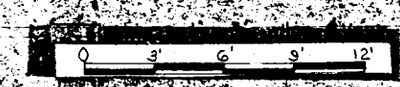


CROSS SECTION OF MOAT - WEST SIDE OF RAVELIN

SCALE : 1" = 5'. HOR. & VERT.



CROSS SECTION OF MOAT - AT SOUTHWEST BASTION



M

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
DESIGNED BY
SOUTHWESTERN NATIONAL MONUMENTS
SPECIFICATION, N.M.

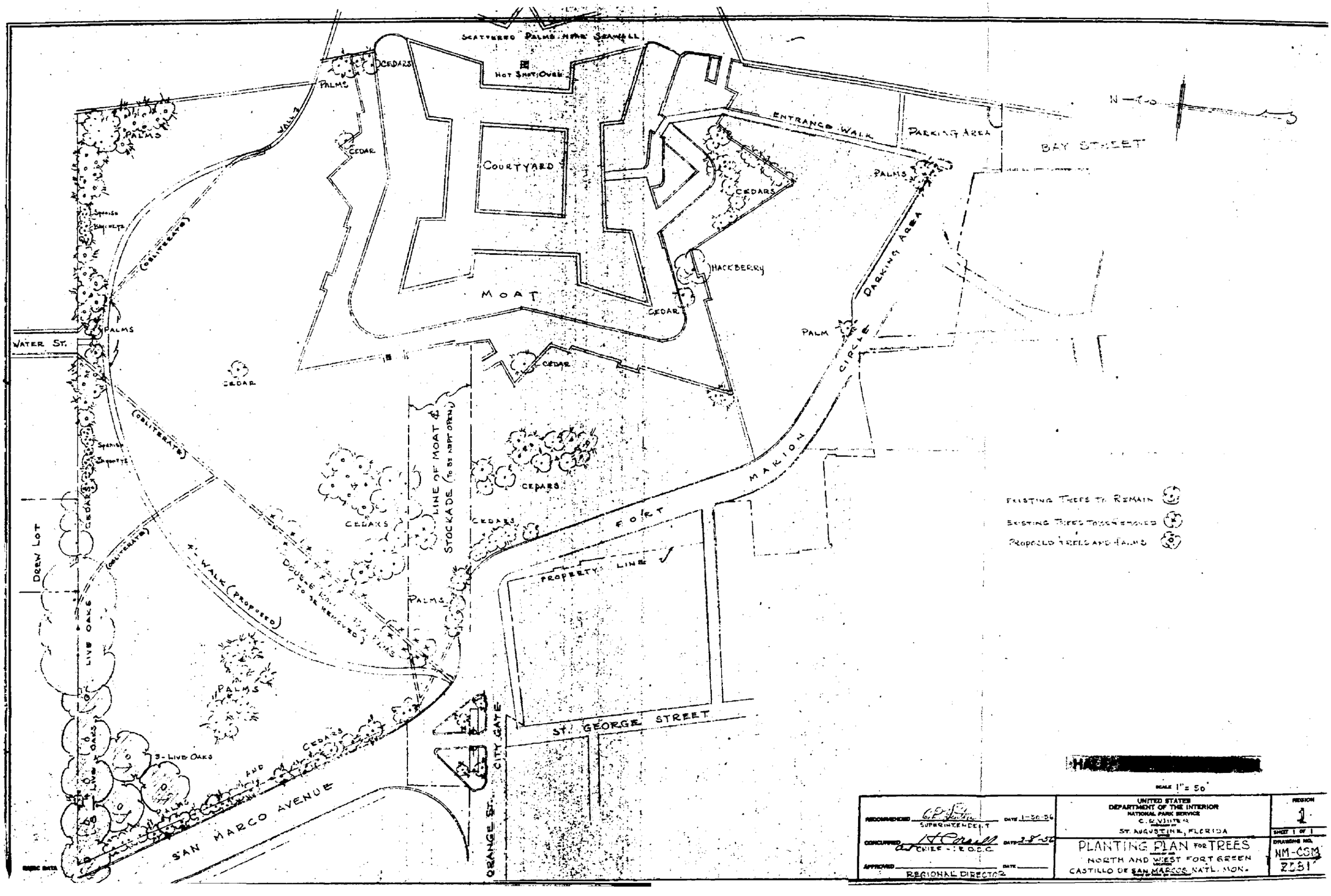
STABILIZATION OF FOOTINGS
CASTILLO DE SAN MARCOS
NATIONAL MONUMENT

REVISION
1

DRAWING NO.
NM-CSM

REVIEWED

DESIGNED BY: C.R.V.
DATE: 9/19/44



SCATTERED PALMS NEAR SEAWALL
HOT SHOT OVEN
CEDARS
PALMS
WALL
CEDAR
COURTYARD
MOAT
ENTRANCE WALK
PARKING AREA
BAY STREET
N
CEDARS
HACKBERRY
CEDAR
PALMS
PARKING AREA
PALM
CIRCLE
WATER ST.
CEDAR
CEDAR
(OBLITERATE)
LINE OF MOAT & STOCKADE (TO BE KEPT OPEN)
CEDARS
CEDARS
CEDARS
FORT MARION
PROPERTY LINE
DREW LOT
LIVE OAKS
(OBLITERATE)
4' WALK (PROPOSED)
DOUBLE ROW PALMS (TO BE REMOVED)
PALMS
PALMS
3-LIVE OAKS
LIVE OAKS
PALMS
AND CEDARS
SAN MARCO AVENUE
ORANGE ST.
CITY GATE
ST. GEORGE STREET
EXISTING TREES TO REMAIN
EXISTING TREES TO BE REMOVED
PROPOSED TREES AND PALMS
SCALE 1" = 50'
RECOMMENDED
SUPERINTENDENT
DATE 1-30-56
CONCURRED
CHIEF - I.E.O.D.C.
DATE 2-8-56
APPROVED
REGIONAL DIRECTOR
DATE
UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
C. R. VINTER
ST. AUGUSTINE, FLORIDA
PLANTING PLAN FOR TREES
NORTH AND WEST FORT GREEN
CASTILLO DE SAN MARCOS NATL. MON.
REGION
1
SHEET 1 OF 1
DRAWING NO.
NM-CSM
2531

MATANZAS RIVER

BAY ST.

PARKING

MONUMENT BOUNDARY

CHARLOTTE AVE.

MOAT

CASTILLO DE SAN MARCOS

GLACIS LIMIT

MOAT

PROPOSED RIGHT-OF-WAY

53' WIDE

FORT ALLEY

CUNA ST.

HISTORIC TOWN OF ST. AUGUSTINE

ST. GEORGE ST.

CITY GATE

MONUMENT BOUNDARY

SAN MARCO AVENUE

HISTORIC HUGUENOT CEMETERY

ORANGE ST.

SPANISH ST.

ORIENTATION REVIEWED

OPERATIONS REGION

WASHINGTON

INTERP. REGION

WASHINGTON

COOP. ACTV. REGION

WASHINGTON

DES. & CONST. STERN

A.

E.

L.A.

WASHINGTON

A.

E.

L.A.

OTHER

PREPARED

DESIGNED SCHUSTER

DRAWN

CHECKED

REVISED

DATE | INITIAL

EXHIBIT C

SCALE 1" = 50'

RECOMMENDED

DATE

APPROVED

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
DIVISION OF DESIGN & CONSTRUCTION

PREPARED BY W&SH OFFICE

ADJUSTED ROAD ALIGNMENT
TITLE OF DRAWING

LOCATION WITHIN AREA

CASTILLO DE SAN MARCOS NAT. MONUMENT
NAME OF AREA

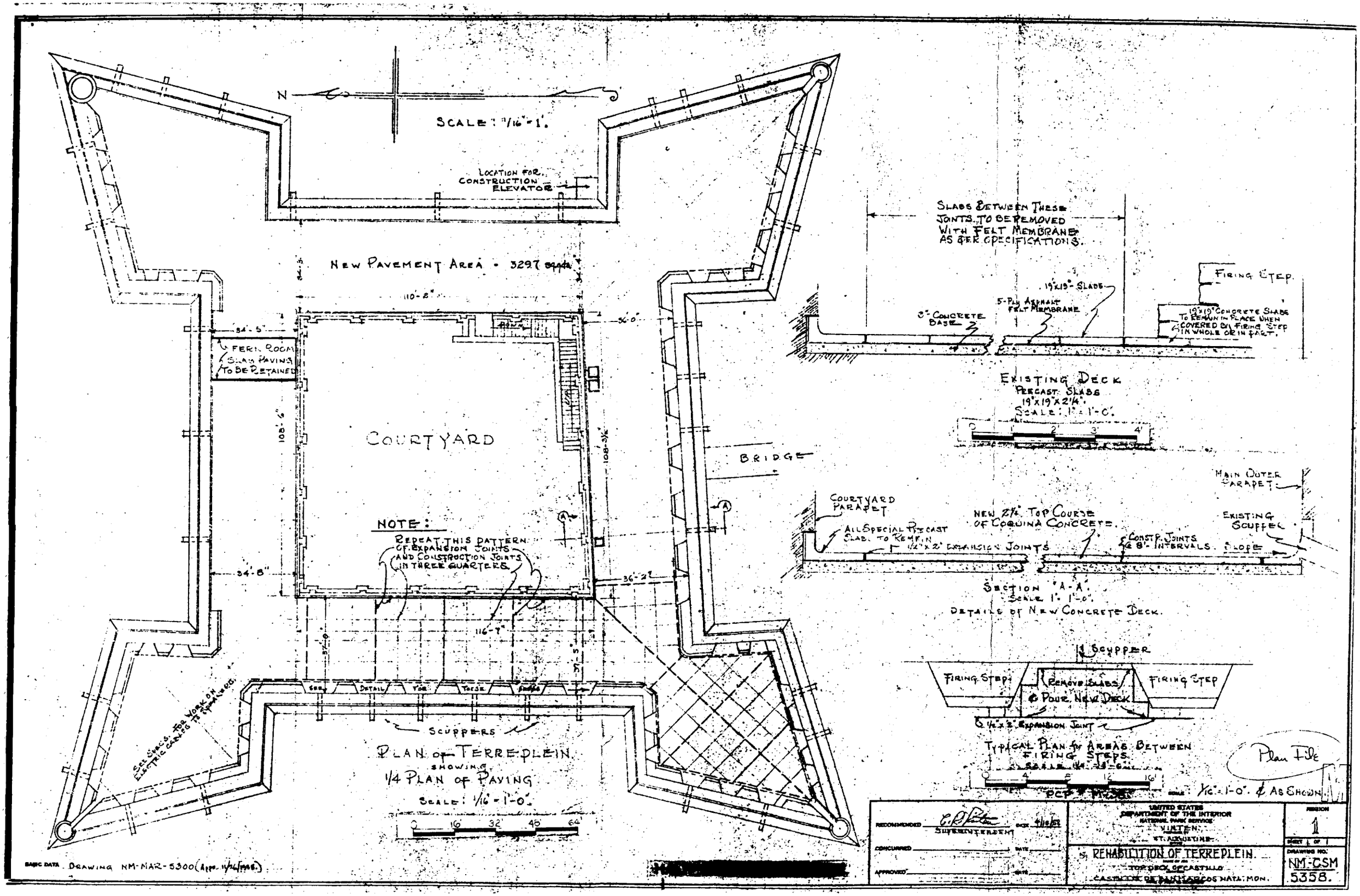
REGION ONE

PCP.

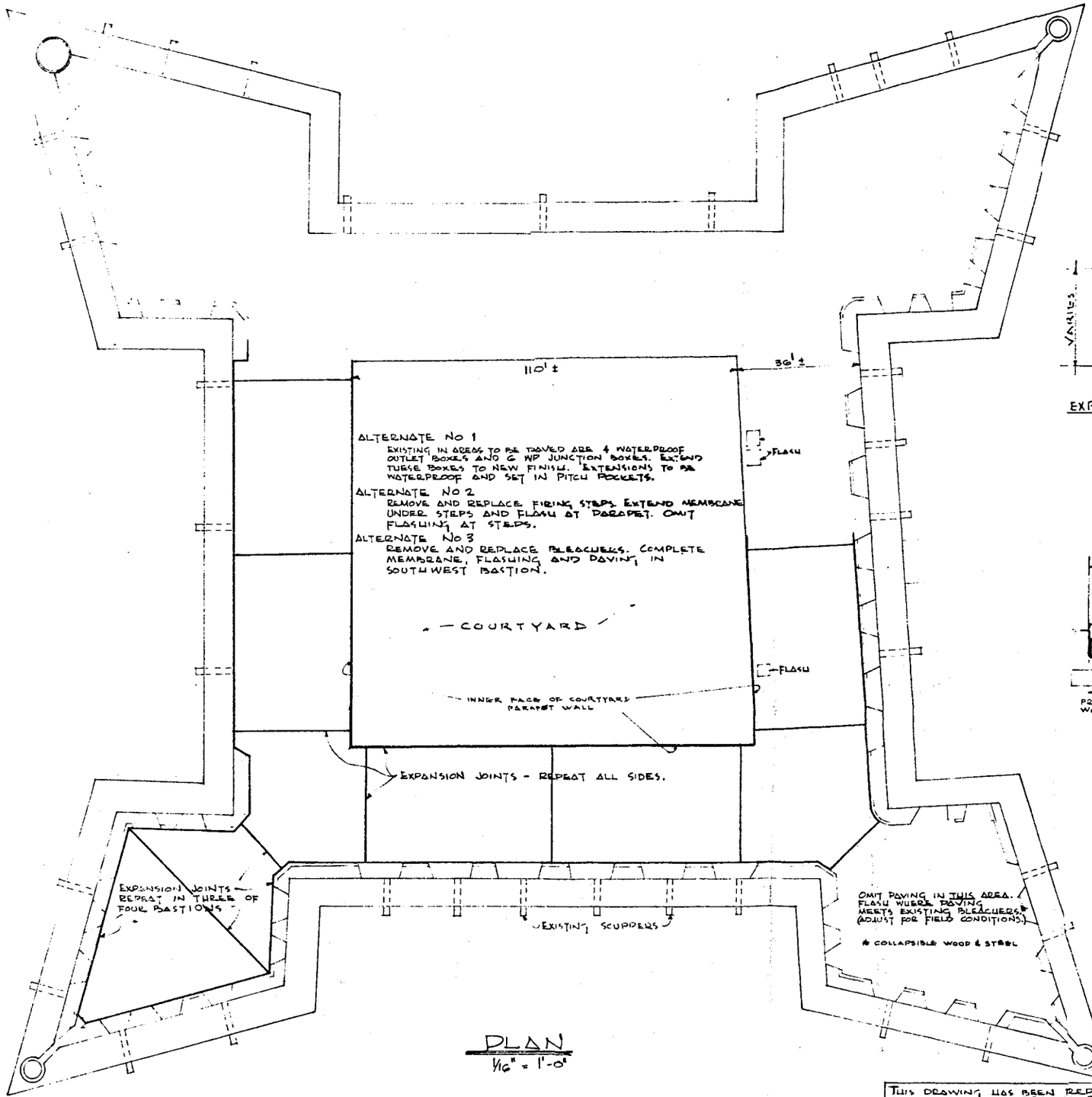
SHEET 1 OF 1

DRAWING NO. NM2-CSM

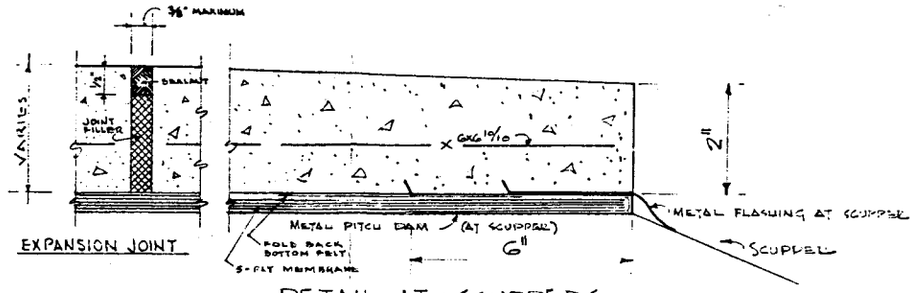
DATE



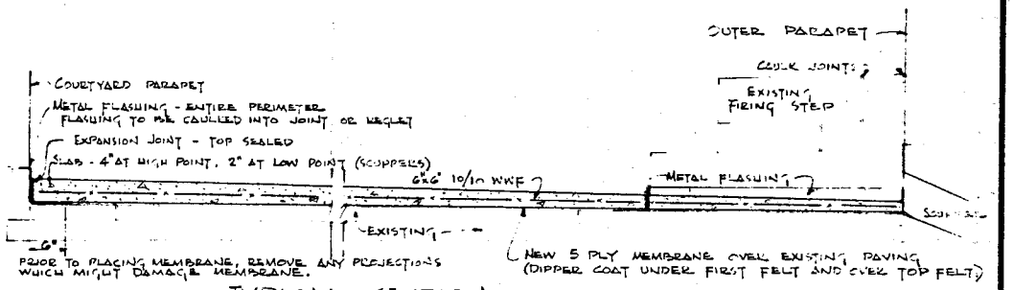
N
SCALE: 1/16" = 1'.
LOCATION FOR CONSTRUCTION ELEVATOR
NEW PAVEMENT AREA - 3297 sq.ft.
110'-2"
34'-5"
FERN ROOM
SLAB PAVING TO BE RETAINED
108'-6"
COURTYARD
108'-3½"
BRIDGE
NOTE:
REPEAT THIS PATTERN OF EXPANSION JOINTS AND CONSTRUCTION JOINTS IN THREE QUARTERS.
34'-8"
36'-2"
116'-7"
SEE DETAIL FOR TOPSIDE SCUPPERS
SEE SPECS. FOR WORK ON ELECTRIC CABLES TO SPEAKERS.
SCUPPERS
PLAN OF TERREPLEIN SHOWING 1/4 PLAN OF PAVING
SCALE: 1/16" = 1'-0".
0 16' 32' 48' 64'
SLABS BETWEEN THESE JOINTS TO BE REMOVED WITH FELT MEMBRANE AS PER SPECIFICATIONS.
FIRING STEP.
19"x19" SLABS
5-PLY ASPHALT FELT MEMBRANE
3" CONCRETE BASE
19"x19" CONCRETE SLABS TO REMAIN IN PLACE WHEN COVERED BY FIRING STEP IN WHOLE OR IN PART.
EXISTING DECK
PRECAST SLABS 19"x19"x2¼".
SCALE: 1" = 1'-0".
0 1' 2' 3' 4'
MAIN OUTER PARAPET
COURTYARD PARAPET
ALL SPECIAL PRECAST SLABS TO REMAIN
1/2"x2" EXPANSION JOINTS
NEW 2¼" TOP COURSE OF COQUINA CONCRETE.
CONSTR. JOINTS @ 8' INTERVALS.
EXISTING SCUPPER
SLOPE
SECTION "A-A".
SCALE 1" = 1'-0".
DETAILS OF NEW CONCRETE DECK.
SCUPPER
FIRING STEP
REMOVE SLABS & POUR NEW DECK
FIRING STEP
1/2"x2" EXPANSION JOINT
TYPICAL PLAN for AREAS BETWEEN FIRING STEPS.
0 4' 8' 12' 16'
PCP
SCALE: 1/16" = 1'-0". & AS SHOWN.
Plan File
RECOMMENDED
SUPERINTENDENT
DATE 4/10/52
CONCURRED
DATE
APPROVED
DATE
UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
VINTEN
ST. AUGUSTINE
REHABILITION OF TERREPLEIN.
TOP DECK OF CASTILLO
CASTILLO DE SAN MARCOS NATL. MON.
REGION 1
SHEET 1 OF 1
DRAWING NO. NM-CSM 5358.
BASIC DATA DRAWING NM-MAR-5300 (Appr. 11/26/1938)



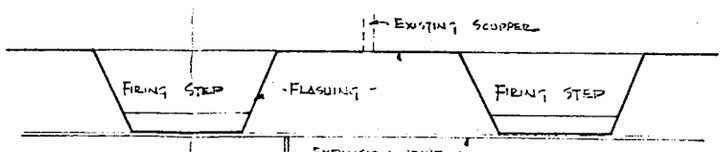
PLAN
1/16" = 1'-0"



DETAIL AT SCUPPERS
NO SCALE



TYPICAL SECTION
1" = 1'-0"



PLAN AT FIRING STEPS
NO SCALE

ORIENTATION

WORKING DRAWING
SCALE AS NOTED

MARK	DESCRIPTION OF REVISION	DATE	INITIAL

RECOMMENDED
DATE
APPROVED
CHIEF, E&D

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
DESIGN & CONSTRUCTION
PREPARED BY
EASTERN OFFICE

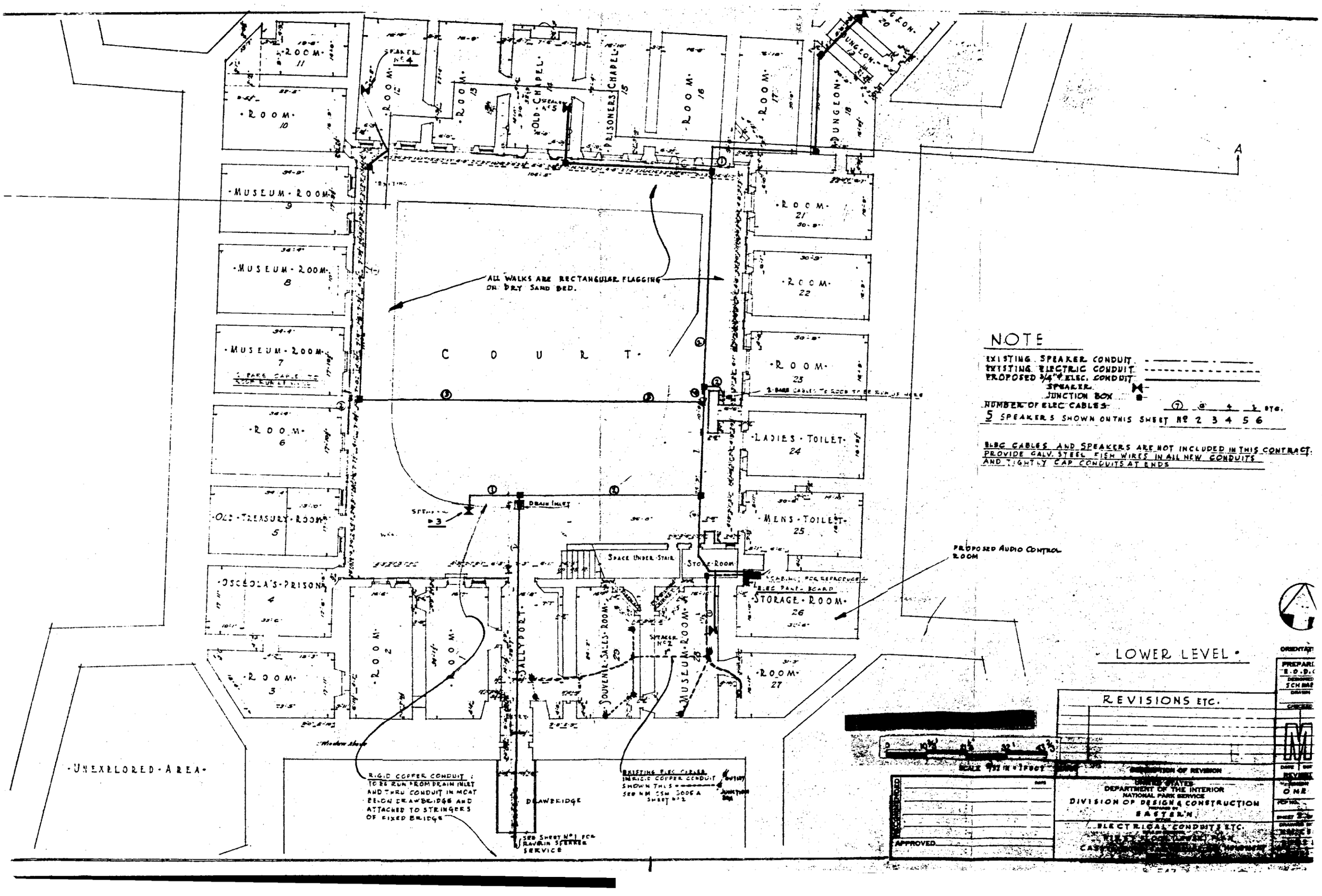
TERREPLEIN WATERPROOFING
TITLE OF DRAWING
A-1 to 3
LOCATION WITHIN PARK
CASTILLO DE SAN MARCOS NM, FLORIDA
NAME OF PARK

PREPARED	EDIC
DESIGNED	HALL
DRAWN	LAND
CHECKED	
REVISED	
REGION	SOUTHEAST
PCP NO.	M 47
SHEET	1 OF 1
DRAWING NO.	NM-CSM 3019
DATE	DEC. 1963

THIS DRAWING HAS BEEN REPRODUCED IN ACCORDANCE WITH REGIONAL DIRECTORS MEMORANDUM - DSG - DATED NOV 5, 1963

NM/CSM-2082

©DATA ST JOHNS COUNTY



ROOM 11
ROOM 10
MUSEUM ROOM 9
MUSEUM ROOM 8
MUSEUM ROOM 7
ROOM 6
OLD TREASURY ROOM 5
OSCEOLA'S PRISON 4
ROOM 3
ROOM 2
ROOM 1
ROOM 12
ROOM 13
OLD CHAPEL 14
PRISONERS CHAPEL 15
ROOM 16
ROOM 17
DUNGEON 18
DUNGEON 19
DUNGEON 20
ROOM 21
ROOM 22
ROOM 23
LADIES TOILET 24
MENS TOILET 25
STORAGE ROOM 26
ROOM 27
SALLYPORT
SOUVENIR SALES ROOM 29
MUSEUM ROOM 28
COURT
ALL WALKS ARE RECTANGULAR FLAGGING ON DRY SAND BED.
DRAIN INLET
SPACE UNDER STAIR
STORE ROOM
PROPOSED AUDIO CONTROL ROOM
UNEXPLORED AREA
RIGID COPPER CONDUIT TO BE RUN FROM DRAIN INLET AND THRU CONDUIT IN MOAT BELOW DRAWBRIDGE AND ATTACHED TO STRINGERS OF FIXED BRIDGE
DRAWBRIDGE
SEE SHEET No 1 FOR RAVELIN SPEAKER SERVICE
EXISTING ELEC CABLES IN RIGID COPPER CONDUIT SHOWN THUS SEE NM CSM 3005 A SHEET No 2
NOTE
EXISTING SPEAKER CONDUIT
EXISTING ELECTRIC CONDUIT
PROPOSED 3/4" ELEC. CONDUIT
SPEAKER
JUNCTION BOX
NUMBER OF ELEC CABLES
5 SPEAKERS SHOWN ON THIS SHEET No 2 3 4 5 6
ELEC CABLES AND SPEAKERS ARE NOT INCLUDED IN THIS CONTRACT. PROVIDE GALV. STEEL FISH WIRES IN ALL NEW CONDUITS AND TIGHTLY CAP CONDUITS AT ENDS
LOWER LEVEL
REVISIONS ETC.
DESCRIPTION OF REVISION
UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
DIVISION OF DESIGN & CONSTRUCTION
EASTERN
ELECTRICAL CONDUITS ETC.
APPROVED

ARRANGEMENT OF CIRCUITS IN LIGHT PANEL

CIRCUIT	BREAKER	VOLTS	LOCATION
1	1P-20 AMP.	115	TICKET BOOTH
2	20	115	ROOM 1
3	20	115	2 & 4
4	20	115	3
5	20	115	3
6	20	115	5 & 6
7	20	115	7
8	20	115	8 & 9
9	20	115	10, 11, & 12
10	20	115	13, 14, 15, & 16
11	20	115	17, 18, & 21
12	20	115	19 & 20
13	20	115	22
14	20	115	24 (WOMEN)
15	20	115	23 (MEN)
16	20	115	26
17	20	115	27 & 28
18	20	115	29
19	20	115	30
20	2P 30 AMP.	208	1 AIRCONDITIONER
21	30	208	1 AIRCONDITIONER
22	30	208	7, POWER RECEPTACLE
23	30	208	7,
24	30	208	8 & 9
25	30	208	8 & 9
26	30	208	26
27	30	208	26
28	30	208	SPARE 2 POLE BREAKER
29	30	208	SPARE
30	1P-20 AMP.	115	SPARE
31	20	115	SPARE
32	20	115	SPARE

N

4"x4"x4" PVC JUNCTION BOX CARLON #HX98ZXN OR APPROVED EQUAL

REPLACED EXISTING TORRINGTON MFG. CO EXHAUST FAN WITH NEW IDENTICAL UNIT, OR APPROVED EQUAL.

REPLACED CONDUIT, BOX, AND WIRING REINSTALLED EXISTING LIGHT FIXTURE & CHASED CONDUIT INTO WALL

WALL MOUNT 4"x4"x4" PVC JUNCTION BOX CARLON #HX98ZXN, OR EQUAL. 115 VOLT WIRING FROM THIS BOX TO SHOWCASE LIGHTING INSTALLED BY OTHERS.

SURFACE TYPE SINGLE PHASE 3 WIRE BREAKER PANEL WITH 6-20 AMP. 1 POLE BREAKERS AND 2-20 AMP. 2 POLE BREAKERS. SQUARE D NQO8"10-3LXS BOTTOM, OR APPROVED EQUAL.

REPLACED CONDUITS, BOXES AND ALL WIRING SHOWN INCLUDING FIXTURE WIRING. REINSTALLED EXISTING FIXTURES. NEW CONDUITS ARE STILL EXPOSED AS BEFORE.

WALL MOUNTED 4"x4"x4" PVC JUNCTION BOX CARLON #HX98ZXN, OR EQUAL. 115 VOLT WIRING FROM THIS BOX TO SHOW CASE LIGHTING WILL BE INSTALLED BY OTHERS.

NEW CONDUITS ARE EXPOSED EXCEPT CONDUITS TO DRINKING FOUNTAIN RECEPTACLES WHICH ARE CHASED IN FLOOR AS BEFORE. EACH JUNCTION BOX IS WALL MOUNTED 8"x8"x4" PVC, CARLON #HX9889N, OR EQUAL. BRANCH CIRCUIT CONDUITS ARE 3/4" PVC. BRANCH CIRCUIT WIRING IS #12.

1 1/2" PVC CONDUIT FROM CONTROL BOARD IN ROOM 26 TO A POINT 3 FT. OUTSIDE FORT FOR FUTURE CABLES TO PARKING AREA LIGHTING AND RECEPTACLE.

NEW 1 1/2" ALUMINUM CONDUIT AND FITTINGS FROM CONTROL BOARD, IN ROOM 26 TO A POINT 3 FT. OUTSIDE FORT WITH 1 1/2" PVC CONDUIT AND FITTINGS

EXISTING DIRECT BURIAL CABLES TO FLOODLIGHTS

EXISTING MAIN WATER SUPPLY CONNECT GROUND AS DESCRIBED - SPECIAL NOTE #9

NEW 2" ALUMINUM CONDUIT AND FITTINGS BETWEEN PULL BOX NO. 9 AND THE HIGH VOLTAGE DISCONNECTS IN ROOM 26 WITH 2" GALVANIZE STEEL CONDUIT AND COMPATIBLE FITTINGS. CONDUIT IS NOW SUPERDUCT, OR APPROVED EQUAL.

300 KVA, 3ϕ TRANSFORMER

SEE SHEET 3 FOR DETAILS IN ROOM 26

JUNCTION BOX NO.7 — JUNCTION BOX NO.8 — JUNCTION BOX NO.9 — JUNCTION BOX NO.10 — JUNCTION BOX NO.5 — JUNCTION BOX NO.4 — JUNCTION BOX NO.3 — JUNCTION BOX NO.2 — JUNCTION BOX NO.1 SEE DETAIL SHEET 3

NEW 96"-2 TUBE FLUORESCENT FIXTURES SEE SPECIAL NOTE NO.12

6"x6"x4" PVC JUNCTION BOX CARLON #HX98ZRN OR APPROVED EQUAL

4"x4"x4" PVC JUNCTION BOX CARLON #HX98ZXN OR APPROVED EQUAL

THIS BOX IS FOR FUTURE CIRCUIT EXTENSION.

ROOM #2 - EXISTING LIGHTS REINSTALLED WITH NEW WIRING AND BOXES. TICKET BOOTH WIRING IS UNCHANGED.

DUPLEX RECEPTACLE CONNECTED TO TICKET BOOTH WIRING.

6"x6"x4" PVC JUNCTION BOX SEE SPECIAL NOTE NO.7

EXISTING 1¢ COPPER

EXISTING BLOWER MOTOR

GROUND

SEE DETAIL SHEET 3

CONTROL

OVERHEAD

115 V.

FORT ENTRANCE

RECEPTACLES A & B NOW ON A COMMON CIRCUIT. THE EXTRA CIRCUIT OBTAINED IS USED TO SUPPLY ALL RECEPTACLES IN ROOM 29 THUS REDUCING THE LOAD ON CIRCUIT IN ROOM 28. ALL OTHER WIRING, CONDUIT, BOXES, ETC. IN ROOMS 27, 28, 29 & 30 IS NOT CHANGED.

HEAVY DUTY BROWN, 15 AMP. 125 V. DUPLEX RECEPTACLE WITH GROUNDING TERMINAL OR 3 WIRE, 10 AMP. 250 V. POLARIZED, SINGLE POWER RECEPTACLE AS REQUIRED SEE LOCATIONS THIS SHEET

HEAVY DUTY BROWN BAKELITE COVER PLATE

1/4"x1 1/2"x24" WROUGHT IRON BOX SUPPORT. DRIVEN INTO CASEMATE FLOOR OR MATERIAL UNDER FLOOR

CARLON PVC, OR EQUAL TYPE FSS, SIZE 3/4" OR 1", AS REQUIRED.

CASEMATE FLOOR

BACKFILL AROUND CONDUITS AND BOX SUPPORT WITH CONCRETE

PVC ELBOW

CHASE CONDUITS INTO CASEMATE FLOOR

EXTRA HEAVY WALL PVC CONDUIT WITH COUPLINGS CARLON TYPE 40, OR EQUAL

NOTE

DRILL TWO 1/2" HOLES IN BACK OF PVC BOX AND THROUGH WROUGHT IRON SUPPORT NEAR TOP. ATTACH BOX TO SUPPORT WITH TWO 3/16" DIA. STAINLESS STEEL BOLTS. USE SOLDERLESS COMPCTR TERMINAL LUG UNDER ONE MOUNTING BOLT NUT INSIDE BOX TO CONNECT SYSTEM EQUIPMENT GROUND TO WROUGHT IRON BOX SUPPORT.

TYPICAL FLOOR RECEPTACLE DETAIL
NO SCALE

SYMBOLS

- 115 V DUPLEX RECEPTACLE
- 208V, 1PHASE POWER RECEPTACLE
- LIGHTING FIXTURE
- S SINGLE POLE SWITCH
- EXISTING FACILITIES NOT A PART OF THIS CONTRACT
- NEW WORK AS SHOWN
- PVC CONDUIT WITH NUMBER OF CONDUCTORS AND SIZE AS SHOWN.

AS CONSTRUCTED

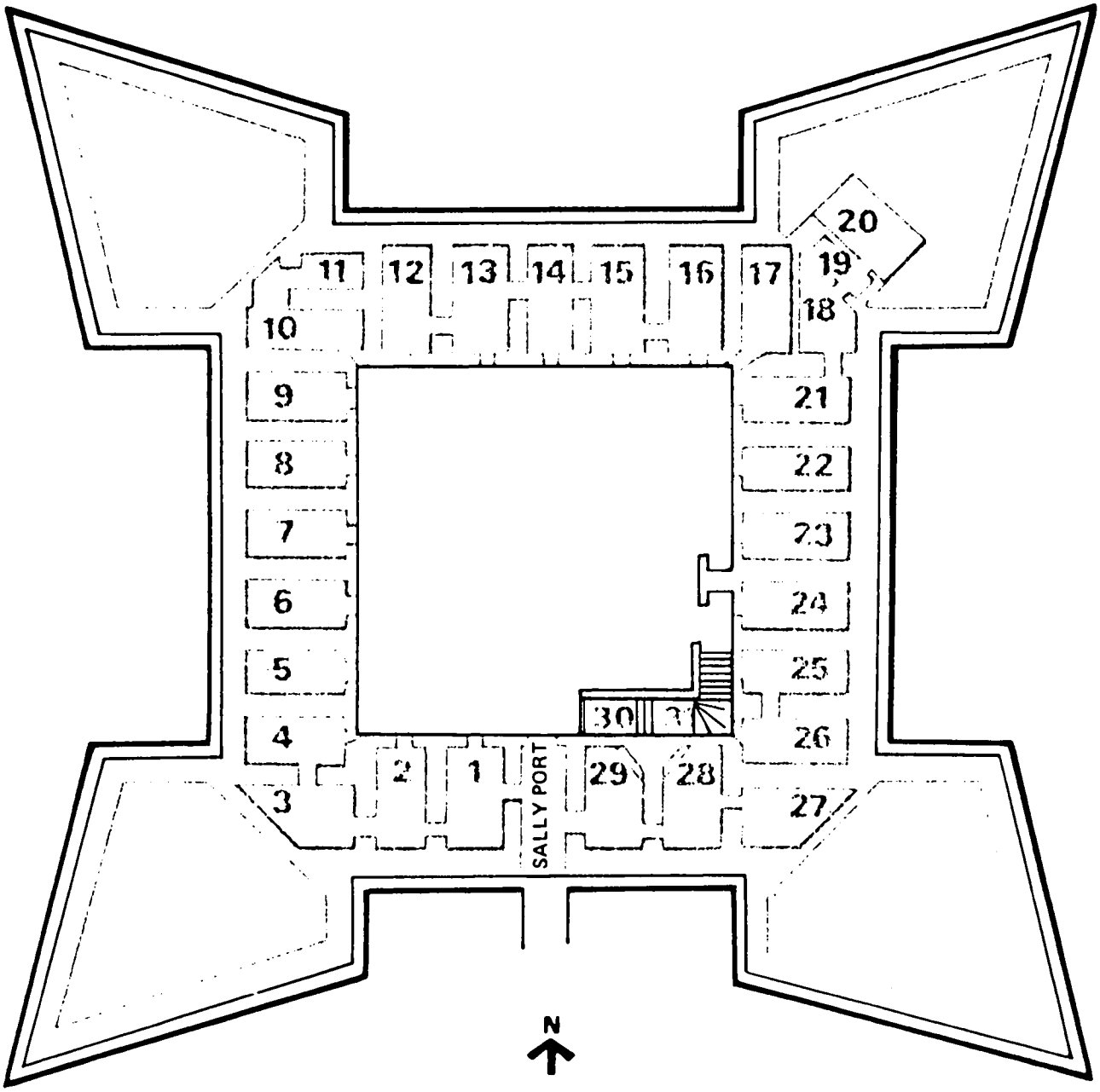
PLAN OF CASTILLO SHOWING ELECTRICAL LAYOUT IN FORT ROOMS

SCALE 1/2 INCH = 1 FOOT

0 4 8 12 16 20 24

BASIC DATA

REGION SOUTHEAST
PCP NO.
SHEET 2 OF
DRAWING NO. NPS : CSM 30-91M
DATE SEPT. 73



THE SALLY PORT
1. HISTORICAL ORIENTATION
2. & 3. MUSEUM
4. THE ESCAPE OF THE SEMINOLE INDIANS
5. STORAGE OF MARINE SUPPLIES
6. TEMPORARY EXHIBIT ROOM
7. MULTIPURPOSE ROOM
8. FOOD STORAGE
9. DESIGN AND CONSTRUCTION OF THE CASTILLO
10. & 11. BLACK POWDER, CANNON, MORTAR, & CANNON BALL MAGAZINE
12. & 13. BRITISH OCCUPATION
14. CHAPEL
15. INDIAN PRISON/SCHOOL
16. THE KING'S TREASURY
17. SCALE MODEL OF THE CASTILLO
18. & 21. GUN AND GUNNERS
19. & 20. UNFURNISHED
22. DISTRICT ADMINISTRATIVE OFFICE
23. SALES FACILITY
24. & 25. RESTROOMS
26. UTILITY AND JANITORIAL SUPPLY ROOM
27. - 29. GARRISON LIFE
30. & 31. THE CASTILLO "NECESSARIES"

CASEMATE USE

CASTILLO DE SAN MARCOS NATIONAL MONUMENT
UNITED STATES DEPARTMENT OF INTERIOR/NATIONAL PARK SERVICE

343	20018
DSC	SEPT 77

As the Nation's principal conservation agency, the Department of the Interior has basic responsibilities to protect and conserve our land and water, energy and minerals, fish and wildlife, parks and recreation areas, and to ensure the wise use of all these resources. The Department also has major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

Publication services were provided by the graphics staff of the Denver Service Center. NPS 2123