Engineering the Union Army’s Way to Victory

For nearly the past twenty years historians have started to develop a keen interest and delve deeper into the role science and technology played in shaping the outcome of the American Civil War in the Union’s favor. One of the more popular studies in Civil War technology is Trial by Fire: Science, Technology, and the Civil War (1999) by physicist Charles D. Ross, which examines the role of technology used by both the Union and Confederate armies during the war on land, in the air, and on the sea. Historian Shane Mountjoy’s Technology and the Civil War (2009), covering similar ground, surveys technology use during the war, although it does spend time analyzing the advancements in medical technologies and railroad developments. More recently historian Barton C. Hacker edited a collection of essays, Astride Two Worlds: Technology and the American Civil War (2016), that examines numerous ways technology shaped the course of the war through artillery use, rifle developments, armor, and early ventures into aerial combat. Adding to this growing field is historian Thomas F. Army Jr., an adjunct assistant professor of history at Quinebaug Valley Community College, who has examined the use of engineers by the Union Army.

In Engineering Victory: How Technology Won the Civil War, Army argues that the Union prevailed not because of its industrial strengths or superior military advantages, but because Union soldiers implemented creative engineering and scientific solutions to manage the war that its Confederate counterparts could not. Union engineers ultimately proved to be the deciding factor in why the North won with its ability to apply scientific and engineering skills learned during the antebellum period to hastily construct and repair roads, railroad lines, and bridges, which allowed Union troops to pass quickly through harsh Southern terrain.

Using a wealth of primary and secondary sources, which range from antebellum pedagogy curriculum in teaching engineering skills in the classroom to military generals’ memoirs and engineering records, Army has crafted a book that examines in three parts the value engineers played in bringing victory for the Union Army during the Civil War. Part 1 explores the differences in education curriculum between Northern and Southern school systems in antebellum America. Army contends that the South’s slaveholding culture actually stifled the region’s enthusiasm to think critically about advancements in the sciences and engineering, whereas the North embraced and encouraged critical thinking and developing complex problem solving skills to meet the demands the factory system brought to their region. Parts 2 and 3 of the book are case studies where Army showcases the Union’s engineering efforts during significant campaigns throughout the Civil War with the captures of Forts Henry and Donelson in Tennessee, George McClellan’s Peninsula Campaign in Virginia, the assault on Vicksburg, Mississippi, the Battle of Gettysburg in Penn-
sylvania, the siege of Petersburg, and William T. Sherman’s March to the Sea.

*Engineering Victory* will appeal to historians in the areas of technology, education, and military studies. Obviously, historians of science and technology will benefit the most from this book since it is primarily written for the purposes of highlighting engineering advancements and implementations by the Union Army during the Civil War. Army provides technical details about engineering methods the North used for its mechanical institutions, railroad design, and development of engineer management systems. This particular aspect of his writing might alienate readers who are not well versed in the finer details of engineering. Army has meticulously researched the state of education during the antebellum period in both the North and the South. This thorough critique will benefit those interested in areas of American educational history and educational reform. Military historians will also see value in Army’s book through the case studies he provides on specific Civil War battles and campaigns. While Army does not deny that the Union had material and industrial advantages over the Confederacy, by examining the state of education in the North and the role Union engineers played in winning the war, he has opened a new avenue to explore in why the Civil War ended with a Union victory. Military historians would be wise to follow the trail that Army has started and continue this exploration of avenue of Civil War history.

If there is additional discussion of this review, you may access it through the network, at:

https://networks.h-net.org/h-war


**URL:** http://www.h-net.org/reviews/showrev.php?id=52102

This work is licensed under a Creative Commons Attribution-Noncommercial-No Derivative Works 3.0 United States License.