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An Ocean in Common: American Naval Officers, Scientists, and the Ocean Environment

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The final three-chapter section deals with the aftermath. The cause of the fire must be investigated, answers found, survivors treated, the dead buried, and the ship re-find its soul. Freeman describes well the aftermath of the tragedy and the difficulty finding the truth when some of the men had become primarily concerned with themselves.

In the end the official causes were determined. Independently, two shipboard groups had each bypassed one of two in-place safety features, confident that the other would suffice. Additionally, obsolete and less fire-resistant bombs had been transferred to *Forrestal* and loaded on the attack aircraft that morning—a point not fully explored previously. While no specific personal blame was assigned, without the negative synergy created by the convergence of these three decisions this would most likely have been just another unremarkable and short-lived flight-deck fire.

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Weir, Gary E. *An Ocean in Common: American Naval Officers, Scientists, and the Ocean Environment*. College Station: Texas A&M Univ. Press, 2001. 403pp. \$44.95

Gary Weir has scored another hit. Using the approach he fashioned in *Forged in War: The Naval-Industrial Complex and American Submarine Construction, 1940–1961*, the head of the Contemporary Branch of the Naval Historical Center has turned his keen analytical mind and sharp sense of political realism to the linked topics of the U.S. Navy and the practical science of oceanography.

The book is divided into three chronological segments: from World War I to 1940, the Second World War, and the Cold War up to the administration of President John F. Kennedy. In each of these eras the submarine exerted a transforming impact on naval strategy and operations. The revolution began in 1914, when the U-boat explosively demonstrated the magnitude of its threat to the security of transatlantic shipping and to the political survival of Great Britain. The German undersea offensive and the resultant Anglo-American antisubmarine warfare (ASW) forcibly introduced an unwelcome third dimension into combat at sea, the comprehension of which exceeded the professional and technological competence of even the best-educated American naval officers. The massive, opaque, and largely uncharted subsurface domain could be mastered as a theater for warfare only if the Navy enlisted the expertise of oceanographers, who themselves represented little more than a loosely organized multidisciplinary specialty operating on the fringe of institutional academic respectability. If the Navy needed their expertise in order to fight underwater, the oceanographers needed the Navy's funding in order to prosper in academe.

Weir begins his analysis of the submarine as the *deus ex machina* of twentieth century, oceanographically determined maritime warfare with a New York meeting on antisubmarine warfare chaired by the inventor Thomas Alva Edison in March 1917. The specialists at the gathering, Weir writes, "concluded that underwater sound and echo ranging offered the most promising avenue of exploration for ASW scientists in the war effort. Physics and physical oceanography thus immediately became vital to

the national war effort.” As a result, the characteristics of sound transmission beneath the surface of the oceans, especially the effects exerted by thermal layers, became the focus of scientific research sponsored by the Navy. By 1918 the resulting underwater sound-sensing and transmission systems had “helped keep the U-boats at bay.”

World War I ended less than two years after the United States entered, and for a few years thereafter it seemed as if the wartime spirit of cooperation in the naval-scientific inquiry into oceanography’s utility to naval warfare would continue. However, the Republican era was a time of American isolationism and naval retrenchment, and by 1924 the budgetary axe had decapitated the fledgling naval-scientific hybrid. A revival of the joint effort by scientists and the Navy did not come until 1940, but not until the attack on Pearl Harbor did the fiscal floodgates of defense spending on such topics truly swing open.

In the Second World War the final form of American naval oceanography began to emerge. Just as the submarine is the weapons system around which Weir weaves his story, his concept of a cultural clash between naval officers and scientists constitutes his institutional or political theme. Still, as Weir points out, “Effective submariners and ASW officers soon realized that applied oceanography improved a ship’s chance of survival and increased the likelihood that crewmembers would again see their families after a difficult North Atlantic convoy or a submarine patrol near the Japanese home islands.” Besides patriotic motivation, the scientists hoped that memory of “the profitable wartime application of oceanography and the lives spared in combat would induce the Navy to

become the generous patron” of postwar oceanography.

That was how it turned out, but only because the unanticipated Soviet submarine threat provided an irresistible impetus for many shrewd oceanographers and some astute naval officers who served as the “translators” between their respective cultures. The two groups cooperated for mutual and national benefit in the Cold War, but the cultures of the warrior and the scientist remained as separate as oil in water. Their testimonials were parallel, not unified—the invincibility of U.S. fast-attack and fleet ballistic missile submarines for the Navy, and the intellectual fecundity of the Woods Hole Oceanographic Institution and the Scripps Institution of Oceanography for science.

This book is not light reading, but it is invaluable to every serious student of naval strategy, weapons systems, and the marine environment that shapes and limits modern warfare at sea.

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Krug, Hans-Joachim, et al. *Reluctant Allies: German-Japanese Naval Relations in World War II*. Annapolis, Md.: Naval Institute Press, 2001. 456pp. \$38.95

With the exception of Carl Boyd, John Chapman, Gerhard Krebbs, and Bernd Martin, historians have largely ignored German-Japanese relations in general and naval relations in particular. (A further exception would be Werner Rahn; see his “Japan and Germany, 1941–1943: No Common Objective, No Common Plans, No Basis of Trust,” in