In the introduction to his excellent history of American warship construction during the interwar period and World War II, Professor Thomas Heinrich notes that American shipbuilders produced eight million tons of naval combatants. This was more than the warship tonnage built by Great Britain, Germany and Japan combined. The U.S. Navy tripled in size, and the time it took to construct an aircraft carrier fell by 50 percent to less than sixteen months. At Bath Iron Works in Maine, building a Fletcher-class destroyer fell from almost 500 days in 1941, to fewer than 200 days by May 1943. Starting in 1940, the United States completed more battleships (ten) than the total constructed by Great Britain, Germany, and Japan (nine). By the end of World War II in September 1945, the United States Navy was the largest and best in the world. How did American warship builders achieve such a fantastic feat? Warship Builders answers this question in great detail.

Many warship histories may provide information regarding a combatant’s legislative authorization, appropriation, construction history (i.e., keel laying, christening, commissioning, etc.), and characteristics before moving on to the vessel’s operational career and eventual fate. In Warship Builders, Heinrich describes the extremely detailed process by which the United States Navy became the most dominant fleet in the world. This book is similar to Professor Maury Klein’s A Call to Arms: Mobilizing America for World War II, published in 2013. Unlike Klein’s tome, which is much longer and larger in scope, Heinrich’s book focuses on American warship builders, and is 346 pages, with just 233 pages devoted to the narrative. Yet the author manages to jam these pages with a wealth of valuable information.

Heinrich himself describes his book as a revisionist history of the American shipbuilding industry. He observed that conventional narratives overemphasize the role of Johnny-come-lately private shipyards such as those built by Henry Kaiser or in airplane construction Henry Ford’s B-24 bomber plant at Willow Run, Michigan. They simply were not representative of the shipyards that built most of the World War II combatants. Instead, Heinrich makes the strong case that it was primarily thirty-six established private and government-owned navy yards which produced most of the warships that fought in World War II. Warship Builders examines the distinct features of American warship construction before and during World War II.

In the first chapter, the author describes how American shipyards were able to survive the very lean years of the 1920s and 1930s. After the last two Colorado-class battleships were commissioned in 1923, no new American battleship was started until the North Carolina in 1937. This was due to the terms of the Washington and subsequent London Naval Treaties. Construction of the Northampton- and subsequent cruiser classes, along with the building of aircraft carriers, helped the shipyards get through this construction drought.

Heinrich rightly makes much of the Fore River, Newport News, and New York shipyards colluding to win and parcel contracts at exorbitant prices in 1927. These practices were unearthed and highlighted during the 1935 “Merchants of Death” committee hearings led by
Senator Gerald Nye (R-ND). In 1933, these rigged bidding practices allowed Newport News to obtain the contracts for the aircraft carriers *Yorktown* and *Enterprise* and led that shipyard to specialize in carrier construction. Other shipyards built cruisers, destroyers, and eventually battleships. Heinrich wrote “these secret deals exuded the unmistakable stench of illegal cartelization, but also produced undeniable benefits (p. 26).” One benefit was that these shipyards and their highly specialized labor forces did not go out of business and survived to build much of the World War II fleet.

As noted here, the treaty-imposed displacement limitations resulted in many advances in shipbuilding. The major emphasis was on saving weight. Heinrich provides a good deal of information about the benefits of electric arc welding versus riveting. The author quotes from the publication *Marine Engineering* to demonstrate that a welded ship contained about 15 percent less steel than a riveted vessel, involved 40 percent less labor, and could be produced in 25 percent less time. It required 2 percent less power to propel, was less costly to maintain, and had 5 percent greater capacity (p. 62).

American shipyards either pioneered in or excelled at batch design, prefabrication of warships, propulsion technology, such as geared turbines, and high-pressure, high-temperature boilers. Utilizing such technology, a *Somers*-class destroyer could achieve a 21 percent increase in cruising radius and a 10 percent weight saving (p. 81). There are gems of information such as this throughout the book.

Under President Franklin Roosevelt’s New Deal program, warship building was utilized as public works to maintain or spur employment. The government provided funds under the NIRA to build the carriers *Yorktown* and *Enterprise*. Under the PWA, $238 million was poured into additional naval shipbuilding, and $30 million was devoted to shipyard infrastructure improvements. The latter would pay handsome dividends during World War II, when the Two-Ocean Navy was constructed. These funds and those provided by the WPA and CWA helped keep the shipyards open during the Great Depression and kept their highly skilled labor force employed and available for the upcoming World War II construction.

Heinrich gives much of the credit for determining what ship types would be built and ensuring the timely delivery of the Two-Ocean Navy to CNO Admiral Ernest J. King. He largely prioritized building carriers, cruisers, and submarines, even if that meant cancelling two *Iowa*- and all five *Montana*-class battleships. Shortages of steel and armor were largely to blame. Vice-Admiral Samuel Robinson is also highlighted in *Warship Builders*. Readers can be forgiven for not being familiar with him. Robinson did not merit an entry in Thomas Buell’s *Master of Sea Power* and he only gets a passing reference on a single page in Samuel Eliot Morison’s fifteen-volume *History of United States Naval Operations in World War II*. Robinson was the chief of the Bureau of Ships; promoted to vice-admiral, he became the director of the Office of Procurement and Material. Robinson coordinated the efforts of the five Navy bureaus. He developed the just-in-time delivery system and worked with James Byrnes, the head of the Office of War Mobilization. Robinson deserves much of the credit for the timely delivery of warships to the U.S. Navy during World War II.
There are short references to the contributions made by women and African Americans toward American warship construction as well as to the discrimination they faced. One learns that the Brooklyn Navy Yard was the largest employer of African Americans with approximately 6,200 African Americans among an overall workforce of 50,000 (13 percent). One would have liked to have learned more about these two groups and the contributions of the Windy the Welders and Rosie the Riveters. Alas, one gets the impression Heinrich worked under maximum page limitations.

Since 1998, Thomas Heinrich has been a professor of U.S. business and naval history at Baruch College, City University of New York. He previously authored Ships for the Seven Seas: Philadelphia Shipbuilding in the Age of Industrial Capitalism. Heinrich is the author or co-author of two additional books and several scholarly journal articles. There are sixty-five pages of endnotes and a thirty-five-page bibliography in Warship Builders. Together, they account for almost 30 percent of this book. This impressive scholarship is synthesized and presented in a clear and overall easy to understand format.

Warship Builders was written for those wishing to learn more about warship construction from 1922 to 1945, students of business technology, labor, and industrial mobilization. Heinrich has done a marvelous job of taking a sometimes complex subject and making it clear and relatively easy for the average reader to understand. Both laymen and scholars will learn a great deal from a careful reading of this volume.

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