



2013-101

Paul Kennedy, *Engineers of Victory: The Problem Solvers Who Turned the Tide in the Second World War*. New York: Random House, 2013. Pp. xxvi, 436. ISBN 978-1-4000-6761-9.

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Everyone knows that the modern soldier at the tip of the spear cannot take full credit for victory in war-time. Victory results from the collective efforts of noncombatant multitudes performing their tasks behind the scenes and receiving scant recognition. For that reason, most military historians feel obligated to pay some attention to rear-echelon personnel, but soon turn their attention back to the officers and grunts doing the bloody work in the front lines. This is understandable, because the work of those toilers behind the lines, however essential, is *so boring*. The story of, for instance, a typical regimental clerk—unless he happens to fail to requisition the nail upon which the battle and nation depends or is drafted into a rifle squad to plug a hole in the line—is not exactly an engrossing one.

In *Engineers of Victory*, Paul Kennedy (Yale) tries to do justice to at least a few of the specialists among these unsung individuals. Best known for the internationally celebrated *The Rise and Fall of the Great Powers*,<sup>1</sup> he has produced another well written and informative book, in this case, best suited to a general audience interested in selected technical and operational aspects of the Second World War. More technically minded readers will find little new information and, occasionally, small inaccuracies in Kennedy's narrative.

The book comprises five chapters, each devoted to a significant military-operational hurdle the Allies overcame to triumph over their German and Japanese enemies. The blueprint for victory was drawn up in January 1943 following the successful Allied invasion of North Africa. Meeting at Casablanca in Morocco, Franklin Roosevelt, Winston Churchill, and the Combined Chiefs of Staff debated and approved the political and military guidelines for the Anglo-American grand strategy, and stipulated, within those constraints, the operational tasks to be undertaken in the subsequent months.

Merely drawing a blueprint, however, does not ensure a project's success: "No straight causal line connects the confident Casablanca statement of Allied war strategies and their realization. For the plain truth was that at the beginning of 1943 the Grand Alliance was in no position to carry out these declared aims" (xix). The Allies' specific tasks are indicated in Kennedy's chapter titles—"How to Get Convoys Safely across the Atlantic," "How to Win Command of the Air," "How to Stop a Blitzkrieg," "How to Seize an Enemy-Held Shore," and "How to Defeat the 'Tyranny of Distance.'"

The chapters have a uniform structure, first laying out the historical context, then reviewing a particular course of events in World War II. In discussing the North Atlantic convoy problem, for example, Kennedy takes a brief look at the history of the protection of maritime trade extending back to ancient times, then surveys the destruction wrought by Grand-Admiral Karl Dönitz's U-boats up to the middle years of the war. Next, he examines the shortcomings of the Allies' naval forces before turning to their critical innovations in the war: high-frequency direction finding (HF-DF), 10 cm radar, long-range patrol aircraft, and shipborne weapons like the Hedgehog mortar. Subsequent chapters follow the same sort of pattern.

The book may seem similar to Martin Van Creveld's *Supplying War*<sup>2</sup>—a lucid, reasonably detailed account of technical matters of warfare rarely addressed outside of highly specialized studies with correspondingly small audiences. But Kennedy's book depends, much more than Van Creveld's, on secondary sources.<sup>3</sup> In short, it is meant for general readers engaged in a first foray into technical aspects of the Second World War.

1. Subtitle: *Economic Change and Military Conflict from 1500 to 2000* (NY: Random House, 1987).

2. Subtitle: *Logistics from Wallenstein to Patton* (NY: Cambridge U Pr, 1977; 2nd ed. 2004).

3. Including the first acknowledged use of *Wikipedia* by an academic historian that I have encountered.

Though specialists as well may enjoy Kennedy's narrative, they will detect signs of a lack of full conversance with all the details of the technical advances he discusses. In the chapter on U-boat warfare in the Atlantic, Kennedy clearly differentiates between defensive and offensive antisubmarine strategy. However, though he mentions the work of physicist Patrick M.S. Blackett, the Admiralty's chief of operational research, he does not pursue the crucial link between that emerging specialty and the antisubmarine campaign. This is unfortunate, since many of the tactics used to kill U-boats stemmed from the work of naval operations analysts.

The work of the US Tenth Fleet's Antisubmarine Warfare Operations Research Group (later, Operations Evaluations Group) is not mentioned either.<sup>4</sup> Indeed, the terms "antisubmarine" and "operations research" do not even appear in the index.<sup>5</sup> Kennedy also seems unaware of the true advantage of the Hedgehog antisubmarine mortar over the old-style depth charge: the forward-thrown Hedgehog allowed the attacking ship to maintain sonar contact—and an accurate targeting solution—until the moment of firing, something not possible with depth charges rolled off the stern.

In a review of *Engineers of Victory*, Michael Beschloss writes that "like an engineer who pries open a pocket watch to reveal its inner mechanics, Kennedy tells how little known men and women at lower levels helped win the war."<sup>6</sup> But one does not in fact get a detailed view of the inner workings of the various "watches" examined by Kennedy, who has instead gathered together short, non-technical histories of technical subjects from more thorough treatments by other historians. The resulting book will certainly inform an audience unfamiliar with certain aspects of operations in World War II, but it will disappoint better informed readers desiring a deeper understanding of the subject.

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4. Keith R. Tidman's important book on the subject, *The Operations Evaluation Group: A History of Naval Operations Analysis* (Annapolis: Naval Inst Pr, 1984) is not listed in the bibliography.

5. For a more complete review of the part played by operations research, see Stephen Budiansky, *Blackett's War: The Men Who Defeated the Nazi U-Boats and Brought Science to the Art of Warfare* (NY: Knopf, 2013), with review at *MiWSR* 2013-094.

6. *NY Times Sunday Book Review* (8 Feb 2013).