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Evidence for the African Cemetery at Higgs Beach, Key West, Florida

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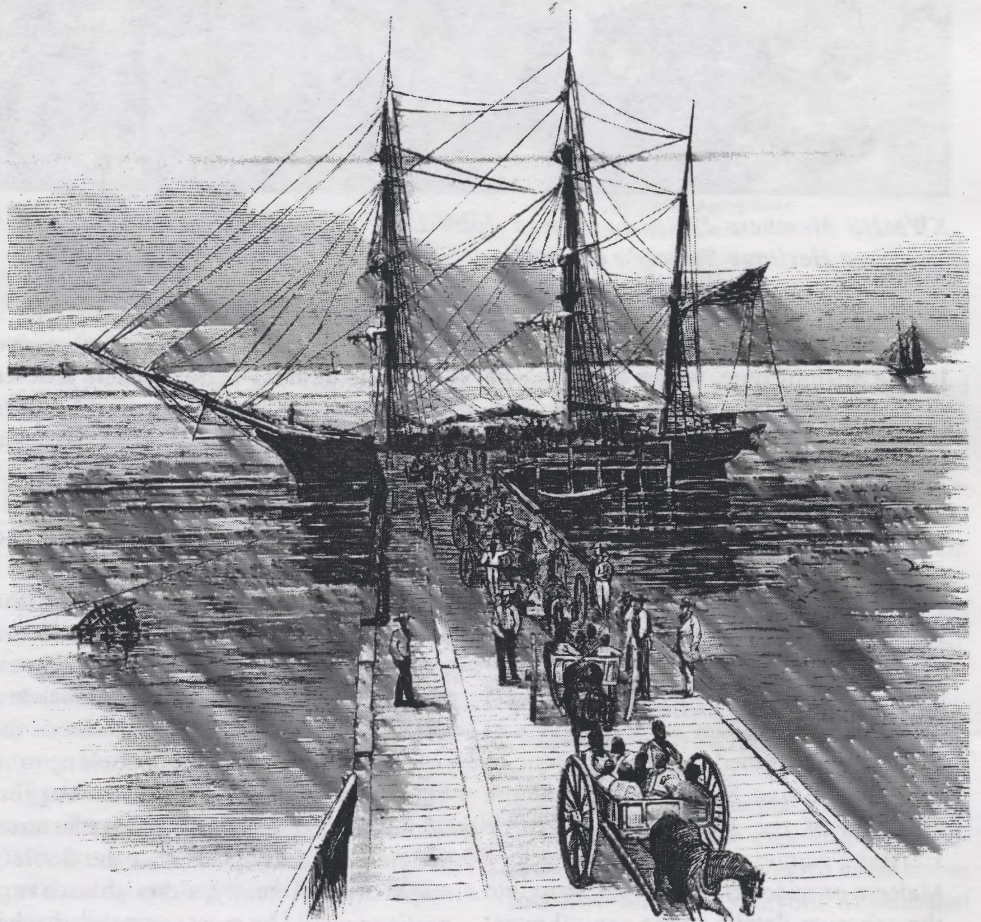
Abstract

For a period of nearly three months during the spring and summer of 1860, Key West, Florida served as the home for some 1432 African refugees. These people had been brought to the island on three slave ships bound for Cuba, but captured by the US Navy in its effort to eradicate the illegal slave trade. Of these people, many were sick and weakened by the harsh, crowded shipboard conditions they had endured during their voyage from the coast of Western Africa. Documents relating to these events show that from May 1st to July 19th, 1860, 295 Africans died at Key West. They were buried in unmarked graves along the southern shore of the island.

Based on this historical record, a theoretical location for their cemetery was determined. Archaeological techniques that could test the theory of the location of the graves, without disturbing their integrity, were researched. Ground-penetrating radar (GPR) offered the best solution. From June 14-16, 2002, a GPR survey was conducted at Higgs Beach, Key West.

The Africans in Key West

During the spring and summer of 1860 the US Navy Steamers *Mohawk*, *Wyan-*



The American bark William unloading captured Africans at the pier in Key West. Photo credit: Frank Leslie's Illustrated Newspaper of Saturday, June 23, 1860.

dotte, and *Crusader* captured the American-owned slave ships *Wildfire*, *William*, and *Bogota* at various points near the Cuban coast. The ships were destined for the slave markets on that island nation, where their human cargo would be sold to provide labor for the thriving sugar indus-

try. Key West, being the nearest US port, and one with which the Navy vessels were quite familiar, was where the hundreds of Africans held aboard each slaver were brought to find refuge. They were deliv-

(Continued on page 8)

Society News

By Ed Little, President, KWMHS



KWMHS Members Emily Lowe and Joan Langley at the tour of Mel Fisher Maritime Heritage Society's exhibit "Last Slave Ships." Photo credit: Ed Little.

As you read this, another year in the life of our Society will have come to a close. In that span of time, we've been treated to several informative lectures by our guest speakers. For example, we've learned of the early history of the technology that allows divers to explore the underwater world off Florida's coasts. Later, one of our other speakers presented us with information on the locations and cultural context of some of the most significant shipwreck sites in Keys waters. Most recently, Society members and their guest had the chance to almost "travel back in time, as they joined in a custom tour of the "Last Slave Ships" exhibit at the Museum of the Mel Fisher Maritime Heritage Society. Archaeologist Cory Malcom provided expert insight for us into the sobering details of the central event depicted in that exhibit- the rescue of over 1,000 Africans that were to have been sold as slaves in the Americas.

Then there is the continued success of the Society's quarterly, the *Florida Keys Sea Heritage Journal*. Through the dedi-

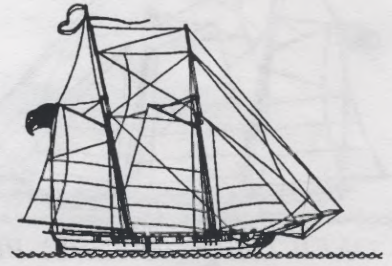
cated efforts of the Journal's editor, Lynda Hambricht with production by Tom, we've been able to bring to our readers articles that cover the gamut of historical subjects that pertain to Key West and the Florida Keys. These articles give us a window into "days gone by" that would not be available otherwise. Well Done Lynda and Tom!!

That brings me to the future of the Society. In the coming year we on the Board of Directors have plans for additional guest speakers, field trips, and Journal articles. But, we are also a Society that needs the support of the members that belong to it. There is still plenty of room for suggestions to be offered on prospective lectures, articles, and activities that the Society might offer. Actually, although such suggestions would be most appreciated, what we really need is additional helping hands to make those suggestions "happen". So, for those of you that have time, ideas, or expertise to volunteer, we await your call. Just dial us at 292-7903. Don't be shy, get "onboard" mate!!

New Members

Heritage Harbor Tours, Key West; John & Delores McLoughlin, Key West; Tom

Swicegood, Gainesville, FL; Zachary Weinshenker, Tallahassee, FL.



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Editor: Lynda Hambricht

Production: Tom Hambricht

Letters and articles are welcome. Please write to: Editor, Florida Keys Sea Heritage Journal, KWMHS, P.O. Box 695, Key West, FL 33041 (305) 292-7903.

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American Slave-traders

New York Times of July 12, 1860

The following statement has been published in the *Journal of Commerce* by the way of reply to the current charge of negligence and inefficiency against vessels of the American squadron on the Coast of Africa in regard to arrest of slavers. It sets forth the vessels which have been captured by our cruisers, on suspicion of being engaged in the Slave-trade, during the past year.

Vessels Captured On Coast of Africa.

Bark **Orion**, of New York, captured near the Congo River, April 21, 1859, by the U.S. ship **Marion**, and sent to New York.

Bark **Ardentia**, of New York, captured near the Congo River, April 27, 1859 by the U.S. ship **Marion**, Commander Brent, and sent to New York.

Brig **Emily**, captured off Congo, Sept. 21, 1859 by the U.S. sloop **Portsmouth**, Commander Calmoun, and sent to New York.

Brig **Delicia**, captured by the U.S. ship **Constellation**, Capt. Nicholas, off Kabenda, Dec. 21, 1859, and sent to Charleston.

Brig **Virginia** of New York captured by the U.S. ship **Portsmouth**, Commander Calmoun, in the Congo River, Feb. 6, 1860 and sent to Norfolk. (This capture was credit to "H.M.S. **Portsmouth**," which called forth the letter of the reporter referred to.)

Brig **Falmouth** of New York, captured by the U.S. ship **Portsmouth**, Commander Calmoun at Porto Prays, May 5, 1860, and sent to New York.

Slavers Captured on the Coast of Cuba

Brig **Echo** by the U.S. brig **Dolphin**, Lieut. Commanding Maffit, Aug. 21 1859, and sent to Charleston. Cargo of 318 Negroes.

Brig **Cygnat**, by the U.S. steamer **Mohawk**, Lieut. Commanding J.A. Craven, Nov. 18, 1859 and taken to Key West. Was abandoned by officer and crew on approach of the **Mohawk**.

Bark **Wildfire**, by the U.S. steamer **Mohawk**, Lieut. Commanding Craven, April 20, 1860, and taken to Key West. Cargo of about 530 Negroes.

Bark **William**, by the U.S. steamer **Wyandotte**, Lieut. Commanding Stamey, May 2, 1860 and sent to Key West. Cargo of 570 Negroes.

Bark **Bogote**, by the U.S. steamer **Cru-sader**, Lieut. Commander Maffit, May 23, 1860, and sent to Key West. Cargo of about 500 Negroes.



USS Portsmouth during the Civil War. Photo credit: Monroe County Library.

We are perfectly willing to award to American cruisers all the credit which is due them for their vigilance and efficiency in this service. These captures show that they have not been idle, and that the sweeping charges made in English journals on this subject are not sustained by facts. The facilities for capturing slavers, more over, are now greater than they ever were before. The squadron on the coast of Cuba has been largely increased; the storehouse of the African station has been transferred from Porta Praya to St. Paul de Loande at an enormous expense. The latter is 1,000 miles from Porta Prays, and some 836 miles south of the Congo River, in the center of the slave-traders track. The fleetest vessels in the navy and the best officers are at present on this service; and lest the social attractions of the gay Island of Madeira might induce officer to prolong their stay, no national ship is permitted to touch there, except on special occasions. And yet, in spite of all this, the fact remains beyond all dispute, that a very great number of vessels leave our ports every year under circumstances which leave no room for doubt that they are slavers and The following is a statement of the American slavers or alleged slavers which have left this port alone during the last year, without being captured by United State men-of-war.

Vessels Leaving New York
 Aug. 10, 59 Bark **Orion**
 Aug. 20, 59 Bark **M. M'rris'n**
 Aug. 21, 59 Bark **Belle**
 Sept. 30, 59 Brig **Mara'l Ney**
 Oct. 7, 59 Brig **Falmouth**
 Nov. 26, 59 Bark **Wildfire**
 Dec. 17, 59 Brig **Adelphia**
 Dec. 21, 59 Bark **E. Lincoln**
 Dec. 31, 59 Bark **Iowa**
 Jan. 31, 60 Bark **W.G. Lewis**
 Jan. 26, 60 Bark **Suitana**
 Jan. 27, 60 Schr. **W.B. Kibbe**

Feb. 4, 60 Bark **Emily**
 Feb. 17, 60 Brig **Wandering Wave**
 Mch. 1, 60 Schr. **Hanover**
 Mch. 8, 60 Brig **W. Kelly**
 Mch. 17, 60 Bark **Magi**
 Mch. 20, 60 Bark **Wh'e Clo'd**
 Mch. 27, 60 Brig **Th. Acho'a**
 Mch. 27, 60 Brig **Falmouth**
 Api. 7, 60 Ship **Atlantic**
 Api. 21, 60 Brig **J. Boyat'a**
 Api. 26, 60 Ship **Montana**
 May 2, 60 Brig **Storm King**
 May 17, 60 Schr. **Josephine**
 May 19, 60 Bark **Cora**
 May 21, 60 Bark **Backeye**
 May 29, 60 Bark **Mixte**
 May 29, 60 Brig **D. Webster**
 June 18, 60 Bark **T. Deming**
 June 19, 60 Schr. **Maraquita**

On the 27th June, the **Cora** and **Josephine** were declared under bonds, having been detained for examination. The **Josephine** sailed with a new captain—W.H. Carter, the former master being indicated by the Grand Jury, and a warrant issued for his arrest; he is not yet arrested, however, though he was on board the vessel at the Atlantic Dock just before she sailed. The vessels all sailed from the port of New York. It is well known that many other cleared for the West Indies and other ports, and then proceeded to the Coast of Africa for cargoes for the plantations. Vessels in the regular trade, cleared by responsible houses, are not included in the above list. Now this shows beyond dispute that our officers at home,—our federal Marshall, Courts and juries—the agents and ministers of the Federal Government, are excessively remiss in the performance of their duties. It is all very well to complain that our vessels do not capture these slavers, while at sea—but why should they be permitted to go to sea at all? We have stringent laws, and plenty of officers, whose special business it is to enforce them. Why is not done?

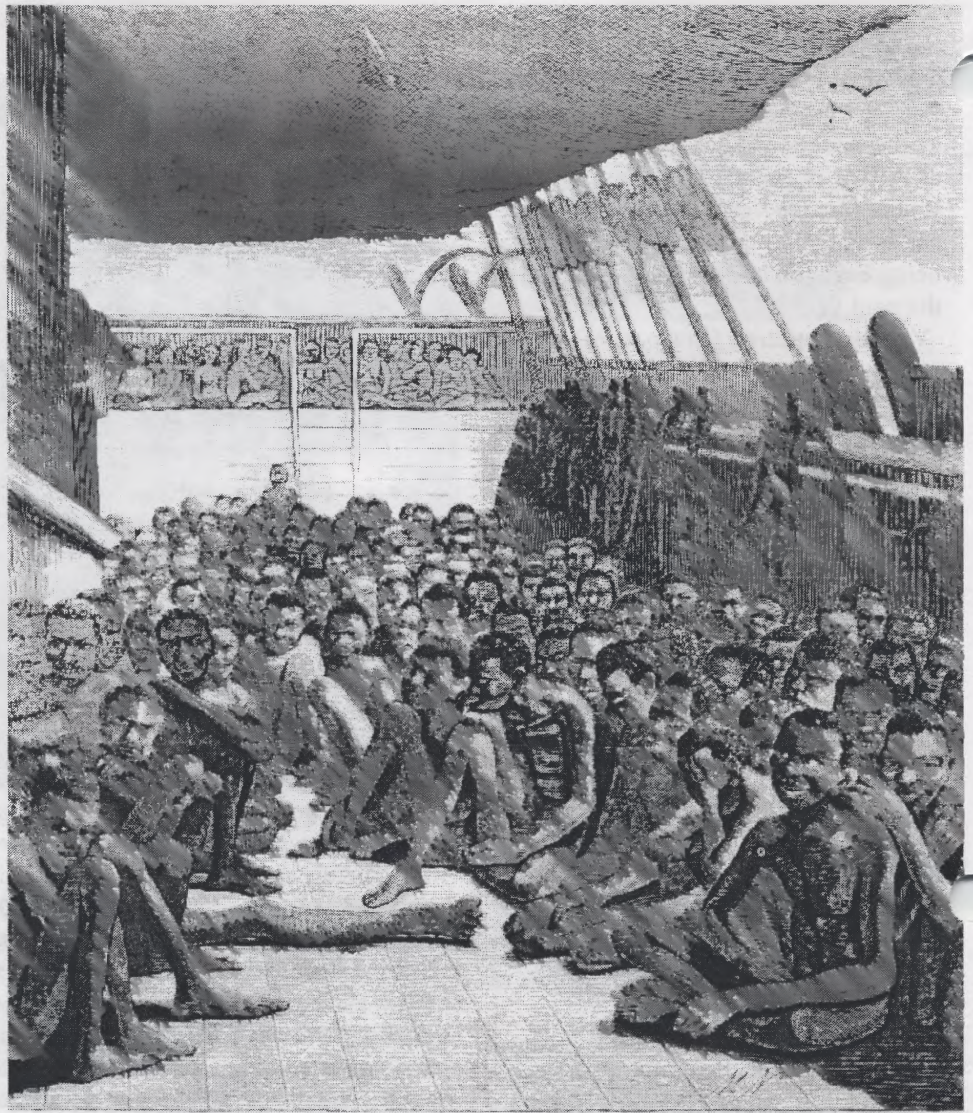
The Africans fo the Slave Bark *Wildfire*

Harper's Weekly - June 2, 1860

Key West, Florida, May 20, 1860

On the morning of the 30th of April last, the United States steamer *Mohawk*, Lieutenant Craven commanding, came to anchor in this place, having in tow a bark of the burden of about three hundred thirty tons, supposed to be the bark *Wildfire*, lately owned in the city of New York. The bark had on board five hundred and ten native Africans, taken on board in the River Congo, on the west side of the continent of Africa. She had been captured a few days previously by Lieutenant Craven within sight of the northern coast of Cuba, as an American vessel employed in violating our laws against the slave trade. She had left the Congo River thirty-six days before her capture.

Soon after the bark was anchored we repaired on board, and on passing over the side saw, on the deck of the vessel, about four hundred and fifty native Africans, in a state of entire nudity, in a sitting or squatting posture, the most of them having their knees elevated so as to form a resting-place for their heads and arms. They sat very close together, mostly on either side of the vessel, forward and aft, leaving a narrow open space along the line of the centre for the crew of the vessel to pass to and fro. About fifty of them were full-grown young men, and about four hundred were boys aged from ten to sixteen years. It is said by persons acquainted with the slave-trade and who saw them, that they were generally in a very good condition of health and flesh, as compared with other similar cargoes, owing to the fact that they had not been so much crowded together on board as is common in slave voyages, and had been better fed than usual. It is said that the bark is capable of carrying, and was prepared to carry, one thousand, but not being able without inconvenient delay to procure so many, she sailed with six hundred. Ninety and upward had died on the voyage. But this is considered as comparatively a small loss, showing that they had been better cared for than usual. Ten more have died since their arrival, and there are about forty more sick in the hospital. We saw on board about six or seven boys and men greatly emaciated, and diseased past recovery, and about a hundred that showed decided evidences of suffering from inanition, exhaustion, and disease. Dysentery was the



Slave deck of the bark William. Photo credit: *Frank Leslie's Illustrated* of June 23, 1860.

principal disease. But notwithstanding their sufferings, we could not be otherwise than interested and amused at their strange looks, motions, and actions. The well ones looked happy and contented, and were ready at any moment to join in a song or dance whenever they were directed to do so by "Jack"- a little fellow as black as ebony, about twelve years old, having a handsome expressive and expressive face, an intelligent look, and a sparkling eye. The sailors on the voyage had dressed "Jack" in sailor costume, and made him a great pet. When we were on board "Jack" carried about in his hand a short cord, not only as the emblem but also as the instrument of his brief delegated authority. He would make the men and boys stand up, sit down, sing, or dance just as he directed. When they sang "Jack" moved around among them as light as a cat, and beat

the time by slapping his hand together, and if any refused to sing, or sang out of time. Jack's cord descended on their backs. Their singing was monotonous. The words we did not understand. We have rarely seen a more happy and merry-looking fellow than "Jack."

From the deck we descended into the cabin, where we saw sixty or seventy women and young girls, in Nature's dress, some sitting on the floor and others on the lockers, and some sick ones lying in the berths. Four or five of them were a good deal tattooed on the back and arms, and we noticed that three had an arm branded with the figure "7," which, we suppose, is the merchant's mark.

On the day of their arrival the sickest, about forty in all, were landed and carried to a building on the public grounds belonging to Fort Taylor, and doctors

Whitehurst and Skrine employed as medical attendants. We visited them in the afternoon. The United States Marshal has procured for all of them shirts, and pants for the men, and some benevolent ladies of the city had sent the girls and women gowns. Six or eight were very sick; the others did not appear to be in any immediate danger of dying. We were very much amused by a young lad about fifteen years old, not much sick, who had got on, probably for the first time in his life, a whole shirt, and who seemed to be delighted with every body and every thing he saw. He evidently thought the speech of the white man was very funny. When a few words were spoken to him he immediately repeated them with great glee. Pointing to Dr. Skrine, we said "Doctor." And then pointing to Dr. Whitehurst, we said "Doctor too." He said "Doctor too." The doctors had selected from the bark a woman about twenty-four years of age to assist the nurse in taking care of the sick. She had been dressed in a clean calico frock, and looked very respectable. About sundown they all lay down for the night upon a camp-bed, and were covered over with blankets. And now a scene took place which interested us very much, but which we did not understand and cannot explain. The woman standing up slapped her hands together once or twice, and as soon as all were silent she commenced a sort of recitation, song, or prayer, in tone or manner much like a Litany in Catholic churches, and every few moments the voices of ten or fifteen others were heard in the same tone as if responding. This exercise continued about a minute. Now what could this be? It looked and sounded to us to us very much like Christians chanting together an evening prayer on retiring to rest. And yet we feel quite assured that none of these persons had ever heard of Christ, or had learned Christian practices, or possessed much, if any, knowledge of God as Creator or Preserver of the world. We suspect that it was not understood by them as a religious exercise at all, but as something they had been trained to go through at the barracoons in Africa or on board the ship.

In two days after the arrival of the bark the Marshal had completed a large, airy building at Whitehead's Point, a little out of the town, for the reception and accommodation of these people; and after getting them clad as well as he could in so short a time, they were all landed on the fort wharf, and carried in carts to their



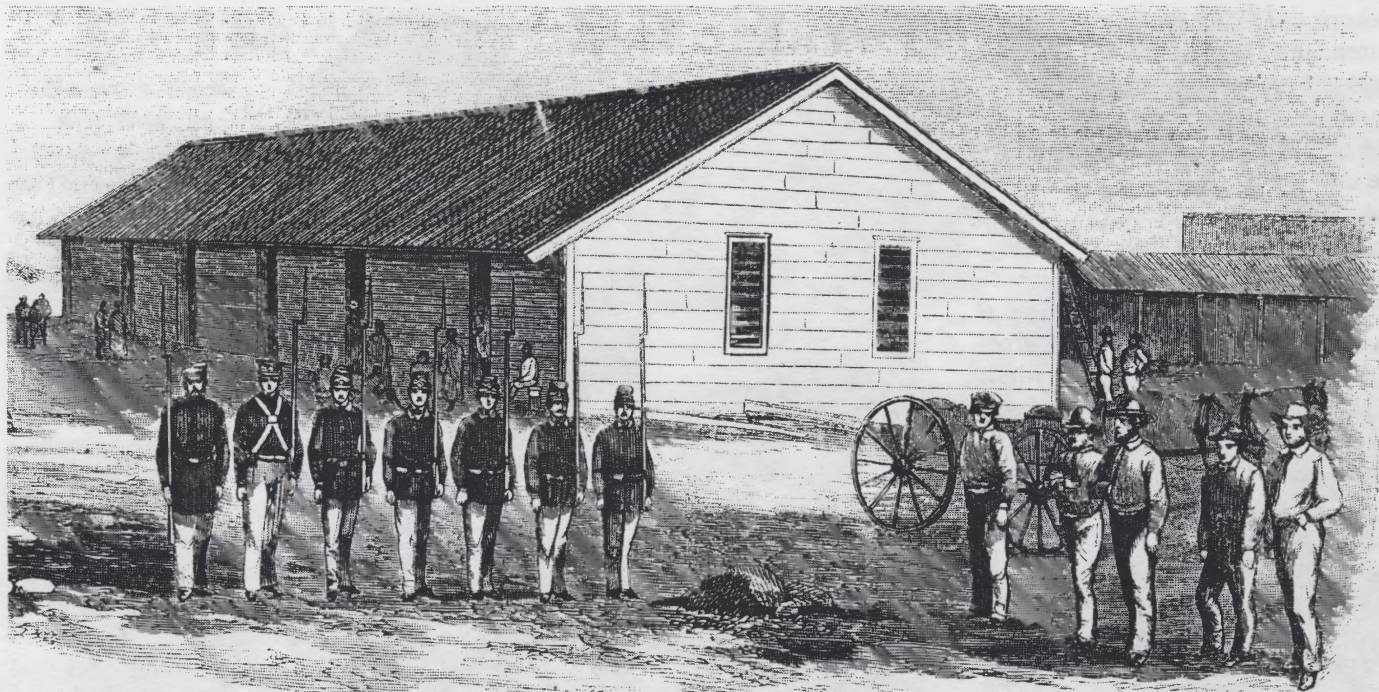
An African in Key West. Photo credit: Harper's Weekly of June 2, 1869.

quarters. On arriving there they all arranged themselves along the sides of the building, as they had been accustomed to do on the decks of the vessel, and squatted down in the same manner. It took the Marshal and his assistants some little time, and no small efforts, to give the Africans to understand that they were free to move about, to go out and come in at will. They learned this in the course of a few hours, however, and general merriment and hilarity prevailed. We visited them in the afternoon, and have done so several times since; and we confess that we have been struck, as many others have been, with the expression of intelligence displayed in their faces, the beauty of their physical conformation, and the beauty of their teeth. We have been accustomed to think that the civilized negroes of our own country were superior, in point of intelligence and physical development, to the native Africans; but judging only by the eye, we think it would be difficult to find, any where in our own country, four hundred finer and handsomer-looking boys and girls than these are. To be sure you often saw the elongated occiput, the protruded jaws, and the receding forehead; but you also

often saw a head as round, with features as regular as any European's, except the universal flat noses. Little "Jack" has a head as round as an apple.

A number of these negroes – perhaps twelve or fifteen in all – have been more or less about Loando, a Portuguese town on the east coast, and have learned to speak a little Portuguese. Through an interpreter we learned from them that some four or five – perhaps more, but probably not many – had been baptized at the Roman Catholic missionary station at Loando. Francisco, a young man, says he was baptized by a Franciscan friar in Loando; that he was a slave in Africa, and does not wish to return there. He says he had rather be a slave to the white man in this country. Salvador, a bright-looking, smart lad has been baptized. Constantia says she was baptized in Loando. She does not remember her father; she was stolen away when she was young, and was sold by her brother. Antonia and Amelia are both fine-looking young women, aged about twenty, and both were baptized at Loando. Madia, a pagan, unbaptized, aged about twenty, has obtained among the white people here who

(Continued on page 6)



The Barracoons at Key West. Photo credit: Harper's Weekly of June 2, 1860.

(Harper's from page 5)

have visited the quarters the name of "The Princess," on account of her fine personal appearance and the deference that seemed to be paid to her by some of her companions. The persons we have here mentioned, including some eight or ten others, evidently do not belong to the same tribe that the rest do. Indeed the whole number is evidently taken from different tribes living in the interior of Africa, but the greater number are "Congos." The women we have named have cut or shaved the hair off the back part of their head, from a point on the crown to the back part of either ear. It is the fashion of their tribe. None of the other women are thus shorn. Many of the men, women, boys, and girls have filed their front teeth – some by sharpening them to a point, and others by cutting down the two upper front teeth. The persons above named have their teeth in a natural state. Perhaps fifty in all are tattooed more or less.

Travelers describe the natives of Congo as being small of stature, cheerful, good-humored, unreflecting, and possessed of little energy either of mind or body. Negro indolence is carried with them to the utmost excess. The little cultivation that exists, entirely carried on by the females, is nearly limited to the manioc root, which they are not very skillful in preparing.

Their houses are put together of mats made from the fibre of the palm-tree, and their clothes and bedding consist merely of matted grass.

The President, on receiving news of the capture of the **Wildfire**, sent a special message to Congress on the subject, from which we give an extract below. The subsequent capture of another slave ship with more Africans will probably lead to some enactment on the subject. The President says:

"The expenditure for the Africans captured on board the **Wildfire** will not be less than one hundred thousand dollars, and may considerably exceed that sum. But it will not be sufficient for Congress to limit the amount appropriated to the case of the **Wildfire**. It is probable, judging from the increased activity of the slave trade and the vigilance of our cruisers, that several similar captures may be made before the end of the year. An appropriation ought, therefore, to be granted large enough to cover such contingencies. The period has arrived when it is indispensable to provide some specific legislation for the guidance of the Executive on this subject. With this view, I would suggest that Congress might authorize the President to enter into a general agreement with the American Colonization Society, binding them to receive, on the coast of Africa from our agent there, all the captured Africans which may be delivered to him, and to maintain them for a limited period, upon such terms and conditions as may combine humanity toward these unfortunates with a just economy. This would obviate the necessity of making a new bargain with every new capture, and would prevent delay and

avoid expense in the disposition of the captured. The law might then provide that, in all cases where this may be practicable, the captor should carry the negroes directly to Africa, and deliver them to the American agent there, afterward bringing the captured vessel to the United States for adjudication.

"The capturing officer, in case he should bring his prize directly to the United States, ought to be required to land the negroes in some one or more ports to be designated by Congress, where the prevailing health throughout the year is good. At these ports cheap but permanent accommodations might be provided for the negroes until they could be sent away, with out incurring the expense of erecting such accommodations at every port where the capturing officer may think proper to enter. On the present occasion these negroes have been brought to Key West; and, according to the estimate provided by the Marshal of the Southern District of Florida to the Secretary of the Interior, the cost of providing temporary quarters for them will be \$2,500, and the aggregate expenses for the single month of May will amount to \$12,000. But this is far from being the worst evil. Within a few weeks the yellow fever will most probably prevail at Key West; and hence the Marshal urges their removal from their present quarters at an early day, which must be done in any event as soon as practicable. For these reasons I earnestly commend this subject to the immediate attention of Congress."

Capture of the Slave Vessels and Their Cargoes

Frank Leslie's Illustrated
June 23, 1860.

Our cruisers have been very successful of late in the search after the slavers which infest the Cuban coast and have already captured three vessels with over one thousand five hundred Negroes. The prizes were taken to Key West and their cargoes landed. Such an accession to the population of that place caused the authorities no little trouble to provide suitable accommodations for them. But by activity and energy, and by calling forth every available resource, in a few days all were comfortably though roughly housed. We present this week an illustration of the landing of the Negroes captured by the United States steamer **Wyandotte** on the American bark **William**.

On the morning of the 9th of May, while the **Wyandotte** was on her course for the south side of Cuba, a bark was discovered standing in shore with all sail set to a light breeze. Chase was immediately commenced and continued for four hours, when the wind dying away and the steamer gaining rapidly on the bark, the latter mistaking the **Wyandotte** for a Spanish coasting steamer, tacked and boldly stood out from the land. About eleven A.M., the **Wyandotte** being within speaking distance of the bark, Captain Stanley hailed her in Spanish, asking what vessel it was, and received in reply, "American," spoken in good English. He then ordered her to show her colors, which she did, by hoisting the American flag. An officer was then sent on board, and she was found to be the American bark **William**, Captain Simms, apparently engaged in lawful trade, as there were no visible signs of Negroes being on board. But on lifting the tarpaulins with which the hatches were covered, the heads of a number of Negroes were immediately thrust up in bold relief to the light, causing the boarding party, in the excitement of the moment, to give three cheers, which answered by those on board the **Wyandotte**. Lieutenants Read and Eggleston and a prize crew of nineteen sailors and marines were then placed on board, and the officers, crew and passengers of the bark taken on board the **Wyandotte**, and the



Princess Madia at Key West. Photo credit: Haper's Weekly of June 2, 1860.

prize towed to Key West.

The poor Africans were conveyed from the bark in carts and taken at once to their temporary quarters, where every care was taken to provide for their cleanliness and comfort.

The number of Africans originally taken on board the **William** at the Congo River is variously stated. The American captain says there were only six hundred and sixty-four received; while other and perhaps more correct accounts state the number to have been seven hundred and fifty. If this be true, the mortality among them has been very great; for there were but five hundred and forty-six Africans on board when captured, thus leaving two hundred and

four to be accounted for. To this latter number must be added the six found dead on board (said to have been killed by the crew in preserving silence and preventing detection before being boarded by captors), and the thirty-three who died on passage to Key West—making a total of two hundred and forty-three deaths!

The treatment they received on board this vessel bears no comparison with that given to those who were on board the **Wildfire**. The vessel was found to be in a filthy condition, and the living freight uncared for.

The prisoners have been confined in jail, and are undergoing an examination before Commissioner Bethel.

(Cemetery from page 1)

ered to the United States Marshal Fernando J. Moreno, and he quickly built housing and a hospital for the multitude of destitute guests.

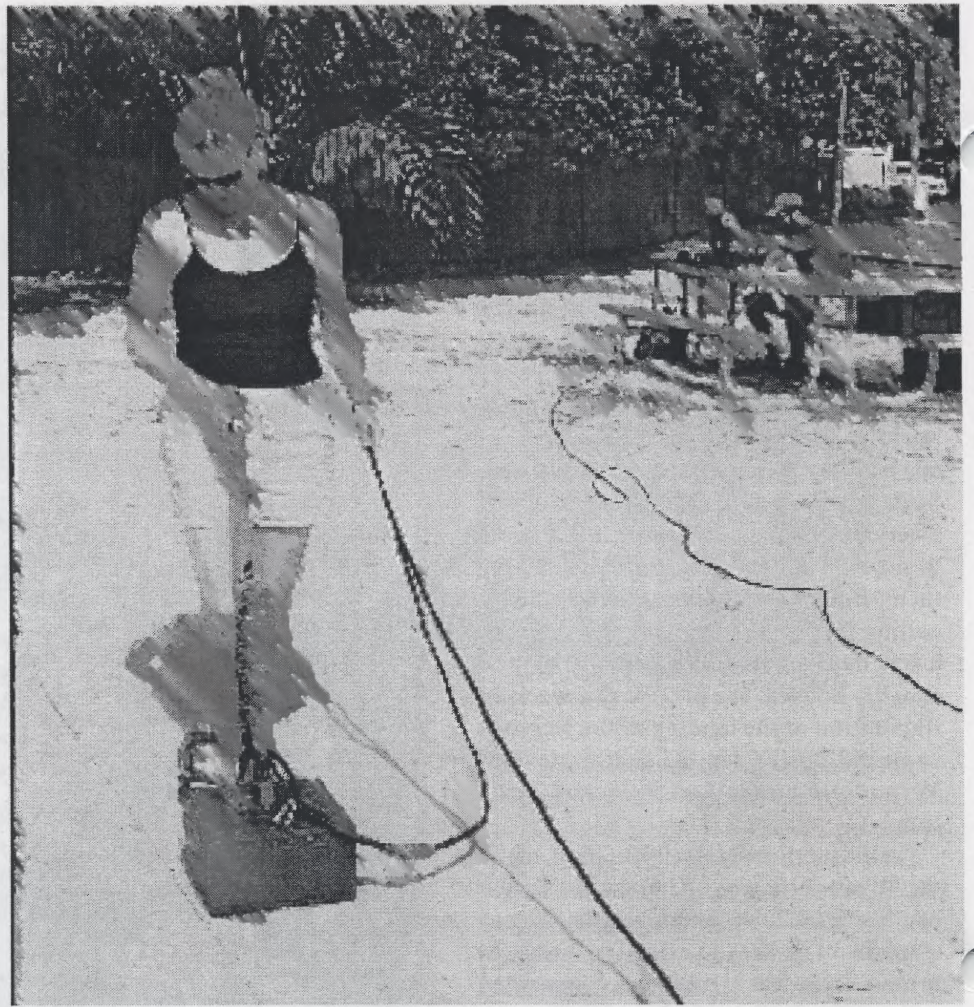
Moreno kept detailed records concerning the numbers of "recaptive" Africans, including extensive correspondence with Secretary of the Interior Jacob Thompson, and accounts of expenditures for their support (Moreno, 1860 a & b). Among these was a daily log of those who died at Key West, and noting which ship they were from. While the Africans were housed at Key West, the US government contracted with the American Colonization Society to carry them to Liberia, a country along the West-African coast founded with the support of the United States to provide liberated slaves with a chance to start anew in their "native" land. By July 19th, 1860 all of the surviving Africans brought to Key West were on ships bound for various ports there.

The Deaths and Burials

From Moreno's records submitted to Washington, it is known that 295 of the Africans died while at Key West. These deaths were primarily the result of "afflictions of the lungs," but other diseases, including dysentery and diarrhea, were noted as well. The people rescued from the **William** suffered the greatest mortality with 171 deaths; 96 died from the **Wild-fire**, and 28 from the **Bogota**. The majority of these victims were children between the ages of 10 and 16 years - 224 were males and 70 females. No sex is stated for one victim. The deaths occurred over a period of 85 days, with none on some days, and a high of fourteen on June 22nd (page 11). The burials were carried out by Daniel Davis, a local carpenter who had also helped in the construction of the African barracoons, and hospital. Davis was paid \$5.50 by the government for each of the burials (page 10).

A poignant description of one of the funeral services is recounted by Jefferson Browne in his history of Key West:

"The first burial was of a child six weeks old, whose young mother was barely in her teens. Her devotion to her offspring made her an object of much sympathy to the visitors to the camp, and, upon the death of the child, our people provided a handsome coffin to bury it in. The interment took place some distance from the barracoon, and the Africans were al-



Collecting GPR data at Higg's Beach during June 2002. Photo credit: The Author.

lowed to be present at the services, where they performed their native ceremony. Weird chants were sung, mingled with loud wails of grief and mournful moans from a hundred throats, until the coffin was lowered into the grave, when at once the chanting stopped and perfect silence reigned, and the Africans marched back to the barracoon with out a sound." (1912: 17).

The Location of the African Cemetery

The burial ground for the Africans is one of many scattered across the island of Key West. The first cemetery was located along the southern shore of the island as well. "In 1831, a committee was appointed by the Town Council to select a proper site for the permanent location of a general burial place. Part of tract fifteen [delineated in Wm. Whitehead's 1829 survey of the island], lying between the termination of Whitehead street on the south beach and the point, was selected and used, until 1847, when the present cemetery grounds were purchased." (Maloney, 1876: 52.) This cemetery was moved because of the tremendous dam-

age inflicted upon it by the hurricane of 1846. In 1862, six graves were all that remained at this location (Kunk, 1862.) This earliest municipal cemetery would have been located on today's Truman Annex of Naval Air Station Key West. Confusingly though, an 1829 map of the island shows the "Burial Ground" in tract 27. Another cemetery was associated with the former Marine Hospital on Front street, remains of which were discovered in 1987 during the construction of the privately-owned Truman Annex housing development. A military cemetery is located near the former US Army barracks site, adjacent to White Street.

The African cemetery appears on an 1861 map drawn by the US Army Corps of Engineers' James C. Clapp (and who had succeeded Moreno as US Marshal for the Southern District of Florida.) It is located in the then uninhabited tract 27, along the beach. It is labeled "African Cemetery," and nine small X's are drawn to represent the location of the graves (page 10). This same location was later chosen for

the site of one of two Martello towers constructed to fortify the island during the US Civil war. The graves of the Africans were noted before construction began. The land was owned by George and Mary Emerson of Massachusetts, and US Army Capt. E.B. Hunt wrote them, trying to convince them to sell it for the construction of the tower,

"...[tract 27] is made very uninviting for bush colonists by the burying grounds where, besides numerous human waifs left stranded on this ocean outpost, some 200 to 300 poor victims of the African Slave Trade, sleep their last sleep in a long and most desolate row of sand graves (Hunt, 1861a)."

Later, to notify his superiors in Washington of the specific conditions of the selected construction site, he wrote,

"There are two minor objections to your site No. 2, which I will indicate. 1st it is the burying grounds where some 300 Africans were buried last year. 2^d the sand from the beach on each side is needed for the cover face, & if taken for tower No. 2 must be replaced by sand from the beach farther East. (Hunt, 1861b)"

The Emerson's sold the land to the US government, and Hunt's objections were over-ruled.

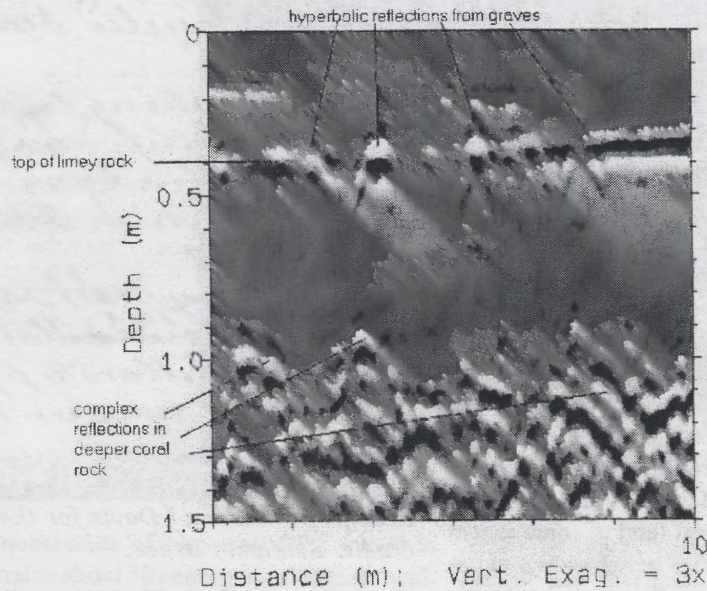
Construction for the Martello tower began in 1862. The graves were apparently encountered shortly after. In a letter describing the prevalence of Yellow Fever on the island is the following,

"Some local conditions no doubt favored its [Yellow Fever's] spread and added to its virulence, such as a large amount of decaying vegetation resulting from the clearing of land for military purposes, the breaking of ground for gardens, the excavations involved in the construction of fortifications, and during the progress of the last, the opening and removal of about three hundred graves which is said to have occasioned an intolerable odor. (Cornick, 1862)"

Similarly, Browne describes,

"The disinterment of human bones on the southeast side of the island, where excavations were being made for public improvements a few years ago, gave rise to the impression that a public burying ground had once been located in that vicinity. These remains, however, were those of the Africans who were brought to Key West in two captured slavers in 1860; a number of these died here, and were buried some distance from the barracoon, at the

Fort Martello, Key West Grid 1, File 61



The "Limey Rock" substrate reflection at about 45-50 cm depth, with the reflection hyperbolas directly on it, consistent with graves found elsewhere.

place where the bones were found." (1912: 49).

A likely present-day location for the African cemetery was determined by overlaying the 1861 map, an 1865 map showing the Martello, and a map of modern Key West. The southern shore of Key West has changed little since it was first surveyed, and the Whitehead survey lines shown in the old maps are still utilized today. Tract 27 is the location of Monroe County's Higgs Beach and its adjacent park-land. By overlaying the older maps, and imposing the significant features onto a modern Key West map, the location of both the graves and their relationship to the Martello tower is easily defined. A literal interpretation of the nine X's drawn by Clapp shows the line of graves to extend from under the Martello tower and out to its east side, along Higgs Beach. It was assumed that the 295 burials covered a larger area than that shown by the small figures on the map. They most likely spanned from under the West Martello tower, to the beach, sidewalk and street between it and the White street pier.

More modern, anecdotal evidence for buried human remains at Higgs Park area is related by Mr. Armando Sosa, native resident of Key West. Mr. Sosa recalls that during the installation of water and sewer lines to service the military barracks installed along Atlantic Boulevard during World War II, workers, many of whom lived in his neighborhood, encountered

"many skeletons" during their excavations in the early 1940's (Personal Communication, 2002). This story would place the graves on the north side of the street, opposite the beach.

Archaeological Investigation

Clearly, there is documentation that graves had been affected by the construction of the Martello tower. Other activities, such as natural erosion caused by storms, the 1861-2 construction of a military railroad to service the two Martello tower sites, and construction of military barracks near the site during World War II may have disturbed or destroyed graves as well. But, with such an important story to tell, it was felt that with any possibility of these people remaining buried in undisturbed graves, an effort should be made to locate them. It was strongly desired for the proposed study that any burials not be disturbed. The best method for locating such targets, without affecting their integrity, or the nature of the public park, was Ground-penetrating Radar. As a test of the theory that intact graves might still exist, four grids of GPR data were collected in the areas to the east and north of the West Martello Tower at Higgs Beach on June 14, 15 and 16th, 2002.

Ground-Penetrating Radar Mapping and the Higgs Beach Survey

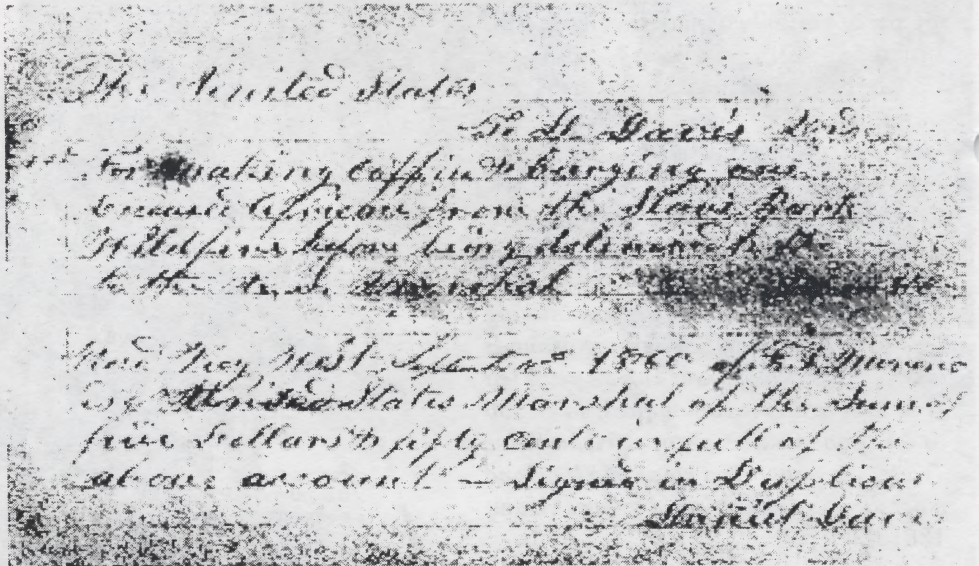
Ground-penetrating radar data are acquired by transmitting pulses of radar

(Continued on page 10)

(Cemetery from page 9)

energy into the ground from a surface antenna, reflecting the energy off buried objects, features, or bedding contacts and then detecting the reflected waves back at the ground surface with a receiving antenna. When collecting radar reflection data, surface radar antennas are moved along the ground in transects within a surveyed grid, and a large number of subsurface reflections are collected along each line. As radar energy moves through various materials, the velocity of the waves will change depending on the physical and chemical properties of the material through which they are traveling (Conyers and Goodman 1997: 31-40). The greater the contrast in electrical (and to some extent magnetic) properties between two materials at an interface, the stronger the reflected signal, and therefore the greater the amplitude of reflected waves (Conyers and Goodman 1997: 33-34). When travel times of energy pulses are measured, and their velocity through the ground is known, distance (or depth in the ground) can be accurately measured (Conyers and Lucius 1996). Each time a radar pulse traverses a material with a different composition or water saturation, the velocity will change and a portion of the radar energy will reflect back to the surface and be recorded. The remaining energy will continue to pass into the ground to be further reflected, until it finally dissipates with depth.

The success of GPR surveys in archaeology and historic preservation is largely dependent on soil and sediment mineralogy, clay content, ground moisture, depth of burial, and surface topography and vegetation. Electrically conductive or highly magnetic materials will quickly dissipate radar energy and prevent its



Receipt from Daniel Davis for the burial of an African on May 1, 1860. Photo credit: Benjamin Bruce.

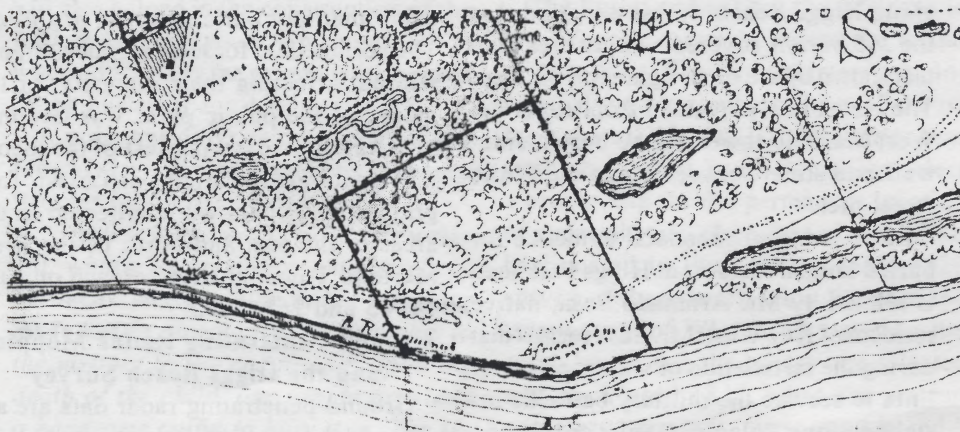
transmission to depth. The best conditions for energy propagation are therefore dry sediments and soil, especially those without an abundance of clay. Soil and rock types in the study were almost wholly limestone or lime sand. These types of units are excellent conductors of radar energy, and transmission and reflection was excellent, even after heavy rainstorms.

The depth to which radar energy can penetrate, and the amount of resolution that can be expected in the subsurface, are partially controlled by the frequency (and therefore the wavelength) of the radar energy transmitted (Conyers and Goodman 1997: 40-52). Standard GPR antennas propagate radar energy that varies in frequency from about 10 megahertz (MHz) to 1000 MHz. Low frequency antennas (10-20 MHz) generate long wavelength radar energy that can penetrate up to 50 m in certain conditions, but are capable of resolving only very large buried features. In contrast, the maximum depth of pen-

etration of a 400 MHz antenna is about three meters or less in typical materials, but its generated reflections can resolve features with a maximum resolution dimension of about 20 cm.

The "time window" within which data was gathered ranged from 40 nanoseconds to 50 nanoseconds. This is the time during which the system is "listening" for returning reflections from within the ground. The greater the time window, the deeper the system can potentially record reflections. Calculations were made in advance to determine the "footprint" of the GPR energy at the depth necessary to image the features of interest (Conyers and Goodman 1997: 36). Using the 400 MHz antenna, and with the velocities that were preliminarily calculated in the field, a .50 meter line spacing produced a complete coverage of the subsurface (page 8). Collection data for each grid is on page 11.

All GPR reflection data, which are acquired in radar travel times, were converted from nanoseconds to depth using the equation, Distance = Rate x Time ($d = r*t$). Velocities were determined from hyperbola fitting, which is a geometric analysis of point source reflections in the ground. If distance along transects can be measured, and the time it takes energy to pass through the ground is known, velocity can be calculated. When this was done an average of about 12 cm per nanosecond was calculated, which correlates to a relative dielectric permittivity of the material of about 6. All profiles and processed maps were converted from time in nanoseconds (ns) to depth in meters. Depths and grid dimensions on the individual radar



African Cemetery on the 1861 map. Photo credit: Monroe County Library.

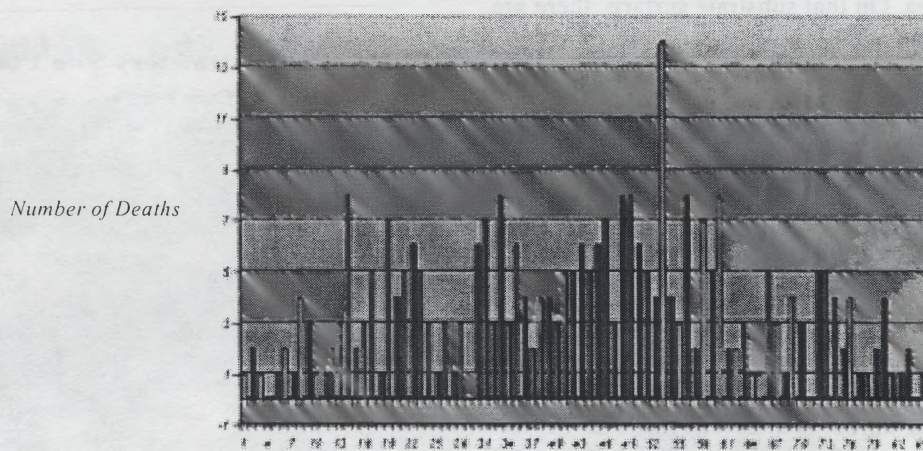
profiles and maps below are labeled in meters.

Data Processing

All reflection data were first analyzed in two dimensions to determine the nature of subsurface reflections, their wavelength, depth of penetration, amount and nature of background interference, and the velocity of radar energy in the ground. Each profile was analyzed in order to determine stratigraphic changes throughout the grid and see if any features consistent with burials were visible.

In order to determine the depth of energy attenuation, velocity studies were conducted on radar profiles from each grid. This is done using a computer program called "Fieldview," which can quickly calculate the geometry of hyperbolic radar reflections in the ground. Hyperbolic reflections are produced from buried "point sources" such as rocks and other discrete features. The velocity of the surrounding material will affect the geometry of the hyperbola, and when a model curve is "fit" to the hyperbola in the ground, velocity can be calculated. This was done for point sources in each of the three study area grids and velocity was calculated at a number of different depths. All velocities were surprisingly consistent among grids, and with depth. In all grids the relative dielectric permittivity (RDP) averaged about 6, which makes the velocity about 12 centimeters per nanosecond. When this velocity is translated into depth, each 5

Daily Mortality of Pecaptive Africans at Key West



Number of days, from May 1st to July 19, 1860

Mortality rate of the Africans at Key West

nanoseconds of two-way GPR travel is equal to about 30 centimeters in the ground. This velocity was then used for all subsequent data processing.

A number of interesting features were visible in reflection profiles in all grids. Grid 1 profiles, located on the beach to the east of the Martello Tower were highly variable. Those farthest south, near the seawall, showed little reflection with depth, and only a few anomalous reflections. This was probably the result of homogenous beach sand fill in this area, with a few additions coral stone or other debris. Farther to the north in this grid a distinct reflection was encountered at about 40 - 50 centimeters depth. This unit was hypothesized to be a harder substrate, possibly

sibly the top of a limey rock that is typical of the "hardpan" found in the area. Below that unit, other much more complicated reflections were collected, which were probably caused by deeper coral anomalies, including preserved coral heads cemented with micrite, which make up a portion of the bedrock of Key West. The harder substrate was eroded south and east of the fort in Grid 1, probably by beach erosion sometime between 1860 and the early 1940's (page 13). The erosion is clearly visible in an aerial photo taken about 1944 (page 16).

Farther north in Grid 1 the harder substrate becomes more distinct and laterally extensive due to less erosion in that

(Continued on page 12)

Date Collected	Grid Name	Antenna Frequency MHz	Grid Number (as raw GPR data are filed)	Maximum Grid Dimensions (meters)	Time Window (ns)	Lane Spacing (meters)
6/14/02	Grid 1	400	06_14_01	15x41	50	.5
6/14/02	Grid 2	400	06_14_02.001	15x20	40	.5
6/15/02	Garden Club Lines	400	06_15_02	Approx. 20x5	40	Variable
6/16/02	Grid 3	400	06_16_02	10x15	50	.5

(Cemetery from page 11)

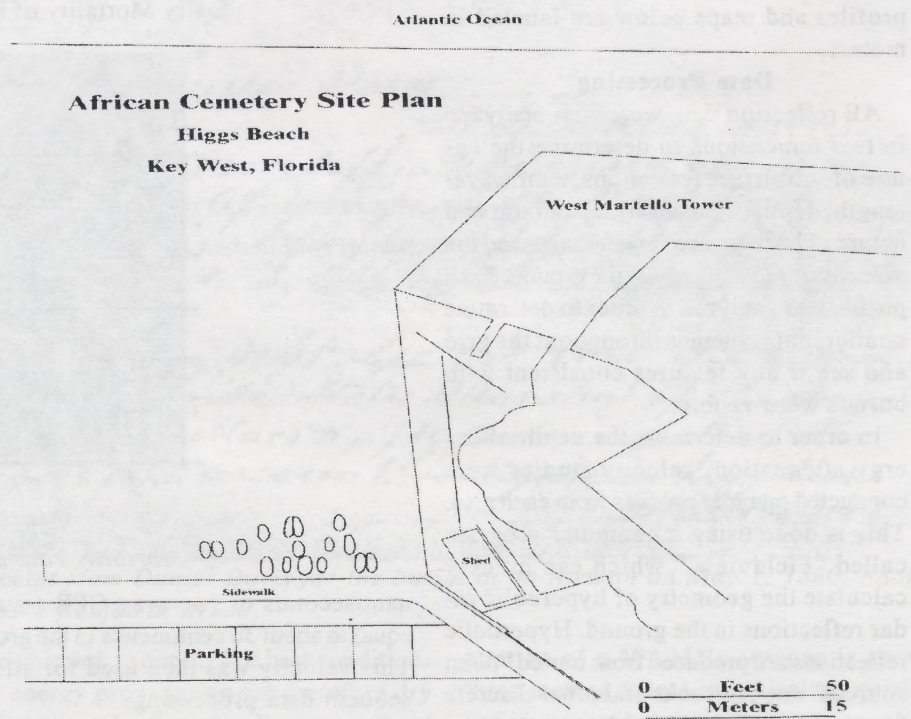
area. On that substrate surface, there are areas of distinct hyperbolic reflection (page 9), which correspond to the types of reflections common in graves (Bevan 1992). Previous surveys by Conyers, and others have done in other areas of the world show exactly this type of GPR reflection feature, which can often be directly correlated to the location of headstones in cemeteries (page 14).

In all profiles in grid 1, which exhibit the hyperbolic reflections, their origin is directly on top of the intact and extensive harder substrate layer. This is consistent with the types of burials the Africans might have had:

- They were expedient
- The diggers probably did not dig much farther than the first "hard layer" encountered
- They were not too deep (about 50-60 centimeters at most it appears from the GPR data)

In order to map the spatial distribution of these hyperbolas, which are likely graves, the amplitude slice-map technology was used (Conyers and Goodman, 1997). All GPR reflection profiles in this project were collected as digital data, and therefore can be readily re-processed. The computer can often produce images of the subsurface by processing variations in the digital data (which reflect subtle changes in the nature of buried soils). When these changes are gridded, mapped spatially, and colors are applied to the variations, they are visible to the human eye. The method used for this type of analysis is called amplitude slice-mapping. In this method amplitude variations recorded as digital values are analyzed at each location in a grid where there is a reflection recorded. In a 15-meter profile there can be as many as 800 individual reflection "traces" recorded. The amplitudes of all traces are compared to the amplitudes of all nearby traces both along that profile, and adjoining profiles. A gridded map is then produced that shows amplitudes in map view, but also with depth in the ground. The database can then be "sliced" horizontally and displayed to show the variation in reflection amplitudes at a sequence of depths in the ground. Often when this is done changes in the soil related to disturbance, such as the digging of burials, can become visible, making many features visible to the human eye.

In all the rectangular grids at the west



June, 2002

The location of grave features at Higg's Beach. Photo credit: The Author.

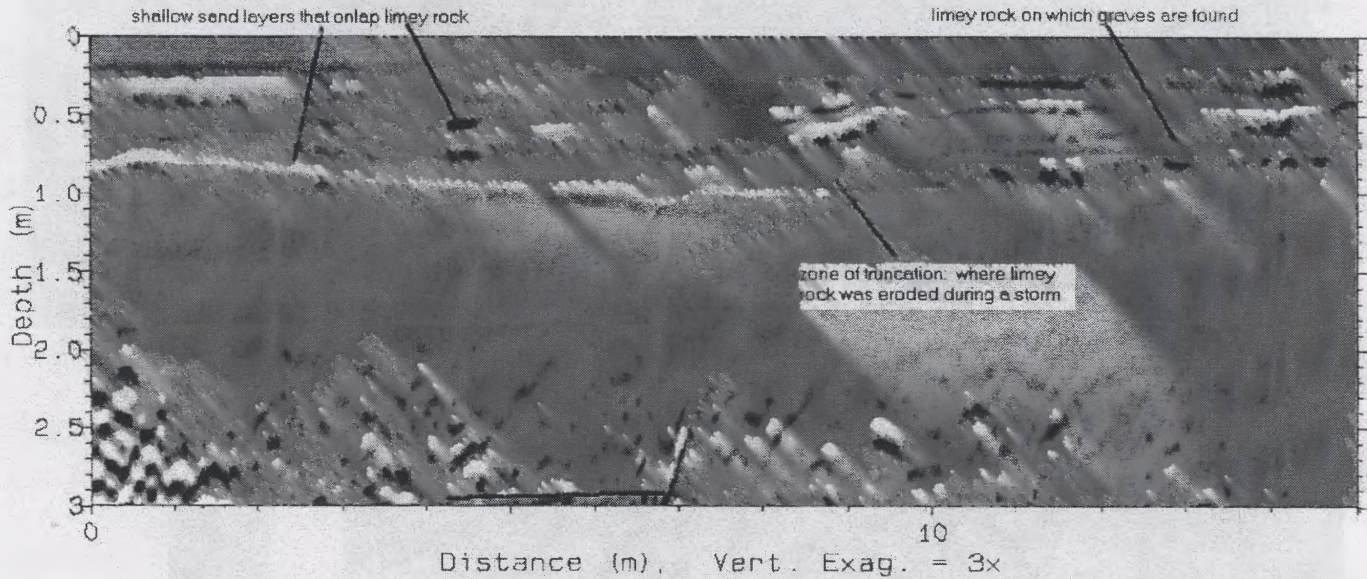
Martello the amplitude slice-map technique was first applied to the reflection data from the surface to about two meters depth. When the slice containing the hard-substrate layer, and the hyperbolas that were recorded directly on it, was mapped the spatial variation of the burials can be seen. Shallower slices record either surface disturbances or changes in the ground surface such as concrete walks, shrubs, and asphalt paving. Deeper slices are very complex, showing variations in the bedrock, which changes dramatically across all the grids. In amplitude slice-maps the higher amplitude reflections are colored red and yellow, while the areas with no reflection, and therefore homogenous material, or no disturbance, are blue. Areas with no reflection indicate soils that have not been disturbed, or are areas of sand fill that have no appreciable grain size changes or the addition of other materials.

A map of grid 1 shows a very interesting pattern of higher amplitude reflections in the layer from 40-60 cm that is consistent with burials (page 14). The reflections from under the concrete sidewalk were very weak because of energy attenuation, and therefore not plotted. These reflection features in Grid 1 are aligned roughly east-west and patterned in a way

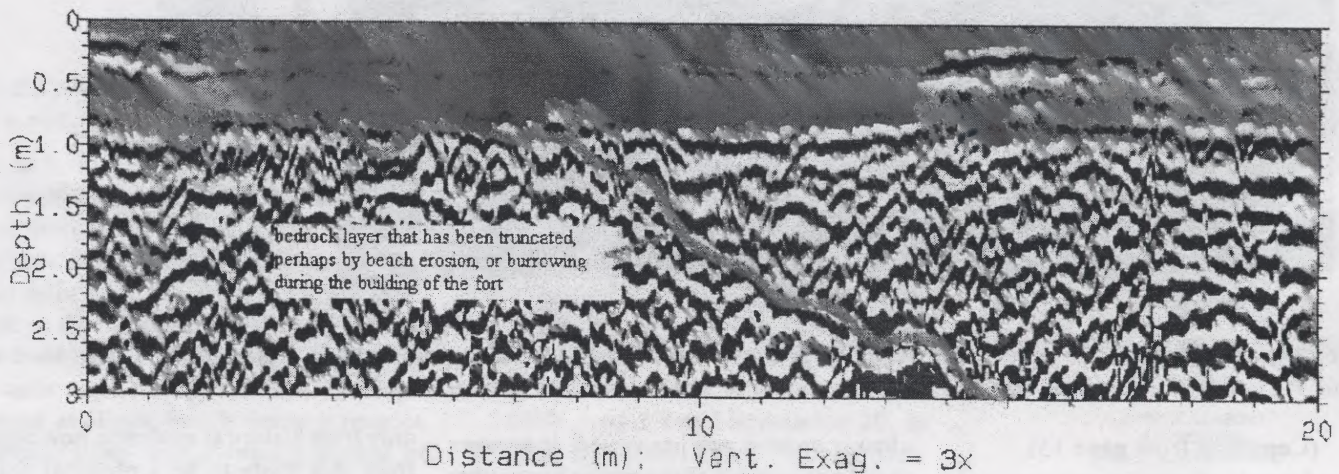
consistent with burials. There appear to be at least nine burials, with some double reflection features indicating a very close spacing, with almost no room placed between some graves. In the southern part of the grid, beach erosion has removed any graves that might have been present. Across the road, to the north of Grid 1, another grid of data was collected in the grass of the park. In this area the harder layer was also present, but at a much shallower depth. No grave-like features were visible on it, and it is unlikely graves were present there, or if they were they have been severely disturbed by construction, perhaps when the barracks were placed in the area during the 1940's (page 16).

A third grid was placed just to the east of Grid 1 in an area that had a topographic expression much like the area where visible graves were found. In this area the continuous horizon of harder substrate was visible in only portions of the grid, and appeared to have been disturbed, perhaps by beach erosion or construction activity. Only two possible anomalies were found in the area, neither of which looked like the "typical" reflection hyperbolas generated from graves. When this grid is placed on the map from Grid 1, it is

Fort Martello, Key West Grid 1, File 37



Fort Martello, Key West, Baseline Grid Inside Fence of Garden Club



Top: Truncation of the shallow, "Limey Rock" substrate to the south and east of the West Martello, due to erosion. Bottom: Truncation of Bedrock within the Garden Club fence at the West Martello. Photo credit The Author.

apparent that there is no similar grave patterning (page 15). One grave-like feature is visible in this grid, but it occurs along the line of erosion, and is more likely rock deposited along that scarp.

A very irregular grid of data (called the "Garden Club Lines") was acquired within the fenced area utilized by the Key West Garden Club as a nursery. Because of the planting tables and other obstructions in this area, single lines were collected wherever there was open space. These profiles yielded some interesting features, which were totally unexpected. There appears to have been some major disturbance in that area which created a large

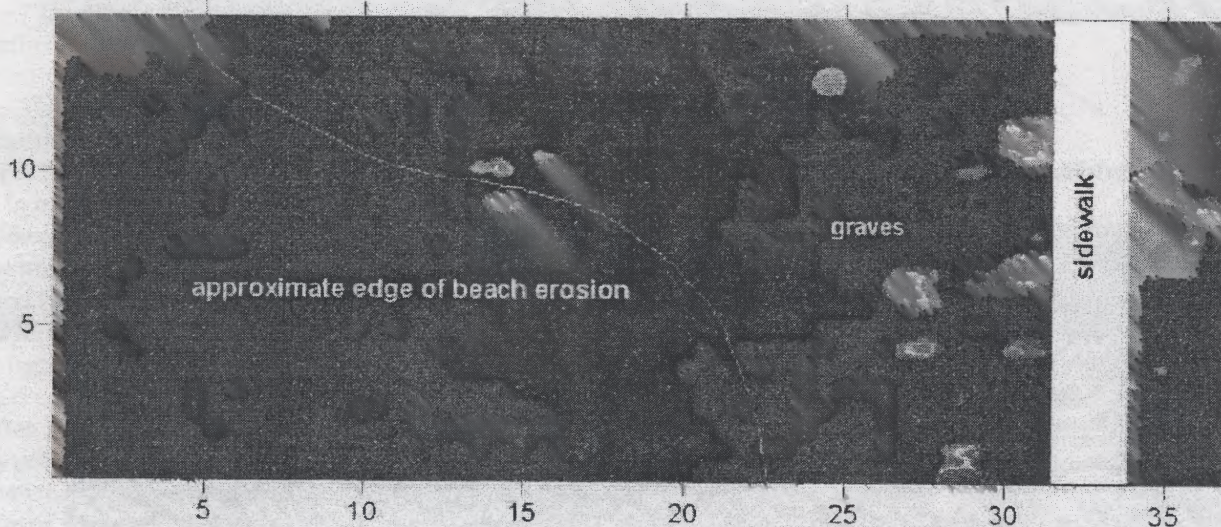
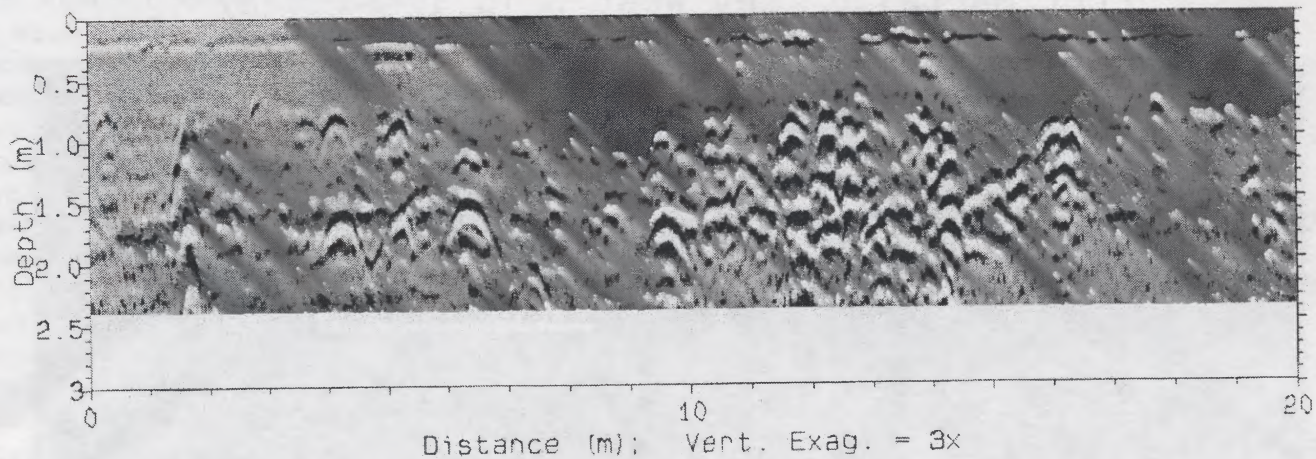
buried scarp within the natural substrate (page 13). This scarp starts at about 1-meter depth and continues for at least three meters. Much of this substrate appears to have been carved out, perhaps by beach erosion, but more likely during the construction of the fort. Lime from this borrowing was likely used in the construction of the fort for plaster, and cement of building stone. The hole left from this construction episode appears to have been filled with rubble and layers of coral sand. There is no evidence of the shallow, hard layer in any of these profiles, and if burials were present in this area, they were likely destroyed by this construction episode.

Summary and Conclusions

The GPR data collected at the Higgs Beach site was excellent quality producing unusually distinct reflections to a depth of about three meters. Much of the area surveyed appears to have been disturbed, probably due to construction of the West Martello tower in the 1860's, but also during the 1940's and later. Beach erosion has also removed portions of the original 1860 shoreline.

In general the stratigraphy in the area consists of limestone bedrock, which is highly variable, producing a number of jumbled reflections, which would be the

(Continued on page 14)



Top: Examples of hyperbolic reflections caused by graves from a pioneer cemetery in Kansas. Bottom: Amplitude slice-map of Grid 1, showing the location of the graves just south of the sidewalk. Photo credit: The Author.

(Cemetery from page 13)
 expected result of water-wear and coral heads. Overlying this horizon is a shallower, "hard" layer which is very distinct when not eroded. On this layer possible graves were imaged with the GPR data. This hard substrate has been eroded in much of the surveyed area along the beach, and destroyed by burrowing along the walls of the fort. Inland in the park, across the street from the beach, the layer is near the surface, and contains no evidence of graves on it. Much of these strata are overlain by homogenous coral sand, which is not highly reflective, and therefore almost "invisible" in the GPR maps.

A small area of intact graves appears to exist in the northern portion of Grid 1, abutting the sidewalk and the edge of the fence bounding the area occupied by the Key West Garden Club, near the fort. In this area at least nine burials, some quite

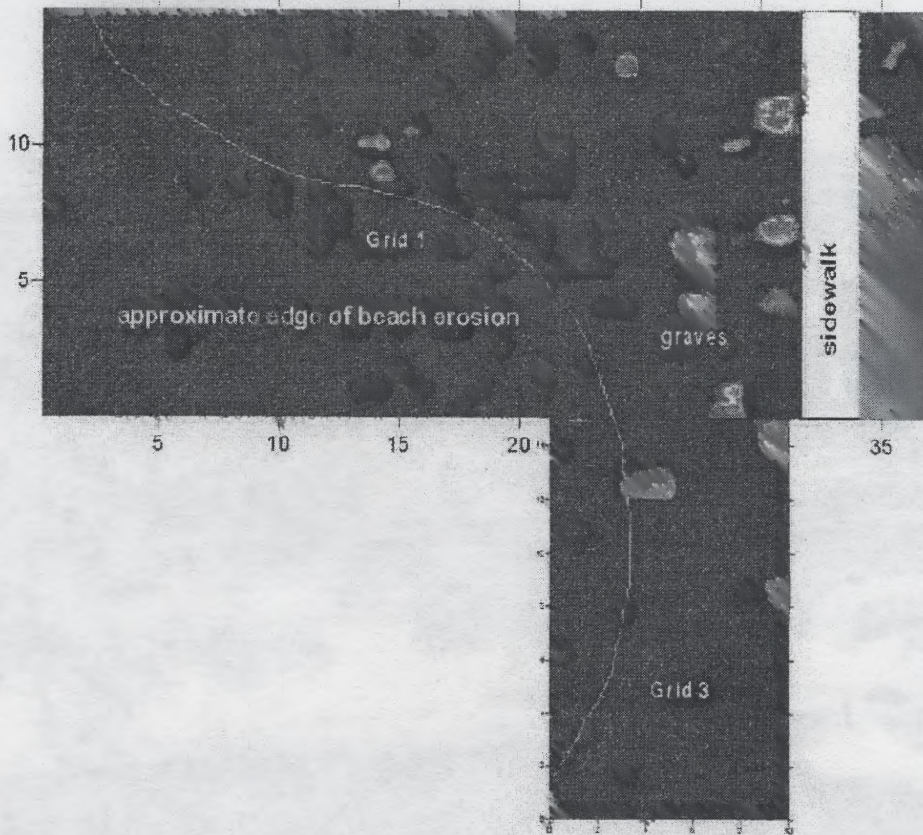
closely spaced, are preserved. It appears that the remainder of the graves have either been destroyed by construction activity at the fort in the 1860's or later, or possibly eroded by the sea. The interpretation of graves is based on comparisons with other graves found elsewhere via GPR, and, without excavation, cannot be absolutely confirmed. But, their placement in the only undisturbed area of the historical location of the African Cemetery, their position directly on the hard, non-eroded strata (beyond which excavation would have been difficult), their size and their spatial distribution in what appear to be uniform rows, is consistent with burials, and what is known about the burial practices. The total area containing the likely, intact graves is about 5 x 12 meters, on the higher ground, bounding the sidewalk and the Garden Club fence (page 12).

The African Cemetery, before known

only from historical evidence, now appears from this study to be a physical reality.

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Grid 3 placed on Grid 1. No grave features are visible in Grid 3 with the exception of a possible grave along the line of erosion. Photo credit: The Author.

As such, the people of Monroe County are stewards of an important and sensitive site. It is more than the remains of a curious incident from old Key West – it is a place that tells a unique story within a cruel system that worked to profoundly shape societies and cultures throughout the Atlantic and Caribbean basins. The people buried at Higgs Beach deserve respect. Careful study and planning should be undertaken before any further development takes place near this area.

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West Martello Tower in the early 1940's showing the amount of beach erosion in the area where Grids 1 and 3 data were collected. Photo credit: Monroe County Library.

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