

Civil War Ironclads: The U.S. Navy and Industrial Mobilization. *By William H. Roberts.* Baltimore: Johns Hopkins University Press, 2002. xi +285 pp. Tables, illustrations, figures, bibliography, notes, index. Cloth, \$46.95. ISBN 0-801-86830-0.

Reviewed by Heather Cox Richardson

William H. Roberts's model monograph, *Civil War Ironclads*, is part of the recent movement to recover the history of the American navy, and it contributes to that important subject in several ways. Examining the Union effort to develop a fleet of ironclad ships, *Civil War Ironclads* uncovers the events and personalities that drove the project's engineering, building, and politics. While this story itself is of interest to Civil War scholars who want to understand the comprehensive vision of the war strategists, Roberts does not simply recount a little-known aspect of the war effort. He uses the experiences of the ironclad program to explore the ways in which the wartime government responded to new technologies, an exploration that will be of interest to scholars both of the American state and of technology. Finally, he argues that the lessons he draws from the Civil War ironclad program are not unique to their time, but are applicable to present-day technological advances and government responses to them.

With engaging prose and an eye for a good story, Roberts relates the frantic Union effort to launch a fleet of experimental ironclad ships. The ambitious program to produce more than fifty new ironclad monitors required engineering innovation, industrial mobilization, and new governmental infrastructure. The three key players in the program were John Ericsson, who developed the ironclad monitor design, Assistant Secretary of the Navy Gustavus Vasa Fox, who championed the ironclad monitors, and Chief Engineer Alban Crocker Stimers, a naval engineer who became the de facto head of the ironclad project. Together, these men tried to negotiate the design and development of the technologically novel ironclad monitors, to award contracts fairly, and to oversee the construction of ships both at established eastern shipyards and at new shipyards on the Ohio River, to keep costs low despite a shortage of labor and constant alterations to plans, and to produce effective battle-ready ships on time. Ultimately, they failed. All the monitors were over budget and years late; some of them did not even float.

The ignominious demise of the ironclad monitor program not only ended Stimers's career but also destroyed a major innovation of the program's overseers: the project-office form of management. By making Stimers a general superintendent of ironclads, who oversaw all aspects of the program, the Navy enabled him to focus solely on the ironclads and to respond directly to the ideas of Navy leaders. Stimers's personality, though, turned the advantages of focus and access into liabilities. Resenting interference and cosseting Fox, Stimers stifled alternative ideas and technological oversight. For his part, Fox reinforced Stimers's mistakes by backing the ironclad monitor program wholeheartedly and publicly. When the outcome of the program discredited Stimers, it also discredited the management system that had made him so powerful.

Roberts uses the history of the ironclad program to examine the argument of Thomas P. Hughes, a scholar of technology, that "large projects help to redirect technological momentum." Roberts notes that Hughes's theories are based largely on successful technological projects that "redirect technological momentum in ways consistent with their own characteristics as others try to emulate their successes" (p. 208). Roberts's study of the Civil War ironclads, an unsuccessful program based in new technologies, refines Hughes's observation that "once the disruptive force—in this case war—is removed, the prewar context again prevails" (p. 207). If this were the case, Roberts points out, with the end of the war the prewar peacetime "cautious experiment and progress" should have recommenced. This is not what happened. "Instead of continuing to make slow progress, or even to stand still . . . postwar Navy shipbuilding technology regressed." Roberts concludes that successful and unsuccessful programs redirect technological momentum in opposite directions. In the case of the Civil War ironclads, the "natural backlash" against an unsuccessful program, combined with "the stigma of failure," which was magnified by the size of the program and the degree of its failure, meant that "neither the wartime style of technology nor the prewar climate of cautious progress could prevail once the Confederacy's collapse removed the disruptive force of the war. The expensive and public failure of a project as large as the monitor program redirected the U.S. Navy's technological momentum for a generation" (pp. 209–10).

Before earning his Ph.D. in history, Roberts served in the Navy as a surface warfare commander, and it is hardly surprising that he sees contemporary significance in the conclusions he draws about the effect of failure on technological momentum. He repeatedly compares the successful Polaris Fleet Ballistic Missile program of the 1950s and 1960s to the unsuccessful ironclad program of a century before, and suggests that what determined the difference between the two was “bureaucratic and ‘people skills.’” Both programs had “technological and ‘systems integration’ problems, . . . considerable support in the civilian Navy secretariat, . . . very high priorities and . . . large claims upon the Navy’s and the nation’s resources.” But Admiral William F. Raborn of the Polaris program knew how to use his influence sparingly, to coopt opposition, and to insist upon managerial competence, while Stimers ran to his superiors constantly, courted conflict, and undermined efforts to ensure quality (pp. 209–10). Raborn’s example has not been maintained, though, Roberts suggests. His introduction quotes from a 1973 comptroller general’s report to Congress that “precisely depict[s] the Navy’s experience in its Civil War industrial mobilization.” “Mobilization to support the acquisition of high-technology items in quantity has remained a challenging problem,” Roberts concludes (p. 8).

The flaws in this book are few. Roberts occasionally loses sight of the general reader and assumes too much knowledge of naval procedures and battles, and the book’s typeface makes it terribly hard to distinguish between 1863 and 1865. These are picayune criticisms, indeed, for a study of this complexity, and their pettiness reveals just how strong a book Roberts has written.

Heather Cox Richardson writes about the Civil War and Reconstruction. She is the author of The Greatest Nation of the Earth: Republican Economic Policies during the Civil War, and is currently at work on Self-Made Nation: The Reconstruction of America after the Civil War, 1865–1901.