

# Sun Shipbuilding and Dry Dock Co. 1916-1982

## A Short History

John Costello, Vice-President and Historian  
David Kavanagh, President and Founder  
of the  
Sun Ship Historical Society

In 1916, due to World War I and the destruction of almost 2,000,000 tons of shipping by March of 1916, Sun Oil Co. found it difficult to transport its crude oil from fields in Texas to its refinery in Marcus Hook, Pennsylvania. Railroads were operating at capacity, pipelines were in a stage of early development and sea going oil tankers were small and unavailable due to a backlog of shipbuilding in both foreign and domestic shipyards brought on by the war.

To solve the problem, the Pew family, owners of Sun Oil Co., decided to build their own tanker ships. The Pews, early practitioners of hands-on-management, wanted a shipyard on the Delaware River, close to their Pennsylvania Marcus Hook refinery and corporate offices in Philadelphia. They selected a 50 acre site in Chester, Pennsylvania along the Delaware River and construction began in 1916. Work progressed quickly on a well-designed and compact shipyard of five shipways with boiler shops, machine shops, wet basins, cranes, locomotives, mold lofts, electrical power, and the management offices. With the difficulty of obtaining large machinery and engines, due to World War I, the Pews purchased a Chester engine building firm, the Robert Wetherill and Company. Located a few blocks west of the new Sun yard, the Pews equipped the Wetherill plant with machines and tools designed for ship engineering work.

During World War I, Sun Ship contributed to the needs of both commerce and the war effort by undertaking many shipbuilding and repair contracts. This resulted in Sun Ship having 16,000 employees, speaking 25 'tongues' during the peak of its World War I production.

On a grey fall morning, Sun Ship's first vessel was launched on Oct. 30, 1917, a 10,500 deadweight ton, single screw tanker. A few weeks later this ship, the '*Chester Sun*', was delivered to Sun Oil Company for work on the Galveston, Texas to Marcus Hook, Pennsylvania run. During this war, Sun Ship's tanker design became the standard for the United States Shipping Board at no compensation to Sun Ship.

Through the 1920s, Sun Ship, as it became known, was the only shipyard in the country, which had expanded sixty-percent in plant equipment, since the close of World War I. The expansion at a cost of approximately \$1,500,000, included two 10,000 ton dry docks, three larger shipways, for a new total of 8 shipways, and additional shops. During this decade, 95 vessels were built at Sun. While specializing in tankers, Sun Ship also built barges, Navy minesweepers, cargo ships, ferries and dredges. Just as the Great Depression was spreading throughout the world, Sun Ship revolutionized international shipbuilding with the construction of the first-all-welded ocean going vessel, the *'White Flash'*. Up to this time, the steel plates were held together with rivets. Riveting a ship, added weight and was very labor intensive. Additionally, plates riveted together were more likely to allow seawater in than a solid closed welded seam. In just a little over a decade, almost all ships would be welded.

The Depression was hard on Sun Ship. Sun Ship management decided that rather than lay off large numbers of shipbuilders, they would offer employees a two-day work week. For Craftsmen's wages, this gave an employee an income on which they could support their family. Those depression era ship workers would never forget the generosity of the Pews in providing them an income when there was no work elsewhere. In the hard years of World War II they became the core of experienced shipbuilders and repaid Sun Ship and the Pew family with intense loyalty.

With the advent of World War II, ship orders poured in and to meet the demand of Maritime Commission ship orders, the Yard expanded from 8 to 28 shipways. Sun Ship became the largest single shipyard in the world during this period, extending over 1.5 miles of riverfront, with four contiguous yards; the South Yard (4 shipways), Central Yard (8 shipways), North Yard (8 shipways) and 4 Yard (8 shipways). Already the nation's specialist in oil tanker construction, Sun Ship's naval architects and engineers designed a variation on its traditional oil tanker, that became the model for the United States Maritime Commission. Called the 'T-2', American shipyards would build over 500 of these ships. 197 tankers were built at Sun Ship. The 'T-2' was 503' long, 16,300 deadweight tons and would carry 141,000 barrels of oil at 14.5 knots. At least seven 'T-2' tankers were still in use as late as 2003. Besides the 'T-2' tankers, Sun Ship built freighters, fleet tankers, barges, car floats, refrigerator ships, railroad car transport vessels and troop transports.

From a 1938 workforce of about 3,000, Sun Ship would hit an employment high on Aug. 14, 1943 of 35,633 workers. Of this number about 2,800 ship workers were women and about 12,000 were African Americans. About three quarters of the African Americans worked in Sun Ship's, 4 Yard. 4 Yard was mostly a segregated facility, reflective of American society of the early 1940's and 4 yard made significant contributions to the war effort and to the economic advancement of the employees. The launching of the S.S. '*Marine Eagle*', the first ship built in 4 yard, was also the first ocean going vessel in the history of the world to be built entirely by African Americans.

Sun Ship workers contributed many long days to building the ships that would help to win the war. Forty-three Sun Ship employees would die in work place accidents. 18,000 Sun Ship employees would serve in the armed services. Over 380 of these employees would die in combat.

With the end of the war, the world market for ships was glutted with vessels built prior to 1945. In the immediate postwar years, Sun's primary business was ship repair. In the 1950's, the new ship market began rebounding and Sun Ship, once again, modified the plant to build even larger ships to accommodate the new 'Supertankers' of the day. The first ship built on the enlarged No.6 Shipway was Hull 610 to be named the 'Pennsylvania Sun' 745' long, 30,000 gross tons and able to carry 417,000 barrels of oil.

Starting in the 1960's Sun Ship designed and built ships with new, more efficient capabilities and increased technology. They built container ships, 'RO/RO' ships (roll on-roll off), double-hulled tankers for environmental protection and the '*Glomar Explorer*', a ship that was built for the CIA through a Howard Hughes corporation, to retrieve the hull of a sunken Society submarine in the Pacific Ocean. Sun Ship also built the G.T.S 'William M. Callaghan' (gas turbine ship) the first cargo ship with jet engine propulsion. Sun Ship performed numerous ship conversions that included the S. S. 'Manhattan', a ship that was converted from a 940'6" long tanker into a 1,005'6" ice-breaking tanker. The '*Manhattan*' became the first commercial vessel to transit the Northwest Passage from the Atlantic Ocean to Prudhoe, Alaska. During this time, Sun Ship expanded its non-traditional businesses for shipbuilders including; the ship leasing/transportation business and entering into the Hydro and Aero Space industry.

Sun Ship had been manufacturing for the industrial marketplace since it's acquisition of the Wetherill Plant on 6<sup>th</sup> Street in Chester in 1916 and building of the Yard's Boiler Shop in 1917. These products included; equipment for oil refining, Houdry Catalytic Process during WWII, large assemblies for interstate overpasses, shore-side support anchors for the Verrazano Narrows Bridge in New York and a wind tunnel for Boeing in their Ridley Township, Pennsylvania facility.

Sun Ship entered the Aero/Hydro Space Industry, in 1963 by forming Sun Ship's own 'Aero/Hydro Space Division'. This division was responsible for a myriad of products, of which only a small representation is listed here, including: U.S. Navy's DSRV's (Deep Submergence Rescue Vessel), Deep Quest submersible, Aerojet General 260" solid-fuel rocket casing, GE Nuclear Core Assemblies, 175-ton Neutron Shield for Virginia Electric & Power's North Anna power station, high pressure test chambers for the U.S. Navy, Saturn 5 rocket hold-down clamps, housing silos for Titan ICBM's and 90-ton nuclear waste containers.

In 1974-1975, Sun Ship built an entirely new shipbuilding facility, just north of the existing Central Yard at a cost of \$45,000,000. This facility was based on building ships on a flat building slab instead of the traditional inclined sliding shipways. This permitted the yard to build either two smaller ships simultaneously or a larger ship in two sections. These ships or ship sections would be transitioned from the slab onto the Yard's new #4 Dry Dock (designed for 70,000 ton lifting capacity) via hydraulic rams and rollers. This new concept achieved shipbuilding economies there by lowering vessel construction costs, expanded new ship construction capacity by almost a factor of two and expanded ship repair capabilities to large modern vessels. This new facility gave Sun Ship the ability to compete in the shipbuilding arena with the largest yards in the world and Sun Ship built vessels on the facility over 900 feet long and 130,000 deadweight tons.

During the late 1970's a number of factors came together that contributed to the eventual demise of Sun Ship. Among those were; increased foreign competition, the cancelling of contracts for two liquefied natural gas vessels, business reversals in the ship leasing business, increased fuel costs and a worldwide economic recession which depressed shipping and shipbuilding everywhere. In February of 1982 Sun Ship was acquired by a Texas businessman and shipyard owner, Ed Paden from Sun Ship's parent company Sun Oil Co., and the Yard was renamed 'Pennsylvania Shipbuilding'.

Sun Ship's performance over its 66 year history included employing approximately 100,000 men and women, building over 600 vessels and repairing thousands. It was a pioneer in shipbuilding techniques that changed an industry and positively impacted tens of thousands of families in the Delaware Valley, the United States and the world.

For more information on Sun Ship visit; [www.sunship.org](http://www.sunship.org)

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