

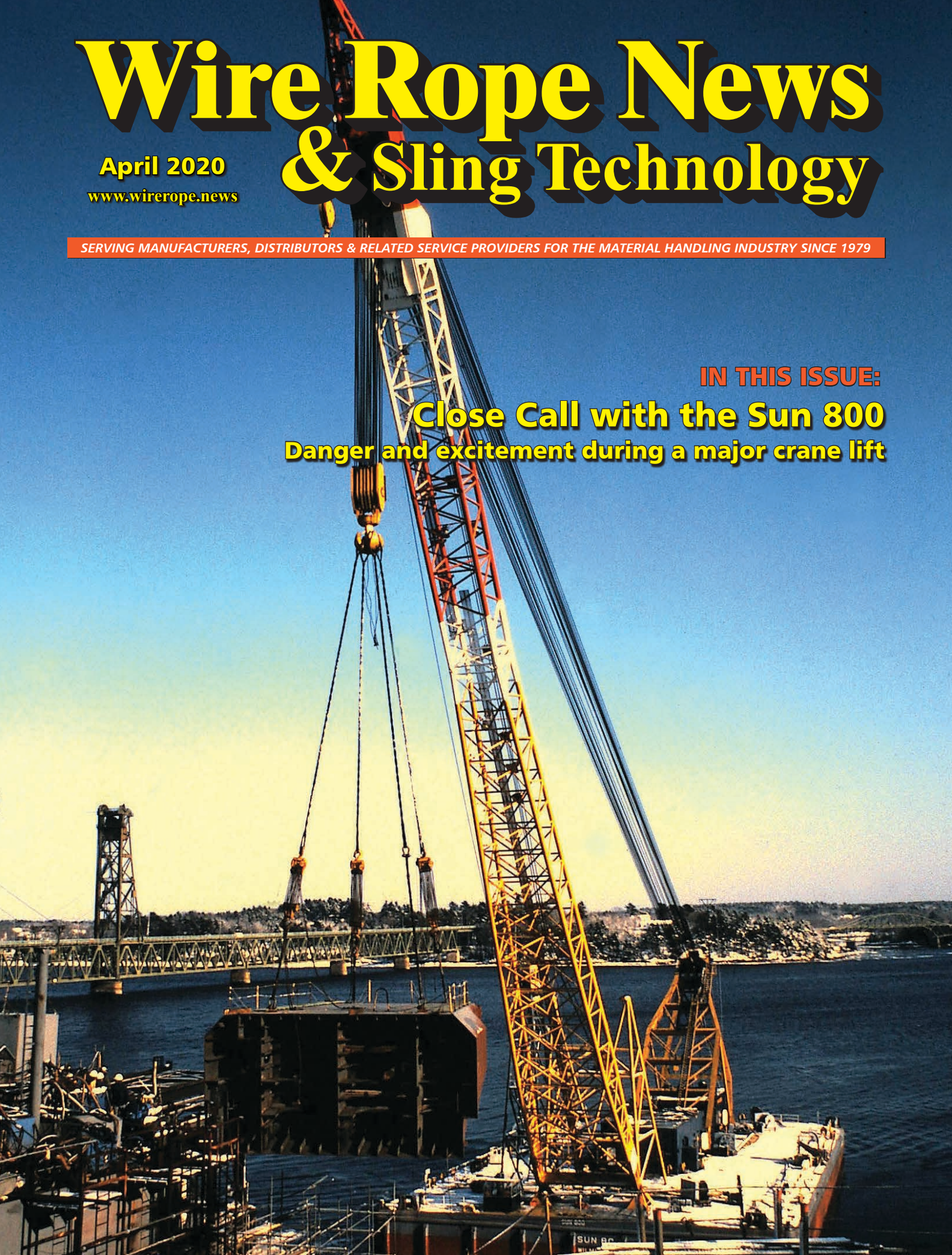
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SERVING MANUFACTURERS, DISTRIBUTORS & RELATED SERVICE PROVIDERS FOR THE MATERIAL HANDLING INDUSTRY SINCE 1979

IN THIS ISSUE:

Close Call with the Sun 800
Danger and excitement during a major crane lift



Reconnection with the Past: Adventure on the Sun 800

by Carl Bachman Jr.

This past Thanksgiving as with every year, the family got together for an oversized dinner, a few drinks and a lot of laughter. Inevitably, we gather in the family room, suffering from the effects of tryptophan and sit around reliving our glory days. Because my brother-in-laws and I all worked at various shipyards, our story telling always gets around to regaling our experiences of monumental feats in the industry. Each putting forth a story better than the last. I was highlighting a story about a very scary event that I was involved with back in the beginning of my career, when it was suggested that I should submit it to be used as an article in Wire Rope News. I was intrigued by the idea and the following is an attempt by a non-writer to share one of my holiday stories.

The year was 1976, I was in my first year as an apprentice at Sun Shipbuilding & Dry Dock Company in Chester, PA. Everything about my job was new and fascinating. I looked forward to the challenges each day brought. We were working on a nineteen-year-old tanker built to transport petroleum products for the Sun Oil Company. The ship was the 610th hull built at the shipyard and was christened the SS Pennsylvania Sun. She was launched in 1957 with a length of 710' and weighed 30,000 deadweight tons. This was the third ship that carried the name Pennsylva-

nia Sun and all three were built at the Chester Shipyard.

The first to carry the name was launched in 1921 and was just the 42nd hull constructed at this site. This oil tanker was 480' long by 65'9" wide and some 12,880 deadweight tons.

The second to carry the name was launched in 1938 and was the 168th vessel constructed. This tanker was 521' long by 70' wide and some 17,870 deadweight tons. This particular name sake had a rich history headlined by a German submarine (U571) attack during World War II. A single torpedo was buried into her side in the Gulf of



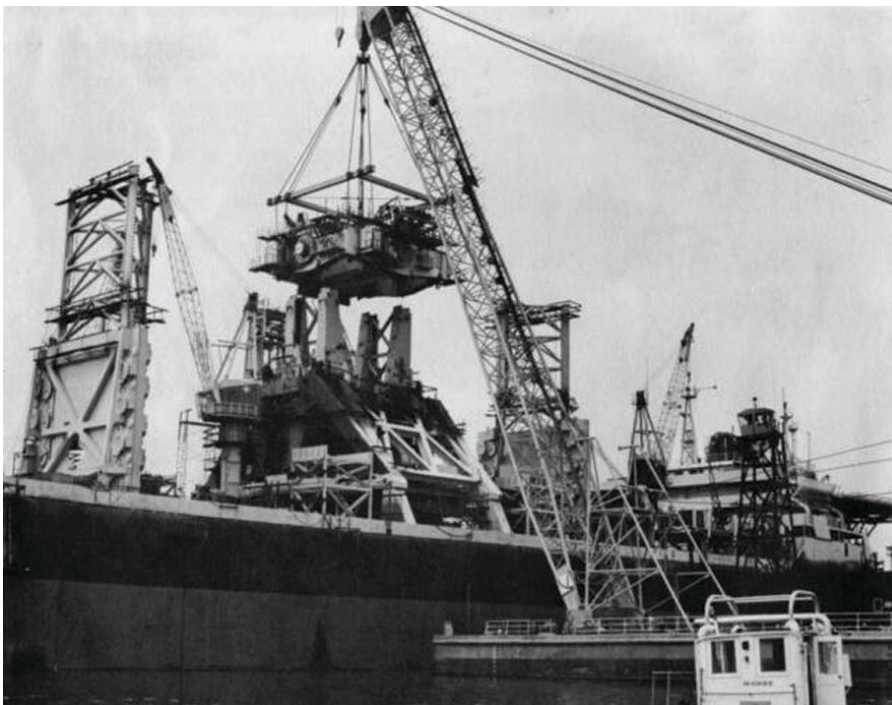
The SUN 800 places the last unit for the Sugar Barge that was being built for Sun at Bath Iron Works in Maine. Photo courtesy of Rich Janney

Mexico in July 1942 and it ignited the ship's cargo of 107,000 barrels of fuel oil in flames. Amazingly, the flames were extinguished, and the ship went on to serve another 21 years after the attack.

The current Pennsylvania Sun was docked at the south yard pier for the second part of a long overdue upgrade. The first stage of the repair involved lifting the ship out of the water using a float dry dock. The dock was submerged below the hulls draft and, once maneuvered in place, the dock lifted the en-



The worn out and abandoned floating drydock of the former Penn Ship Yard once lifted huge ships out of the water for major repairs, circa 1990's. Photo by Carl Bachman Jr.



The SUN 800 places the gimbal on the Hughes Glomar Explorer. The lift, amounting to 630 tons, was the heaviest in the entire construction process of the ship and was the primary reason that the crane was built. *Photo courtesy of Sun Ship Historical Society*

Masterful Lift by Sun-800 Crew



A new era began October, 1972, at Sun Ship when the Derrick Barge Crane—Sun 800—came to life. This equipment has made possible the construction of Hughes Glomar Explorer and will lend itself to many other unique shipbuilding possibilities in the future.

With pride, Management salutes the men of the "800". They set an example of the team work needed at Sun Ship to continue

Congratulations Men!

Jim Dawson 28-10 Gary Stonge 28-11 Bob Stackhouse 28-13 Jim Brooks 28-15
Herb Artwell 28-12 Frank Anthony 28-14 Lary Carter 28-17



Through the efforts of the men shown above, probably the heaviest single lift on the East Coast took place here at Sun Ship when the Sun-800 hoisted an inner and outer Gimbal platform of around 735 tons aboard the HUGHES GLOMAR EXPLORER. Estimated worth alone of each bearing is 1/2 million dollars; there are four bearings on this platform.

Article from the May 1973 issue of the *Sun Ship Log*, the company's in-house newspaper, showing the prime reason for the Sun 800 being built. *Photo by Harry Hladky and courtesy of the Delaware County Historical Society (DCHS)*

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tire ship out of the water. For the next month, workers removed and replaced the bottom shell plating for about a third of the length of the ship. Once the repairs were inspected and approved by the coast guard the ship was refloated and moved to the south yard pier where an army of ant like craftsmen worked for the better part of a week with torches and hydraulic jacks to separate a large section of the main deck from its attachments to the ship's shell plating and internal bulkheads.

Once the surgical demolition was complete, the shipyard's pride and joy, an 800-ton barge crane known as the Sun 800, was hooked up to the lifting lugs that were welded to the main deck. Everyone was evacuated from the work area for safety. This was to be my first involvement with a lift of this type and complexity. I pushed up as close as allowed to get a view of the pending lift. When the all clear whistle sounded, the huge crane started to put tension on the cables attached to the ship. The word came back that the strain gauge was reading much higher than the calculated load on the lift plan. This meant one thing, the deck section was still connected somewhere. Ultimately, my being so close to the front gave me the opportunity to be "volunteered" by the head of the hull division for a special and once in a lifetime assignment. I was told to get a torch and to follow him into the belly of the ship to look for that allusive connection that was holding the deck in place.

The challenge was that the deck section was some 102' wide by 100' long and most of the severed joints were at the top of a 51' deep chasm from the underside of the deck to the keel. Searching for a missed connection that could be as small as 1" x 1", and could add 60,000 pounds to the strain gauge reading, was not going to be an easy task.

In order to gain access to the underside of the deck to begin the search, we needed to walk on the main deck section that was attached to the crane and enter the tank via a manway that lead to a ships ladder that was now suspended in midair with no attachment for the top twenty feet or so. We began our search by training the beams of our flashlights on all the interface points around the perimeter of the deck. We searched high and low for the culprit, but after an hour we had not found the missed connection. We were about to give up when we noticed that the very handrails we were using during our search were never released from the main deck. I fired up the torch and cut the first 1" diameter railing. The ladder vibrated and twisted slightly as a result of the built-up tension in the cables induced by the crane.

Next, I began cutting the second railing which broke off when I was about three quarters of the way through. At that point the entire deck lurched up about ten to fifteen feet. What a rush to see this very large section of steel accelerating towards the crane. What happened next almost made me need a change of clothes. When the deck reached the apex of the cable recoil it changed direction and started down towards me. In that moment, I envisioned that the deck would not stop, and I was about to become a pancake under the weight of the crushing steel. Fortunately, the cable took up the strain of the load and the assembly stopped about five feet above its original starting point and then after several perturbations it settled into a stable position. At that moment, we only had one more dangerous move to undertake. The crane lowered the deck almost to its original position and we climbed out of the hold and walked across the suspended deck and off the ship. That was a day to remember.

The star of this story is the Sun 800 which, if I recall, was the largest barge crane on the east coast at the time. The barge, built by Kelso Marine at the Galveston yard and launched on June 23, 1972, was approximately 200 feet long by 100 feet wide. It had a huge 200-foot boom built by American Hoist and Derrick. The derrick was laced with

miles of cable that were looped back and forth through a large lifting block sheave which generated 800 tons of lifting power. The barge did not have any propulsion which meant it had to be towed by tugboats to the lifting location. Once on site it had four winches that could be tether to anchor points and would allow the crane to maneuver itself by reeling in and paying out cables. During heavy lifts the barge would use water ballast as the counterweight and could lift 800 tons some 50 feet from the edge of the barge.

This special built barge crane was used to lift the 630-ton gimble onto the deck of the Glomar Explorer, a top-secret project named Azorian. This CIA project had the goal of clandestinely raising a Soviet Submarine K-129 (that sank in the Pacific Ocean in 1968). The Glomar Explorer (Hull 661) was also built at the Sun Shipbuilding and Dry Dock Company and disguised as a special Howard Hughes project to mine Manganese's from the ocean floor. The Explorer was 618 feet long by 115 feet wide and weighed 36,000 tons. It cost over \$350 million dollars to construct. The ship had a grappling hook that could be lowered through a hidden moon well in the center of the ship. This claw was lowered to the bottom of the ocean where it hooked onto the K-129 and began raising the vessel back to the surface. Unfortunately, the claw broke and



The Sun 800 dwarfs the smaller pier cranes while it waits it's next assignment circa 1978.

Photo by Carl Bachman Jr.

two thirds of the sub returned to the depths of the ocean. The third that was recovered did not contain the missiles or code room data that was the purpose of the mission. Somewhere, I remember reading that the conspiracy theorists believe that the entire sub was raised with the entirety of its secrets including weapons, code books, electronics, etc. I guess we will never know. The Glomar Explorer was scrapped in 2015.

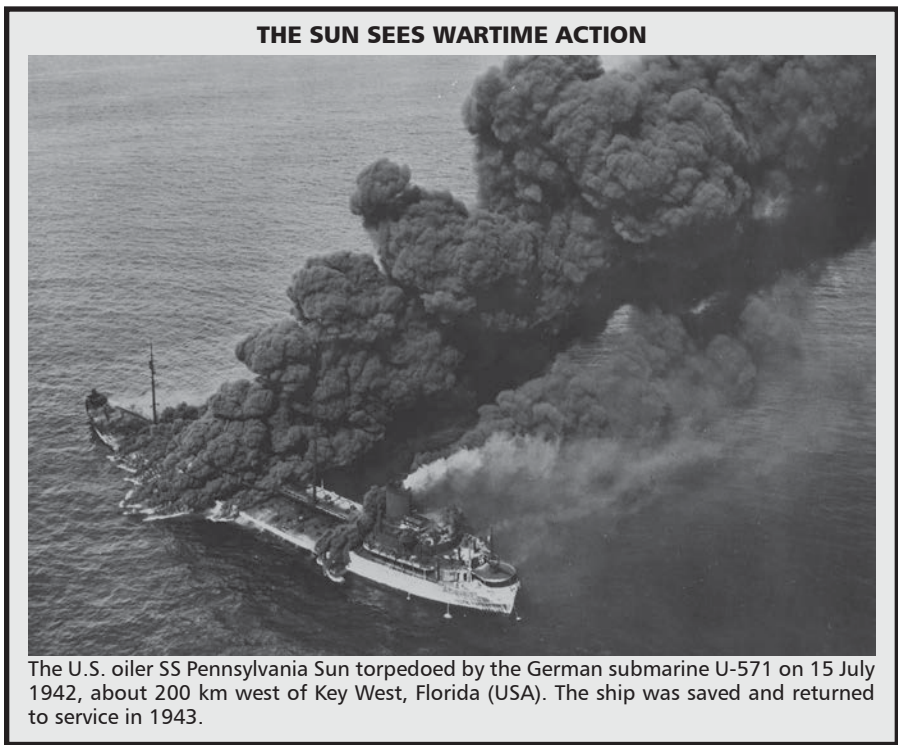
When I was working for Penn Ship which was the reincarnation of Sun Shipbuilding and Dry Dock Company, I heard a story that the Penn 800 was caught in a storm at sea and the boom broke away and was threatening to sink the barge. To save the vessel the crew had to cut the boom cables which were still tethered to the barge and connected to the heavy boom that was being towed along underwater. Appar-



USNS Glomar Explorer. *Photo courtesy of U.S. Government archives*

ently, with each swell of the waves, the cables were oscillating up and down and could potentially cut thru the deck steel. When the damaged barge returned to the shipyard the task of finding a new boom got underway. In short order, a 1000 ton replacement was found, and the barge was evaluated and recertified to handle the greater lifting capacity. As a result, the derrick crane was reborn and named the Penn 1000. Its new boom was 231 feet from the pin to the main block sheaves and 256 feet to the 50-ton auxiliary hook. It can now lift 1000 tons at a distance of 63 feet from the edge of barge and 600 tons at 100 feet from the barge.

Unfortunately, Penn Ship closed its doors and the once glorious shipyard took its last breath due to insolvency. The legacy site, which saw the first all welded ship, built the Guppy (the deepest diving vessel at the time), modified the USS Manhattan (the first commercial vessel to navigate the North West Passage), as well as numerous other accomplishments, was headed for the wrecking ball. Today, the large parcel of acreage houses a casino, a racehorse track, a marine terminal, a prison and a few small businesses. The great crane, an integral part of the legacy, was sold to Donjon Marine company in



THE SUN SEES WARTIME ACTION
The U.S. oiler SS Pennsylvania Sun torpedoed by the German submarine U-571 on 15 July 1942, about 200 km west of Key West, Florida (USA). The ship was saved and returned to service in 1943.

1993. It has been renamed the Chesapeake 1000, then nicknamed “Chessy”. The barge continues to live a useful life performing heavy and difficult lifting tasks. The ENR article³ describes a few of her feats, such as lifting 20 large oversized prefabricated assemblies for

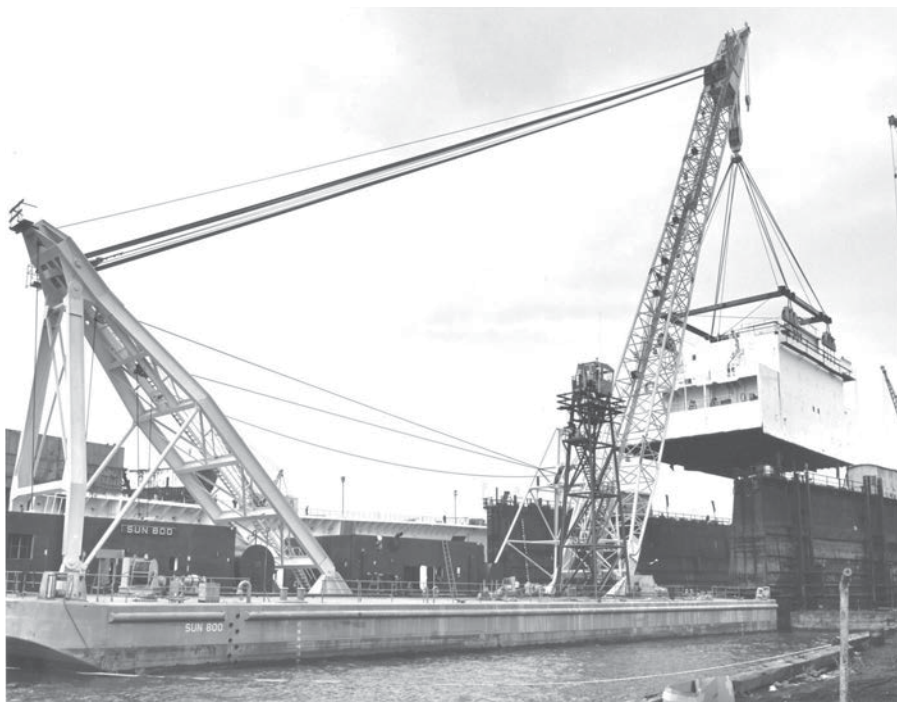
a power plant. Each unit was 93 feet long and 300 tons. Another project of interest was the lifting of 19 separate two story modules from a vessel in the East River and placing each on top of the FDR highway. These assemblies ranged from 500 to 788 tons. The crane continues to add to its history as she supports numerous salvage recovery projects and is a key component of the Donjon Marine Company.

I really enjoyed the trip down memory lane as I wrote this article. However, I must admit that some of the details were a little fuzzy as this was from 44 years ago. I thank the below references which I used to augment my memory regarding details, historical facts and the more technical dimensions, weights, etc.

Looking back at this experience, it’s almost a miracle I survived that encounter, but I’ve learned a valuable lesson, and now I think twice before pushing my way to the front for a better view! **WRN**

Sources:

1. Engineer News Record (ENR) March 21, 2017 article by Nadine M. Post: “Floating Crane on job in NYC East River has a storied past of cold war intrigue.”
2. Wikipedia: Glomar Explorer.
3. Sun Ship Historical Society: www.sunship.org.



The Sun 800 was a great asset which helped shorten the overall construction time of a ship by allowing the Control Bridge and Crew Quarters to be fabricated and partially outfitted in parallel with the hull. Photo courtesy of Sun Ship Historical Society

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Cover photo: The SUN 800 places the last unit for the Sugar Barge, in January 1982, that was being built for Sun Ship Building and Dry Dock Company at Bath Iron Works in Maine.

Photograph courtesy of Rich Janney