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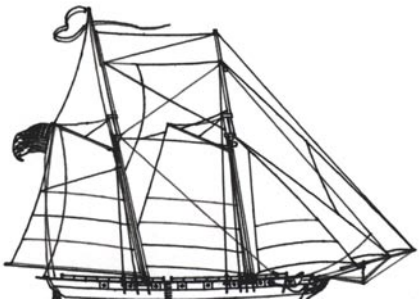

USS SHARK

Florida Keys Sea Heritage Journal

VOL. 16 NO. 1 FALL 2005

OFFICIAL QUARTERLY PUBLICATION OF THE KEY WEST MARITIME HISTORICAL SOCIETY

The Ways of Key West

ByThomas Neil Knowles

The **USS Sarsfield (DD-837)** *fills the cradle of Ways No. 1. For many years Joe Ladd's father operated the large, track-mounted crane on the right. According to Carston Heinlein, cannon balls from Fort Taylor were used to offset the weight of the boom and balance the crane on its pedestal. They were encased in concrete in a steel box mounted on the end of the crane's cab that is facing the camera. Photo credit: Carston Heinlein.*

"This railway was the first important public venture by private citizens in Key West." So wrote Judge Jefferson Browne in 1912 in his definitive history of the Island City. He was not referring to Flagler's Florida East Coast Railway Extension, but to a railway constructed in 1853; a marine railway that ran from dry land into the water. That Browne would record such an accolade 59 years after the event underscores how enduring the impact of these facilities proved to be. From the construction of the first marine railway during the heyday of wrecking to the dramatic destruction of the largest ways on the island over a hundred years later, the ways of Key West played a vital role in local commercial development and national military preparedness. Without marine railways, Key West could not have developed as vigorously as it did during the 19th and 20th centuries.

The salvaging of wrecks on the reefs along the Florida Straits transformed Key West from a frontier outpost to the wealthiest city per capita in the United States. In 1838, Charles Walker, an attorney residing on the island for health reasons, wrote to his aunt, "You will naturally enquire how we live, and the reply is very simple, in, by and through wrecks-If we are not directly interested in the business our support wholly comes from it. Stop that and we cease to live."

Wrecking required fast boats since salvage rights were awarded to the first boat to arrive at the site of a wreck. It was critical that the wrecker's hulls be well maintained to have the structural strength to plow through rough seas and smooth bottoms free of marine growths to reduce drag and maximize speed. To do this, the hull below the waterline had to be periodically exposed for cleaning and repairs. In locations where there is a substantial fall of the tide, boats could be taken into shallow water and as the tide went out the craft would slowly heel over coming to rest on its side. At Key West, the difference between high tide and low tide averages a

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Soceity News

By Ed Little, President, KWMHS,

As you read this, we will be into the late winter of 2005-2006. As you may know, because so many of our Society's members and Directors leave town for summer until autumn, we tend to go "dormant" until cooler weather returns. So, here's what we've been up to since then

Once again, through the good offices of one of our Directors, Julie McEnroe, we've been able to line up an exciting guest speaker. This time, it was internationally known novelist Mr. Robert MacComber. On the evening of 29 November, Bob spoke on his research into "fact, fable, and the age of piracy". And, as Bob explained, piracy was not just confined to the bygone age of sail. In some of the more lawless waters of the world it continues to be a threat to today's mariners. A few days after Bob's lecture, we then assembled for an reception (which also served as a Society fundraiser) to meet and mingle with several noted maritime authors, historians, and artists. The venue was the secluded (and delightful) grounds of the Gardens Hotel at Key West. A side "perk" of this event is that we were treated to the song, music, and good cheer of a number of history buffs who arrived in full pirate regalia!

Then, there is the continued success of the Society's quarterly, the "Florida Keys Sea Heritage Journal" to remark on. Through the dedicated efforts of the Journal's editor, Lynda Hambright with Tom's help, 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. Once again, Well Done Lynda and Tom!!

In October however, our Society suffered a heartbreaking loss. Mr. David Roumm of our Board of Directors died. Although Dave had only been with us a short time, his dedication, energy, and expertise had made him one of the leading "sparkplugs" of our organization. I know that all in the Society will join me in expressing to Dave's family and many close friends our sincerest condolences for this so untimely passing.

That brings me to the future of the Society. In coming months we've lined up 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!!

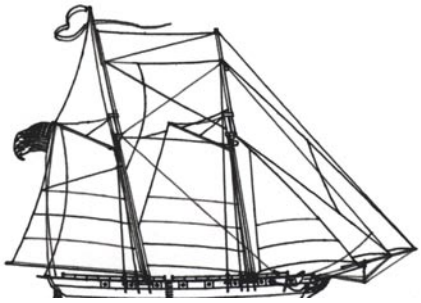
Journal Late Again

We were about to get back on schedule and the hurricanes came and our printer closed. Its January 2006 and we have recovered from the hurricanes but are still looking for a printer. So I hope you read this before February 2006.

Tom H.

New Members

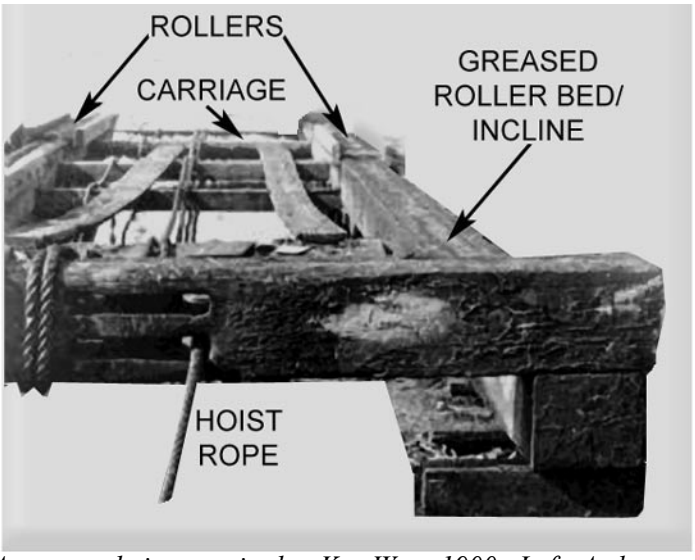
Max and Jean Foster, Riverview, Florida

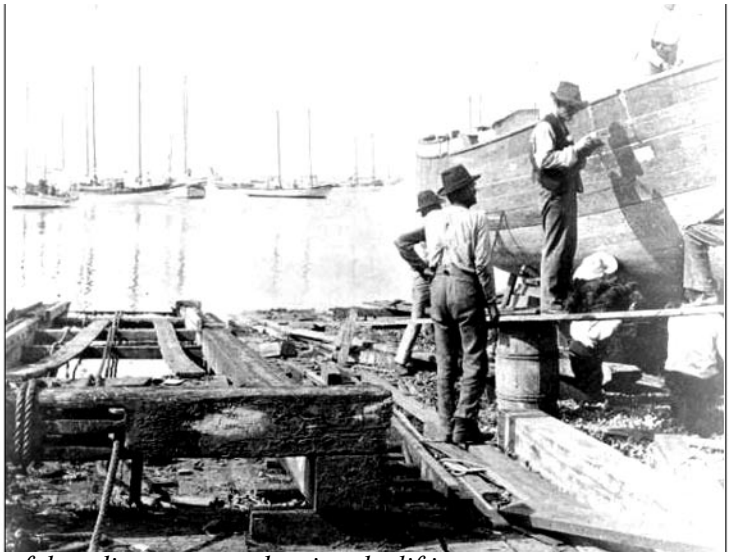


The Florida Keys Sea Heritage Journal is published quarterly. Subscription is available through membership. The art on the masthead, the USS Shark, was drawn by Bill Muir.

Editor: Lynda Hambright
Production:Tom Hambright

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





A sponger being repaired at Key West–1900. Left: A close-up of the adjacent ways showing the lifting arrangement. Although hoisting capacity was very limited, this type of ways was adequate for small vessels and construction costs were minimal. Photo credit: Florida State Archives.

(Ways from page 1)

mere 1.3 feet so this technique is not practical. Ways provide the means to access the part of the hull that is normally submerged.

The concept of ways as a facility to move boats into and out of the water probably originated when the first boat was built and moved down an inclined bank using a series of logs as rollers. For many centuries ways were inclines made of greased timbers or an inclined paved roadbed upon which wooden wheeled carts ran. The load carrying capacity of such facilities was very limited.

Early ways in Key West were crude structures consisting of large timbers laid down to form an incline. The boat to be serviced was brought up with the keel resting on a flat platform that either rode on rollers or heavily greased skids. Bracing to stabilize the hull was installed as the boat came out of the water. The platform and the boat were hauled up by various means depending on the size of the boat and the efficiency of the ways. In some cases, block and tackle, frequently from the vessel's running gear, would be used. In other cases, a team of horses or mules provided the power to haul up the boat. To hoist a heavy boat, a large, manually or steam-powered windlass similar to that used to raise the anchors of ships was employed.

While the previously described ways could accommodate fishing boats and other small craft, they could not handle heavier vessels. The cleaning and repair of large ships prior to 1853 was accomplished in Key West by bringing the vessel alongside a wharf and hauling it over onto its side, a dangerous practice known as *careening*. Judge Browne provided the following description of the process.

This was done by ropes attached to the top of the masts, and run through heavy blocks on the dock. A strain was then hove on the tackles, and the vessel careened, until one side of the bottom would be out of the water. After one side was cleaned or repaired, the vessel was turned around and again hove down, and the other side was cleaned. This method was regarded as very hazardous, and was a source of no little uneasiness to the master, inasmuch as tardiness or mischance in righting, or a sudden squall of wind, might endanger the lives of those engaged in the work, or cause injury to the vessel.

By the middle of the 1800s, the salvaging of wrecks on the reefs along the Florida Straits had reached its peak and hook sponging, another industry reliant on boats, was burgeoning and would eventually make Key West the sponge capital of the World. There were many hardworking ships and boats in the area, but Key West still lacked the facilities to safely perform maintenance on the hulls of larger vessels. The only options were to take them elsewhere for such work or subject them to the hazardous process of careening, neither of which appealed to owners who wanted to get their vessels back to work making profits as soon as possible.

This situation did not go unnoticed by William Curry and George Bowne. Curry was born in the Bahamas at Green Turtle Cay in 1821, and migrated to Key West at the age of 16. He worked as a clerk for a local merchant, served in the military, and then continued clerking for another merchant. Twenty-three years after arriving on the island, he had managed to save enough to marry the daughter of

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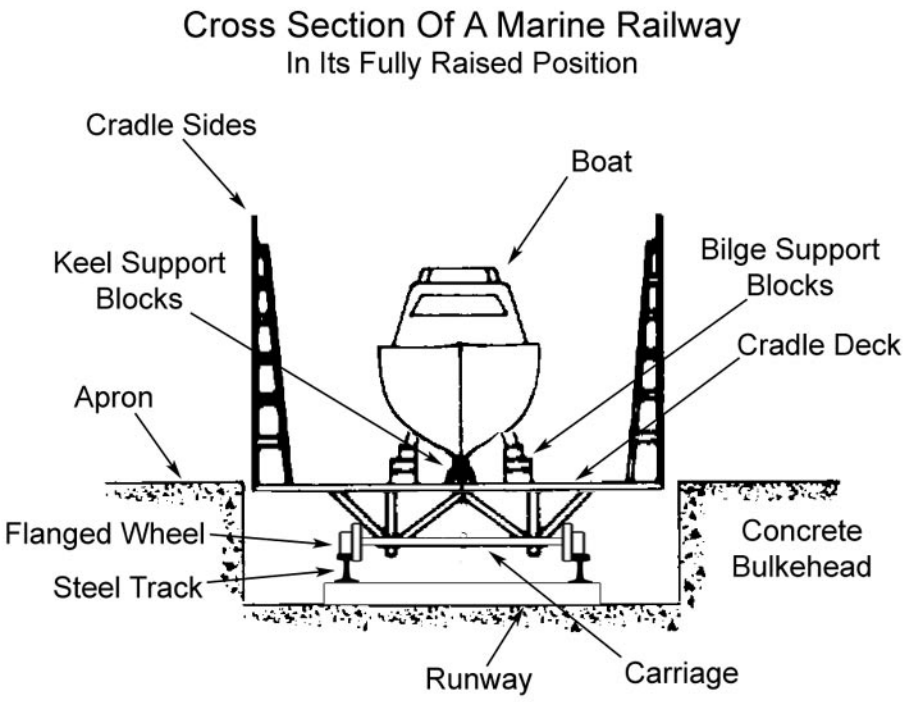
Captain John Lowe and a year later to start a business with George L. Bowne. Curry's father-in-law was a wrecker, and with his help Curry and Bowne acquired an interest in the wrecking schooner ***Lavina***. This proved to be a very lucrative investment. In 1846, the two enterprising merchants purchased property on the waterfront near the intersection of Front and Simonton streets. As the ***Lavina*** plied her trade, the partners used their share of salvage proceeds to build a complex of wharfs, a shipyard, storehouses, and a ship chandlery that provided supplies and equipment to wreckers and fishermen. A marine railway was a logical addition to their business, and in 1853 Curry and Bowne constructed the first marine railway in Key West.

A marine railway is a ways in which the load-bearing incline is a set of steel rails similar to those used on railroads. In fact, marine railways often used railroad track. The vessel to be serviced is brought up on a cradle mounted on a carriage equipped with flanged wheels that ride the rails. A stationary hoisting engine connected to the cradle via heavy wire rope or chain controls the movement of the cradle both into and out of the water. The primary advantage of a marine railway is its ability to efficiently hoist large, heavy vessels from the water onto a stable platform. Hoisting capacities can range from a few tons to thousands of tons. Although not totally free of hazards, a marine railway provides a much safer means of exposing a heavy ship's hull than careening. They are sometimes referred to as railway dry docks.

Commodore John Rodgers (1772-1838) is credited with bringing the first marine railway to the United States. Rodgers rose to prominence in the U.S. Navy as a result of his heroic service before and during the War of 1812. In 1822 while head of the Board of Navy Commissioners, the Commodore ordered the construction of a marine railway at the Washington Navy Yard, the first such ways to be built in the United States.



Cross section of a marine railway as viewed from the shoreward end showing the various components. Photo credit: the Author.

The marine railway built by Curry and Bowne in 1853 was designed to accommodate vessels up to 100 tons, but the demand for servicing larger ships was so great that the ways was renovated six years later to accept vessels up to 500 tons. In 1861 William Curry bought out his partner. When Curry died in 1896, the shrewd investor was reputedly the richest man in Florida. His sons continued to operate the shipyard and ship chandlery business under the name of Wm. Curry's Sons Company. An additional ways was constructed in 1899 that could handle ships up to 1,000 tons. Horses powered the hoist of the original marine railway; by the turn of the century, steam-powered hoisting engines had been installed for both the old and the new ways.

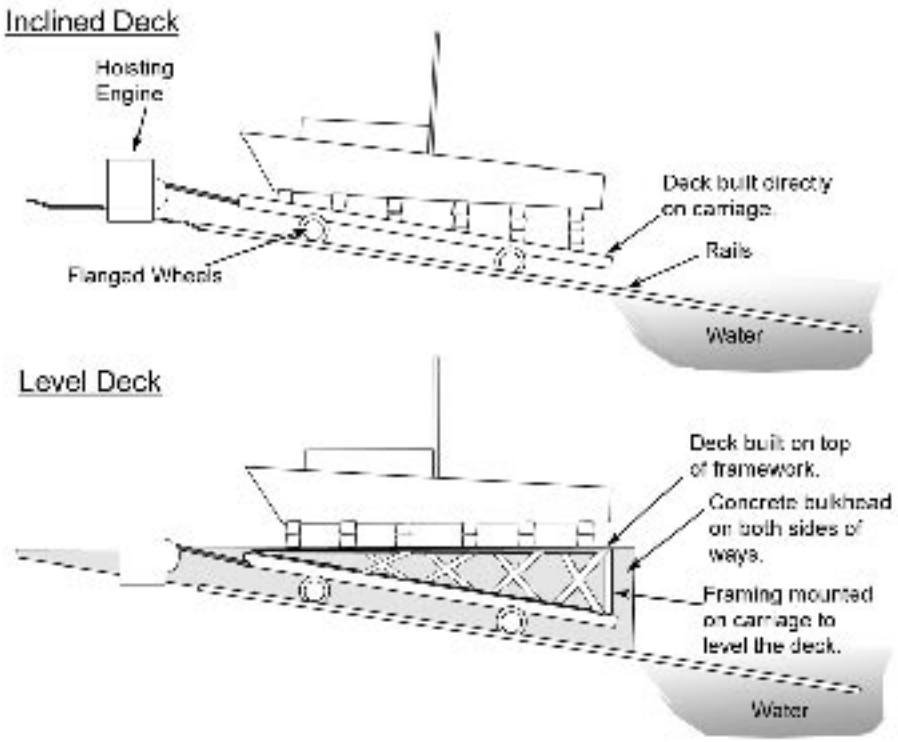
The northwest shore of the island was home to various marine railways for well over 100 years. John Lowe Jr., William Curry's brother-in-law, acquired in 1892 waterfront property across from Wm. Curry's Sons between Front Street and Greene Street. By 1899 he had established a lumberyard and boat building/repair business on the site with two marine railways, which complemented his fleet of schooners and sponging sloops. There was another ways in operation in 1899 at the foot of Whitehead Street between the Key West Commercial Company's wharf (Mallory Docks) and the Government Wharf.

After the commencement of railroad service to Key West in 1912, Norberg Thompson began the construction of a complex in the Key West Bight that would ultimately include an ice plant, cigar box factory, turtle soup cannery and kraals, fish house, and marine

railways. The marine railways at this site were unconventional in that the entire boatyard was built over the water on pilings.

This was a time when the internal combustion engine was revolutionizing many industries, especially commercial fishing where the relatively compact gasoline engines were much more practical for the boats than their steam counterparts. As reliable gasoline engines designed for use in saltwater environments became affordable and available, a sense of urgency enveloped the waterfront. Boats equipped with engines could reach fishing grounds and return to port with their catch much faster than sailboats; the increase in productivity was so significant that the installation of an engine became imperative for a boat to remain competitive. The engines were heavy, cast iron machines that required penetrations of the hull below the waterline for the propeller shaft and for ports for the cooling water intake and exhaust.

A 30-foot boat on a ways made from a few stout timbers. Block and tackle was used to haul the boat up the greased incline to a point above the high water line. Photo credit: Knowles Family Collection.



Types of marine railways built at Key West. Inclined deck ways worked well for smaller vessels and sailboats with keels. Level deck ways provided a stable, more accessible workspace under larger vessels. Photo credit: the Author.

Key West's marine railways, especially those located at the Wm. Curry's & Sons, Thompson, and Lowe sites provided the facilities for these conversions to be safely accomplished with a minimum of down time.

As the 20th Century progressed, commercial ways would come and go as owners and the demands for service changed. For example, the facilities at the Lowe site passed from John Lowe Jr. to his heirs; Edward "Teddie" Bayly operated a boatyard there until WWII. After the war, Berlin Felton bought the property and the marine railway operations there began anew. The Key West Citizen reported in an article that appeared in February 1946 that the ways was "… composed of four tracks with one shifting track which takes boats in from the waters and shifts them to one of the four railways by means of a winch."

The same article noted that George Gomez, son of former state senator Arthur Gomez, was constructing a marine railway at Garrison Bight and that William Wickers was operating a marine railway at the foot of Simonton Street. Gomez built his home and a small boatyard on fill at the east end of Newton Street. The Gomez site had a light capacity marine railway that was used primarily for servicing pleasure craft during the 1940s and 1950s. According to Carston Heinlein, Willie Wickers' ways was a seat-of-the-pants operation constructed of salvaged railroad parts. Strictly for small craft, Wickers would tie a rope from the cradle to the frame of his old Packard, and used the automobile to hoist up the client's boat.

Things did not always go smoothly in the yards, said Heinlein. At one time the Berry, Bethel, and Company operated the ways at the foot of Elizabeth Street (probably around the late 1940s or early 1950s) and had hauled up

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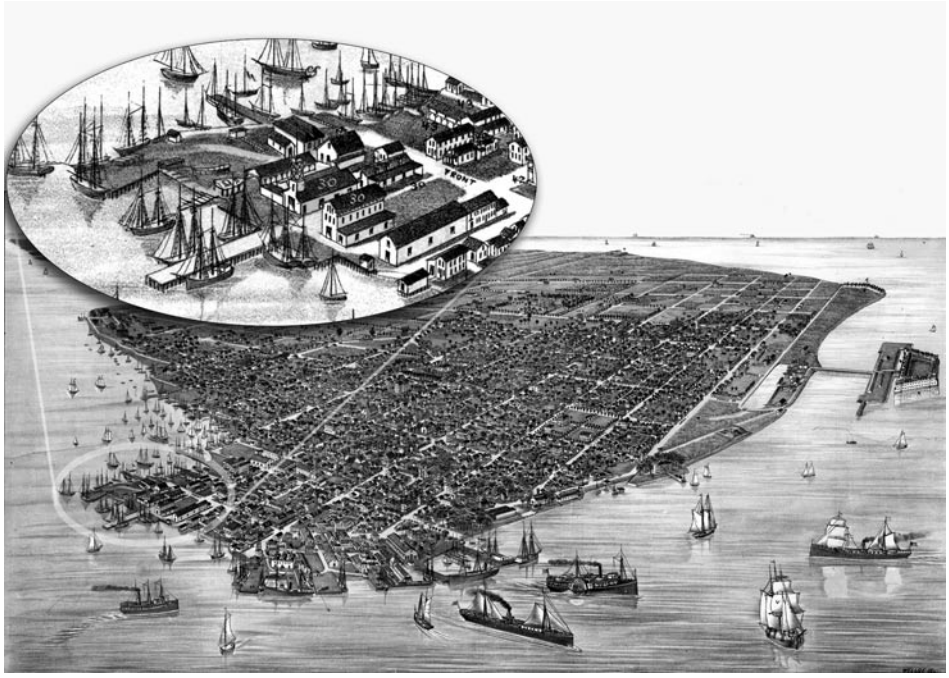
the two-masted schooner ***Western Union***. Launched in 1939, the 130-foot, 91-ton, cable repair vessel was on the ways for maintenance when a welder working on an adjacent boat threw her compass out of calibration. Heinlein reports Captain G. R. Steadman was "pretty upset" that he had to take the schooner all the way to Miami to have the compass re-calibrated.

In the early 1950s extensive shrimp beds were discovered off Dry Tortugas. A "Pink Gold Rush" ensued and hundreds of shrimp boats began to operate out of Key West. The marine railways at the Thompson site were replaced with a large capacity, inclined deck marine railway with a high-sided cradle. The ways could hoist two shrimp boats at the same time. Ways at the Curry site were also renovated to accommodate the heavy demand for maintenance on shrimp boats. Once again as in the past with wrecking, sponging, and commercial fishing, the marine railways played a central role in supporting the local economy.



This panoramic sketch of Key West done in 1884 looks across the island from its northwest corner. Fort Taylor is on the extreme right. The inset provides a magnified view of the complex of buildings at the corner of Front and Simonton Streets owned by William Curry. Photo credit: Library of Congress-inset added by the Author.

Shrimp boats from as far away as Texas and the Carolinas flocked to Key West in the 1950s following the discovery of the Tortugas shrimp beds. Ways at the Thompson and Curry sites were upgraded to accommodate the heavy, wooden-hulled shrimpers. Photo credit: Monroe County Public Library.

The relocation of the commercial fishing fleet to Stock Island followed by the astronomical rise in the value of waterfront property eventually caused the commercial ways in Key West to be closed and dismantled.

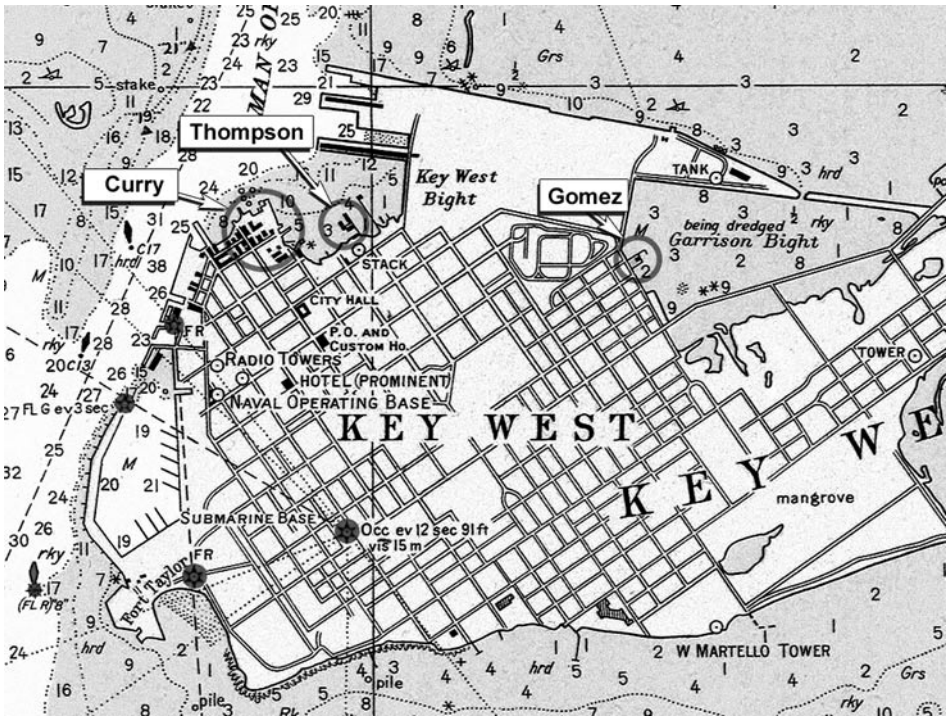
Two basic types of marine railways were built at Key West. All of the commercial marine railways had an inclined cradle; that is, the deck of the cradle was attached directly to the carriage, which caused it to slope at the same incline as the rails. This type of ways is less expensive to construct, but the slanted deck and vessel can complicate some repair work. The inclined cradle can impose stress on the vessel being raised unless blocks are attached to the deck in a configuration that moderate or offset the incline. This technique (i.e., using short blocks at the bow and taller blocks toward the stern) is not practical for the hull of a long, heavy vessel.

To overcome these problems, marine railways that hoist long, heavy ships have a cradle mounted

on a wedge-shaped framework that maintains the deck in a position that is close to level. On this type of ways, the support blocks may be kept to a moderate height along the entire length of the hull. The level deck also makes it easier to position welding machines, compressors, and other heavy equipment underneath a raised vessel. The U. S. Navy favored this type of marine railway.

While the commercial ways played a key role in the development of Key West, the marine railways of the U. S. Navy were also vital components of the economic engine of the Island City. The Navy established a permanent presence in Key West in 1854 when a naval depot was constructed near the Mallory docks and customs house.

In 1898, the Spanish American War, although a brief military conflict, emphasized the strategic location of Key West with regard to protecting United States interests in the Gulf of Mexico and Caribbean, and revealed the need for better facilities to support naval operations in this arena. The Navy began the expansion of its facilities by creating land along the west shore of the island through dredge and fill operations.



Sites of civilian marine railways in Key West. Several marine railways operated in the vicinity of the Curry site. The ways built on pilings adjacent to the turtle kraals at the Thompson site operated for over 50 years being renovated several times during that period. The Gomez site catered to small fishing boats and pleasure craft. Photo credit: NOAA 1940 Chart. Labeling the Author.

During the first decade of the 20th Century, the water immediately west of the Naval Station's commanding officer's residence, Quarters "A", was filled. A slip was formed and in 1912, the first Navy marine railway was constructed at the west end of Caroline Street. Subsequently, the channels accessing the Naval Station were deepened and widened, a mole was constructed, and the basin formed thereby was dredged. The installation of finger piers completed the construction of a base for submarines. In 1916, the ways was renovated and its capacity increased to 750 tons capacity so that it could accommodate submarines.

Before the arrival of the shrimp fleet, Thompson's marine railways (behind the tourists watching a turtle being pulled from the kraals) primarily served small commercial fishing boats. The sheet metal shed on the left housed the hoisting engine and winches. The distinctive twin towers of Wm. Curry's Sons ships chandlery are visible in the background. Photo credit: Monroe County Public Library.

In the midst of the Great Depression, the Key West Naval Station was deactivated on June 30, 1932 as part of a federal cost reduction program aimed at decreasing military expenditures. Sometime previous to this, the marine railway adjacent to Quarters "A" was dismantled. For the next seven years, the facilities of the submarine basin were leased to the Works Projects Administration for use as a public marina. Ernest Hemingway moored his boat, the ***Pilar***, there.

Events leading up to World

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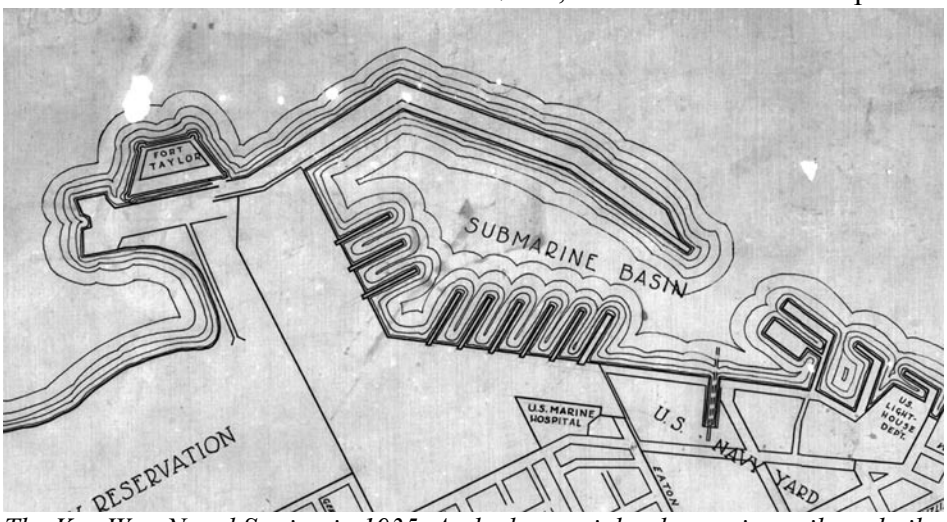
War II prompted the reactivation of the Naval Station on November 1, 1939 and a robust renewal and expansion of the facilities was begun. The U.S. Navy acquired a civilian ways operating at the site of the original marine railway built by William Curry near the north end of Simonton Street. The purchase price was $20,000. The facility underwent substantial renovation including the installation of dolphins, the replacement of keel blocks, and the upgrading of the hoisting gear. The latter involved the installation of steel cables and a three-cylinder diesel-powered winch. The renovation was totally complete by August 1, 1942, at a cost of $76,175.39. The ways was used throughout World War II to service patrol craft and auxiliary vessels.

To service submarines, destroyers, and destroyer escorts stationed at Key West for anti-submarine warfare (ASW) training and research and development, the Navy contracted the construction of the largest marine railway ever built on the island. The site chosen for the new ways was at the southeast corner of the submarine basin of the Naval Station. This location assured that the operation of the ways would not interfere with ships entering or leaving the basin.

Milton Knowles installs an exhaust port for his boat's new engine on the ways at the Thompson site; circa 1920s. Note the rail and top of the flanged wheel underneath the cradle to the left of Milton's knee. Photo credit: Knowles Family Collection.

After relocating some of the finger piers, the new marine railway was built just beyond the west end of Southard Street. The construction of the marine railway began in November 1940 and was completed in September 1941 under a costs plus fixed fee contract awarded to the W. P. Thurston Company of Richmond, Virginia.

The total cost in 1940-1941 dollars including the contractor's fee was $613,769. The most expensive single item of the project was the massive chains used to move the cradle. Two sets of chains were used to move the cradle; one for the out-haul and one for the back-haul. The out-haul chains were stronger (2 1/4" diameter links) than the back-haul chains because they had to overcome gravity as well as friction to move the cradle and its load up the incline. The back haul chains (1 1/8" diameter links) controlled the cradle's descent and allowed it to be positioned at the depth necessary to accommodate the vessel to be brought aboard. The chains cost $31,258 and $9,146 to install. The second costliest item was the haul-out machine (geared winch), which cost $24,397 for the equipment and $8,896 labor.



The Key West Naval Station in 1935. At the lower right, the marine railway built in 1912 points almost due west at the opening to the basin. Photo credit: Wright Langley Archives.

To distinguish between the two Navy marine railways in operation during WWII, the new ways was designated Navy Ways No. 1 and the renovated ways located at the north end of Simonton Street was referred to as Navy Ways No. 2.

Navy Ways No. 1 was truly an impressive structure. The mammoth cradle was about the size of a football field sliced in half

View of the first marine railway constructed by the U. S. Navy at Key West. This photograph was taken around 1913. The Commanding Officer's quarters (Quarters "A") is to the left of the recently completed marine railway. Clearly visible is the framing supporting the outboard end of the deck of the cradle so that it remains near level on the inclined railway. Photo credit: Wright Langley Archives.

lengthwise. No wonder that once it was completed the ways became one of the most imposing landmarks at the Naval Station. The steel framework of the cradle towered above the surrounding roadways and piers when fully raised, and the huge mobile crane that moved around it on railroad tracks dwarfed the cars and trucks that threaded their way around its legs. When a destroyer or submarine was aboard, the sight was most impressive.

Although the concept of hoisting a large vessel onto a ways is simple, the practice requires great care, precision, and patience. Of critical importance is the proper seating of the vessel onto the keel and bilge blocks mounted on the cradle. The base of the keel blocks is fixed and runs down the centerline of the cradle. Spaced at intervals on both sides of keel blocks base are sets of bilge blocks. On Navy Ways No. 1, each bilge block could be moved toward or away from the centerline by means of a crank mounted on the cradle's side. In this manner, they could be positioned to support different shapes of hulls.

It was often necessary to surmount the blocks with additional blocks of wood shaped to conform to the specific area of the hull where contact would be made. The positioning of the blocks and the design/installation of custom-shaped material fitted to them was carefully supervised by engineers using structural plans of the vessel to be raised.

Docking, the simultaneous hoisting of the ship and the cradle is a delicate process; if the vessel does not properly settle onto the support blocks, the hull can be deformed resulting in extremely costly repairs or even the scrapping of an entire vessel. During this time, men stationed along the top of the sides of the cradle must carefully tend lines to keep the vessel aligned since the distance from the top of the cradle to the ship is constantly increasing as the cradle rises.

The first vessels to be brought aboard Ways No. 1 were two barges tied together, one filled with sand and the other with scrap metal, having a total weight of 685 tons. On October 22, 1941, the first official docking of a Naval vessel was made when a submarine, ***SS-81*** (see "SS-81: A Sub's Story", Winter 2004-2005 edition of FKSHJ), weighing 580 tons was hoisted.

On January 28, 1942, the heaviest ship to be docked since the commissioning of the ways, the ***USS Hamilton (DMS-18)*** was hoisted. Measuring 314 feet in length and 31 feet side to side, the former WWI vintage destroyer had been converted to a high-speed mine sweeper in 1941 and weighed 1,415 tons when docked.

The hoisting system of Navy Ways No. 1 was designed to

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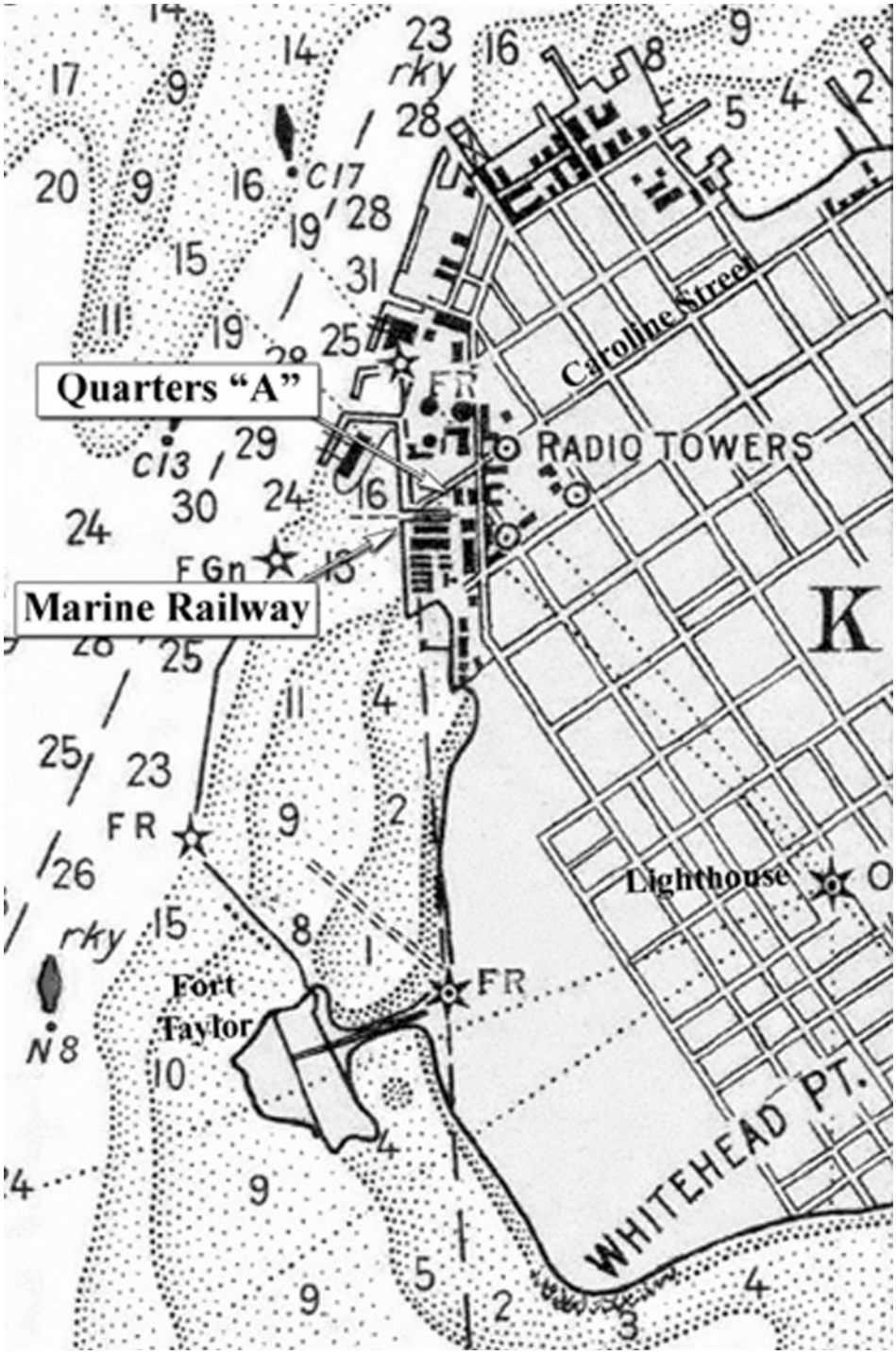
move the cradle up the incline at a maximum speed of 10 feet per minute. The ***Hamilton*** came up the rails at an average speed of 8.8 feet per minute with the speed varying from 5 to 9.9 ft/min. It took 43 ½ minutes to bring the ship up to the fully raised position.

For three decades Ways No. 1 reliably supported naval vessels, thanks in large part to the dedication of the civil service employees who worked not only on the docked vessels, but also on the marine railway itself. Men like Carston Heinlein, Bascom Grooms, "Buster" Perpall, Joe Ladd, and many others saw to it that the various parts of the ways were kept in good working order. Heinlein remembered the 184 steel wheels as being especially troublesome. Periodically submerged in salt water, rolled under heavy weight, then sitting idle for long periods of the time, they were vulnerable to rust and corrosion. "During a hoist, we had men stationed on the runway, watching the wheels as the cradle came up," said Heinlein, who was a civilian employee at the Naval Station for over 30 years and had worked his way up to foreman of the outside machinists. "When they saw a wheel that was not turning, they marked it so it could be pulled off, reworked, and reinstalled while the cradle was raised."



Site of the first marine railway constructed at the Key West Naval Station. During World War I, the Naval Station was located between Eaton and the north end of Whitehead. Photo credit: 1923 NOAA Chart. Labeling added.

During the Cold War, Key West was the homeport for a number of destroyers and destroyer escorts. The ***USS Sarsfield*** **(DD-837)** operated out of Key West for twenty years commencing in February 1946. On one occasion when the ship was hoisted on the ways, Heinlein was so impressed he paid to have a Navy photograph of the event reproduced. Fully loaded for deployment, the ***Gearing*** class destroyer displaced 3,460 tons, which exceeded the capacity of the ways by almost 500 tons; however, with ammunition, fuel, potable water and other items removed or reduced, the ship weighed about 2,500 tons. At just over 390 feet long, the stern extended beyond the deck of the cradle by 4 ½ feet. There was only a seven-foot space on each side between the cradle's sides and the ship.

The demise of Navy Ways No. 1 was sudden and spectacular. Sometime in the late 1960s, a destroyer was being hauled up for routine maintenance. The name and hull number of the ship are not known, but the destroyer is believed to have been of the

Workmen renovate a marine railway acquired by the U.S. Navy just prior to the United States entering World War II. The ways, which had an inclined deck, was returned to the private sector after World War II. Photo credit: Monroe County Public Library.

Gearing Class, similar to if not the ***Sarsfield***. Carston Heinlein was standing beside the ways, literally in the moving shadow of the destroyer, ready to board the cradle; he remembered the event vividly.

I was standing on the edge of the north bulkhead waiting for the cradle to stop; it was within a few feet of its fully raised position. I was just about to step onto the deck when I heard a loud, heavy thud. At first no one knew anything had happened, but it (the cradle) stopped and then started to roll down. The chains had parted!

With the destroyer towering above him, Heinlein backed away. The untethered cradle and its burden, a combined weight of 6.4 million pounds, moved toward the basin, accelerating under the pull of gravity as it descended one foot for every 14 feet of horizontal travel. The two huge structures coasted as one toward the submerged ends of the rails 350 feet away.

As soon as personnel aboard the ship realized what was happening, they released the large anchor in the bow. Two thousand pounds of steel came hurtling down from a height of 50 feet, yanking chain out the hawse pipe as if the 40 pounds-per-foot links were mere kite string. The loud metallic clatter of the chain being paid out was quickly followed by a terrific crunching of wood and metal as the anchor smashed through the deck of the cradle and landed on the runway below. Finding no hold on the smooth concrete incline, the anchor was dragged by the cradle as it continued unabated into the basin.

Only the top of the cradle's sides could be seen when it lodged against the stops at the underwater ends of the rails; however, the haze gray ship, now fully afloat, was propelled by momentum stern-first through the water. The mooring lines running between the ship and the top of the cradle's sides sprang taut. A series of loud, popping sounds penetrated the air as metal cleats were ripped off and flung through the air--still attached to their lines like cruel tips on giant whips. Heinlein watched in awe as the sudden displacement of 2,500 tons of seawater caused a mound of water to rise up and move toward the far side of the basin. "It looked like a tidal wave and washed right over the mole across from the ways," he recalled.

When the anchor reached the end of the concrete runway, it dropped to the bottom of the basin and snagged on the reinforced concrete piers and cross bars installed to

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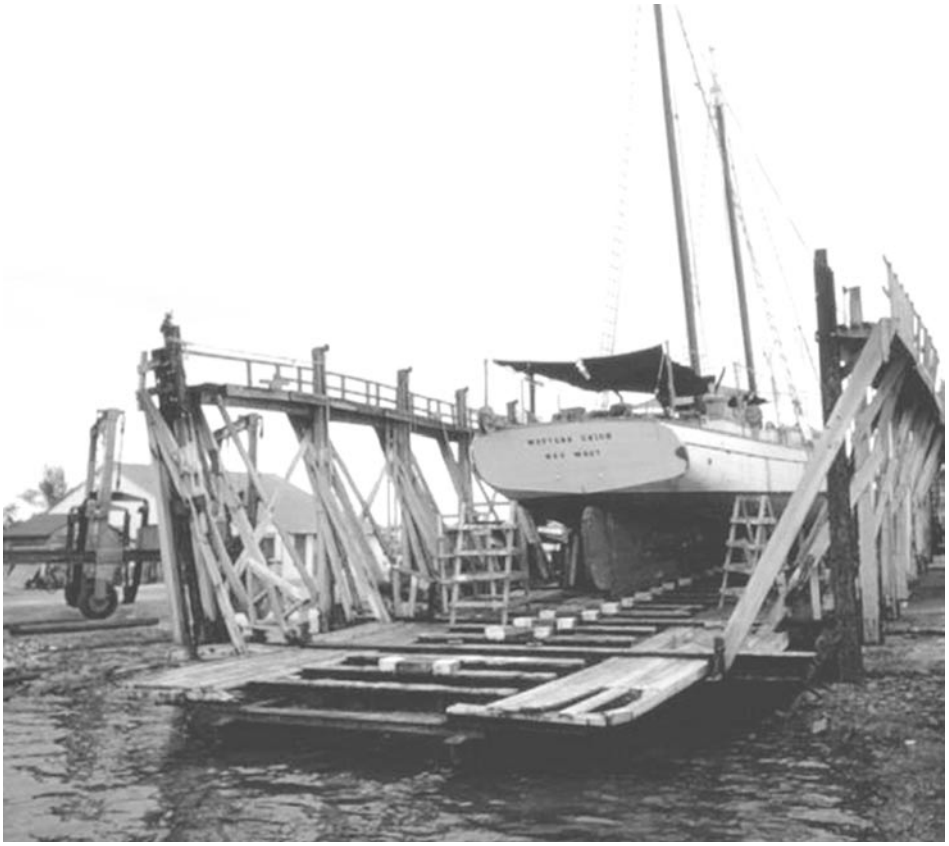
(Ways from page 11)

support the underwater portion of the rails. As the slack came out of the anchor chain, the destroyer's unexpected voyage came to an end. It was all over within a few minutes. Amazingly, there were no casualties inflicted by the flying debris of splintered wood and shorn cleats. The anchor stopped the ship before it collided with the mole, saving the ship and probably some careers. The quarter-of-a-century old ways was wrecked beyond repair.

Heinlein believes the accident occurred because the wheels on the cradle's carriage had not been properly maintained. Prior to the accident, the Navy had decided that maintenance of the marine railway would be performed by Navy personnel instead of the civilian workers who had taken care of the facility in the past. To the civil service workers, the ways was their "bread and butter" and careful attention was paid to its upkeep in general and to the condition of the wheels in particular. To the enlisted men who took over the maintenance work, it was just another duty; no one watched for and promptly repaired defective wheels after each hoist. With 92 pairs of wheels, Ways No. 1 could function if a wheel or two failed to rotate, but on the day of its destruction, when the cradle left the water and the full weight of the ship came to bear too many wheels locked-up generating so much friction that the chains failed.



The schooner **Western Union** *in 1972 on one of the last marine railways to operate in Key West. Ironically, the ways was located on the site of the first marine railway built in 1853. A landmark at the north end of Simonton Street for four decades, the ways was operated by the U.S. Navy during World War II. Photo credit: Florida State Archives.*

Large blocks on the cradle's floor have been arranged to support the hulls of two flat-bottomed barges to be brought aboard to test the hoisting system. Photo credit: Wright Langley Archives.

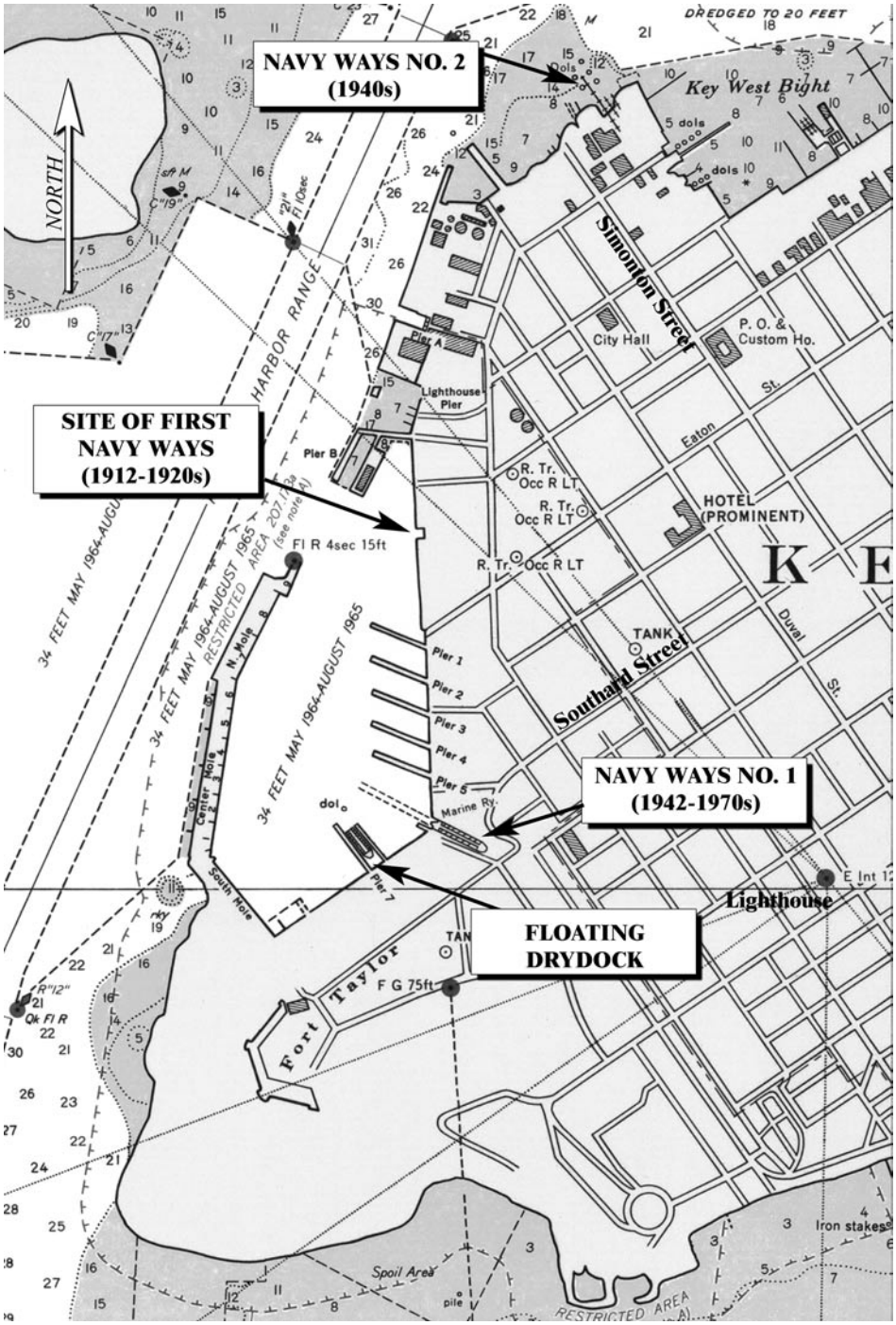
With its only marine railway out of commission, the hoisting of ships at the Key West Naval Station was exclusively performed by floating dry docks. These large ships had a U-shaped work area amidships formed by the bow and sides; the stern was open. When special tanks in the hull were filled, the vessel lowered itself in the water flooding the work area to a depth that allowed a vessel to enter. As the tanks were pumped dry, the floating dry dock raised itself and the client vessel settled onto support blocks in a fashion similar to the marine railway's cradle. In 1963 there

were two such vessels at the Naval Station; ***AFDL-2*** with a lifting capacity of 1,000 tons and the larger ***ARD-11*** (lifting capacity of 4,200 tons).

In contrast to the openness afforded by the framework sides of the marine railway, the floor of a floating dry dock is surrounded on three sides by solid steel walls several stories high. Under the hot tropical sun, they became ovens that baked the sailors and yard workers who labored within. In addition to radiating heat onto the work area, the metal walls reflected every sound creating an environment that was often deafening. "The floating dry docks were terrible places to work," said Heinlein.

In the late 1960s/early 1970s, Ways No. 1 was dismantled and the floating dry docks were moved to other ports. On October 17, 1973, the last ship assigned to the Key West Naval Station, the ***USS Amberjack (SS-522)*** departed the submarine base. With the closing of the Naval Station in 1974, the era of large hoisting facilities at Key West came to an end.

For over 125 years, marine railways were much more than just rustic features of the Southernmost City's waterfront. The civilian ways were instrumental in the commercial success of the wrecking, sponging, and fishing industries. They provided employment for hundreds of residents and were a mechanism for retaining funds in the island community that otherwise would have been expended elsewhere. The Navy ways played a vital role in the Nation's defense by facilitating work required to assure the operational readiness of vessels participating in war time patrols, submarine research and development programs, and anti-submarine warfare training. Judge Browne was on the mark



Sites of U. S. Navy hoisting facilities at Key West. Photo credit: NOAA Chart 1966. Labeling added.

when he recognized the public benefit such facilities would be to the Island City.

Notes and Sources

1. Information on early marine railways came from "Key West The Old and The New" by Jefferson Beale Browne, published by The Record Company, St. Augustine, 1912. An electronic version of this classic is available on the web at http://fulltext10.fcla.edu/cgi/t/text/text-idx?c=fhp&idno+FS00000049&format=pdf.

2. Some information about the 1916 marine railway came from material compiled by the Commander Key West Force Public Affairs Office that appeared in "Your Navy In Key West", a publication of Boone Publications, Inc., Lubbock, TX, © 1972.

3. Interviews with Carston

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(Ways from page 13)

Heinlein and Joe Ladd, former civil service yard workers at the Key West Naval Station.

4. Details about the specifications, construction, and testing of Navy Ways No. 1were obtained from "A Technical Report On The Construction Of A 3000-Ton Marine Railway, United States Naval Station, Key West, Florida" prepared by Lt. Harlan F. Winn, CEC-V(S), USNR, and dated April 1942. The report is available at the Monroe County Public Library.

5. All photographs credited to the Wright Langley Archives are © copyright 2004 by Wright Langley Archives, Inc., Key West, FL 33040 and are used herein with permission. They may be contacted by email at infor@langleypress.com.

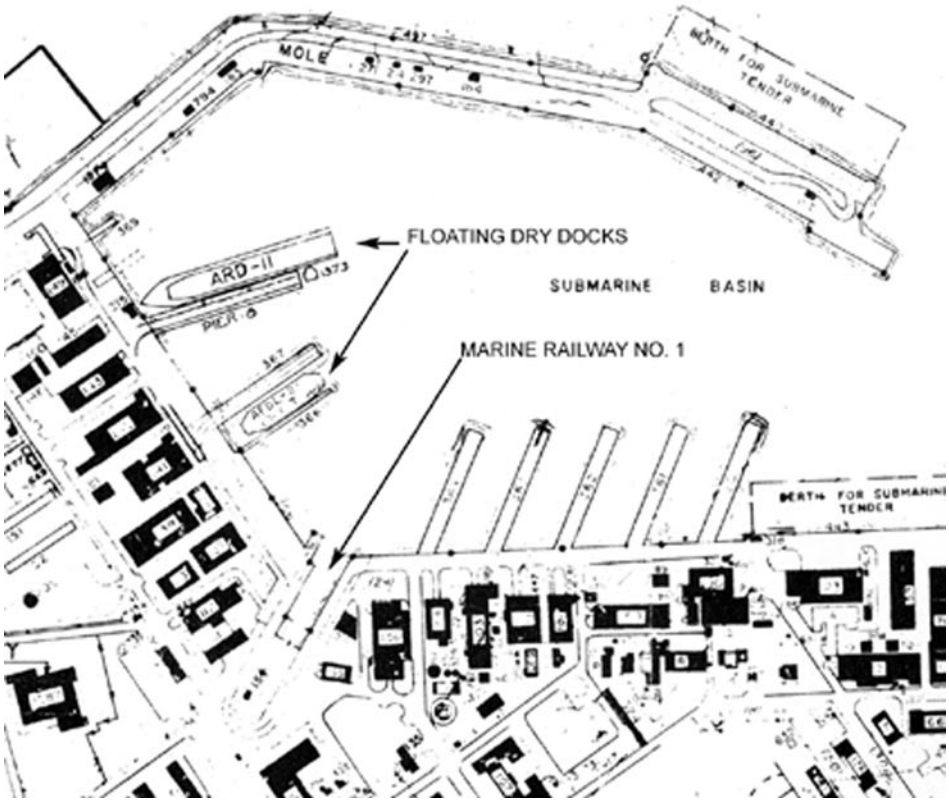
6. For more information about **USS R-4 (SS-81)**, see "SS-81: a Sub's Story" appearing in Vol. 15, No. 2, Winter 2004/2005 edition of the "Florida Keys Sea Heritage Journal", official quarterly publication of the Key West Maritime Historical Society, P.O. Box 695, Key West, Florida 33041.

7. "Key West Docks Barren As Pigboats Sail No More", St. Petersburg Times, 17 October 1973, pgs. 1b & 8b.

WAYS NO. 1 VITAL STATISTICS

CRADLE	
Length on Keel Blocks	368 feet
Length on Deck	386 feet
Length Overall	399 feet
Capacity	3,000 tons
Material	Steel
Draft Over Blocks	Fore = 17' 2 ½"
(cradle submerged)	Aft = 20' 8 ½"
Width Overall	61 feet
Width in Clear	55 feet
Speed	10 feet per minute
Weight (incl blocks)	700 tons
RUNWAY	
Number of Tracks	2
Material	Steel rails and concrete rail beams.
Length	871 feet
Slope	7/8" per foot
Rail Gauge	16 feet between tracks
Rail Weight	175 pounds per yard
MISCELLANEOUS	
Out Haul Chains	2 ¼" (diameter)
Back Haul Chains	1 ⅛" (diameter)
Wheel Diameter	18"
Wheels, Number	92 pairs
Motor:	500 HP, 2300 volts, 3 phase, 60 cycles, slip ri wound rotor, induction.
Total Cost:	$613,769 or $204.67 per lifting ton

Source: Report prepared by Lt. Harlan Winn, USNR, April 1942



Drawing of the Key West Naval Station issued in 1963 showing the presence of two floating dry docks. Photo credit: U. S. Naval Station Key West Public Information Office. Labeling and shading added.

Acknowledgements

The following people assisted in the preparation of this article. Carston Heinlein shared material he had researched over the years and provided recollections of his days as a foreman in the civil service force at the Naval Station. He also provided photographs from his private collection. Joe Ladd shared his recollections as a civilian worker at the Naval Station. Tom Hambright of the Monroe County Public Library provided a report on Navy Ways No. 1 and photographs. Joan Langley of the Langley Press and Wright Langley Archives provided photographs, assisted in collecting materials from other sources, and reviewed drafts. The author sincerely appreciates their assistance.

About The Author

Thomas Neil Knowles was born in Key West and raised during the 1940s and 1950s within a block of the harbor where the commercial fishing fleet was based. His grandfather, Milton Knowles, was a commercial fisherman and a carpenter/shipwright who plied his trade on the civilian ways. His godfather, Buster Perpall, was a civil service employee of the Navy who worked on vessels hoisted at the Naval Station.

Top: Navy Ways No. 1 nearing completion at the Key West Naval Station in 1941. The most visible part of the railway was the steel framework that formed the sides of the cradle. A powerful hoisting engine located in the small building to the left of the cradle hauled it up out of the water. Fort Taylor is in the background on the right. Photo credit: Wright Langley Archives.
Center: Two barges being brought up to test the hoisting system of Ways No. 1. The men standing along the top of the cradle's sides had to constantly tend lines attached to the barges to keep them positioned over the support blocks. Photo credit: Wright Langley Archives.
Bottom: The Key West Naval Station in the 1960s. The huge cradle of Ways No. 1 can be seen at the upper right corner of the basin. The buildings to the left of the ways contained shops and support facilities. Photo credit: Carston Heinlein Collection.

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The Thompson ways were located in the Key West Bight as shown in this 1930 aerial view. In the inset, the turtle soup canning factory and kraals are at the left while the rails of two marine railways are clearly visible on the right. The fish house at the bottom of the inset and the road leading to it were built on fill, the other structures including the cannery and ways were built over the water on piles. Photo credit: Monroe County Public Library. Inset added by author.

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