
MILITARY STRATEGY MAGAZINE

Linking Ends and Means

War on the Waves:
Lessons on Naval Military
History and Strategy

Marcus Jones

**Strategic Adaptation Under Fire:
U.S. Carrier Aviation and the
Institutional Learning Curve,
1929–1944**

Heather M. Haley

**Adaptation in Ambiguity: The Battle
of Cape Esperance, 11–12 October
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Military Strategy Magazine

Special Edition, “War on the Waves: Lessons on Naval Military History and Strategy”

August 2026

Editorial

The only mention of Clausewitz in this entire work appears in this editorial. It would be easy to assert that Clausewitz never set foot on a warship in his life. More certain is that he wrote not a single word on Maritime Strategy. That is not important, but it is symptomatic of maritime or naval strategy failing to attain the importance it should amongst continental powers, in sharp contrast to the work done by maritime powers. Yet that distinction falls to very few countries, which have no interest in naval power.

The sea is that which connects the world. Ownership, freedom, or control are all critical to its understanding, as recent, ongoing events in and around the Strait of Hormuz should amply demonstrate. It is a unique domain requiring unique knowledge, and that alone should make us all cautious of multi-domain discussion. Perhaps Maritime Multi-Domain integration needs to be a subset of such a concept?

That alone should be a cautionary point in failing to recognise the history of naval strategy. While absent from this work, the fact that the Royal Navy was probably the arm that won the Crimean War of 1853-56 is far from well recognised in the context of the Sea of Azov Campaign. The vast majority of steel consumed by the US war industry in World War II went on shipbuilding in terms of pure tonnage. If you start doing the maths on Japanese production in comparison, the utter stupidity of their enterprise becomes apparent.

These are not and never have been hidden figures. The centrality of naval power to all human security affairs should be well recognised both today and in the rise and fall of world powers. In that respect, I cannot commend this work strongly enough, and it forces me to ask why and how we were so remiss to leave it an untrodden path for so long.

The fact that it was not easy to find writers in this area points to part of the problem. The fact that the Royal Navy is as small as it is and that the security of the Persian Gulf was seemingly ignored by the US Planners of Operation Epic Fury would strongly indicate a wider and systemic problem when it comes to any real understanding of naval power, which may require more understanding than just having aircraft carriers.

If you want to really grind your teeth, then remember that General Berger's Force Design 2030 was informed by the fact that the US Marine Corps were the land component of the fleet and not an alternative to the Army. The Vikings didn't walk from Scandinavia to the shores of Britain. The laptop or phone you are reading this on was almost certainly shipped by sea from somewhere, as was your car, and that blend of coffee you can't start the day without... Maybe.

Read what follows and think. History is the only body of evidence that informs military strategy. Carl told us that strategy was the use of engagements for the objects of the war. Nothing about being at sea makes that less true.

William F. Owen

Editor-in-Chief, *Military Strategy Magazine*

Special Edition, "War on the Waves: Lessons on Naval Military History and Strategy"

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This article identifies four strategic dilemmas in Chinese naval strategy in the decades before its destruction in the First Sino-Japanese War. While external threats illustrated the imperative of constructing maritime defenses in the late-nineteenth century, strategic confusion about geostrategy (continental and maritime frontiers defense), force design, (coastal defense vs blue water fleet), regionalism (whether to concentrate or divide forces), and finally institutional culture (between Chinese "root" and Western "application") frustrated Chinese navy builders. The article then ties these dilemmas to outstanding questions about contemporary naval strategy in the Western Pacific.

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Peacetime investments are necessary but not sufficient for the successful deployment of sea power. In the early years of the French Revolutionary Wars (1792–1801), Britain failed to capitalize on its victory in the naval arms race of the 1780s because policymakers failed to understand how the Revolution had changed France's war aims.

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Strategic Adaptation Under Fire: U.S. Carrier Aviation and the Institutional Learning Curve, 1929–1944

Marcus Jones – U.S. Naval Academy



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Introduction: The Problem of Strategic Effect

Modern naval power is often equated with technological superiority. But history shows that even the most advanced platforms, weapons, or sensors deliver no

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lasting strategic effect unless institutions develop efficient ways to integrate them into doctrine, training, operations, and strategy. Technology creates new possibilities, but strategic advantage emerges only through institutional adaptation. Knowledge of how to translate tools into warfighting practice cannot be obtained only through technical proficiency or in combat; rather, it emerges from institutionalized learning, often anchored in historical reflection and intensive peacetime preparation.[1]

This insight runs counter to both popular perception and certain longstanding assumptions in strategic discourse. Contemporary naval modernization efforts often focus on acquiring the latest, cutting-edge capabilities – stealthier submarines, longer-range precision-strike weapons, autonomous systems – without nearly as much emphasis on the organizational learning required to use them effectively. Across modern naval history it is not just the invention of new tools that separates successful navies from those which have failed to compete as effectively, but the institutional mastery of their application through three iterative stages of strategic and technological adaptation:

1. Technological innovation creates new strategic possibilities.
2. Institutional learning determines whether those possibilities are realized.
3. Wartime competition accelerates this process and tests its effectiveness.

To illustrate this basic cycle, consider a key and well-examined moment of strategic-technological transformation in U.S. naval history: the evolution of carrier aviation during the Second World War, where an initially fragile and doctrinally uncertain capability was transformed through combat experience and iterative organizational learning into the centerpiece of American sea power. The example of U. S. carrier aviation demonstrates how institutions adapt to new technology and strategic success: how they interpret new tools, redesign organizations, and revise operational concepts under pressure.[2] This was as true for the United States as it was for Japan and Britain. As the classic treatment of the case shows, each of the three major interwar navies faced similar technological opportunities in aviation but diverged in their institutional capacity to exploit them. The U.S. and Japanese navies embraced carrier power; the Royal Navy, despite its early lead, faltered in adapting its command structure and doctrine to the technology's potential.[3] Strategic effectiveness – the ability of a navy to generate outcomes that meaningfully advance national objectives in conflict – is a function of institutional learning as much as technological capability. The point is urgent: as the world's current navies navigate an era of intense technological innovation and invest in all manner of new capabilities, these historical lessons remain more relevant

than ever. The platforms, systems, and technologies of the future will not win the nation's wars; for naval professionals, the real question is whether the organizations they oversee can learn fast and flexibly enough to generate the strategic effects that matter.

The historiography of the U.S. Navy's fast carrier task forces in World War II has converged on a set of core insights while diverging in its explanation of their underlying causes. Earlier accounts tended to emphasize the material and technological foundations of American success, highlighting the scale of shipbuilding, the superiority of late-war aircraft, and the concentration of striking power in the fast carrier.[4] Subsequent operational histories shifted attention toward the contingent and hard-fought character of carrier warfare in 1942, underscoring deficiencies in coordination, intelligence, and command that rendered outcomes uncertain and often unfavorable.[5] More recent scholarship, exemplified by the work of Thomas and Trent Hone and Evan Mawdsley's *Supremacy at Sea*, has moved toward an explicitly systemic interpretation, treating Task Force 58 less as a collection of platforms than as an integrated operational construct encompassing doctrine, logistics, personnel, communications, and command relationships.[6] Across these works there is broad agreement that the fast carrier task force of 1944 represented a qualitatively new form of naval warfare, emerging from the stark contrast between the fragile, improvisational carrier operations of 1942 and the highly coordinated, logistically sustained system that enabled sustained offensive action across the Central Pacific.

Where these interpretations diverge, and where the present analysis seeks to intervene, is in accounting for the conditions under which such integration occurred. Even the most sophisticated treatments tend to describe the maturation of carrier warfare in cumulative terms, attributing success to the aggregation of improved technologies, refined tactics, and expanded industrial capacity. Yet this risks obscuring the historical contingency of that synthesis. The transition from the disjointed and often ineffective employment of carrier forces in 1942 to the coherent operational system of 1944 was neither linear nor inevitable, but unfolded in the context of repeated operational failure, informational uncertainty, and institutional friction. By foregrounding these conditions, this article builds on the existing historiography while suggesting that the effectiveness of the fast carrier task force is best understood as the contingent outcome of efforts – uneven, iterative, and shaped by wartime pressure – to integrate disparate capabilities into a functioning operational whole.

The Case: Carrier Aviation and the Strategic Learning Curve in World War II

The rise of the aircraft carrier as the central instrument

of American sea power during the Second World War is often portrayed as a natural evolution.[7] But this was not a story of linear progress or preordained dominance. The transformation of the carrier from a vulnerable adjunct to battleships into the backbone of the fleet was anything but automatic. It occurred through a turbulent process of institutional learning, combat improvisation, doctrinal debate, and operational reinvention. This case exemplifies all three phases of the strategic-technological adaptation model: a promising new capability, an institution struggling to absorb it, and wartime pressure forcing that capability into maturity.

Before Pearl Harbor, the U.S. Navy possessed seven carriers and had conducted extensive exercises with them. Yet the dominant naval paradigm remained centered on the decisive battle between surface fleets, a decades-old Mahanian vision in which battleships held pride of place. Carriers were still seen as support assets: useful for reconnaissance, raiding, or providing air cover, but too vulnerable for main-line combat. Even as aircraft range and lethality increased, official doctrine lagged conservatively behind. This institutional conservatism can easily be faulted for missed opportunities or failures of imagination.[8] But such judgments risk simplifying the deeper structural challenges facing large, risk-averse military bureaucracies. In peacetime, when the costs of miscalculation are high and the evidence of future conflict remains fragmentary, naval leaders must grapple with uncertainty, limited budgets, and competing technical constituencies. Navies are inherently shaped by “path-dependent” technological and conceptual traditions, which condition what is seen as possible, prudent, or premature.[9] The U.S. Navy of the interwar period was not so much blind to aviation’s promise as it was caught between competing visions of sea power and constrained by the structural demands of readiness, procurement, and institutional cohesion.[10] Even the most forward-thinking officers, like Ernest King or Joseph Reeves, had to navigate an organizational ecosystem where change could not be justified purely on theoretical grounds. These were not donkeys, as the pejorative British phrase once put it, but decision-makers wrestling with real risks, trying to adapt responsibly within the limits of their environment.[11]

This dynamic was especially evident in the fleet problems of the interwar years. In Fleet Problem IX (1929), the carrier *Saratoga* conducted a surprise strike on the Panama Canal, achieving complete surprise and demonstrating the theoretical value of independent carrier operations. Similarly, in Fleet Problem XIII (1932), the *Lexington* successfully executed a simulated air attack on Pearl Harbor, nearly a decade before the Japanese would do the same for real.[12] In both cases, the potential of carrier strike operations was clear. Yet official evaluation reports treated these outcomes cautiously, emphasizing operational shortcomings rather than strategic implications. The results were not ignored, but they were interpreted through the prevailing lens of battleship-centric thinking. The

institution had glimpsed a possible future but hesitated to reorganize itself around it, not least by virtue of how great were the remaining unknowns. Thus, Admiral Ernest King’s guidance on carrier operations in 1939 warned against employing carriers for sustained strike operations and emphasized their limitations during launch and recovery.[13] This conceptual hesitation reflected a broader institutional pattern. The Navy had invested in carriers, trained pilots, and experimented with operations, but had not internalized the implications of carrier-centric warfare. The potential was visible, but the structure of command, doctrine, and fleet organization had not yet adapted. One could argue that the first phase of the model – new technology creating strategic possibilities – was fully present. But the second – meaningful institutional integration – remained partial and uneven.

The onset of war in 1941 forced this imbalance into the open. The Japanese attack on Pearl Harbor shattered the U.S. Navy’s Pacific battleship fleet and left the carrier as the Navy’s principal offensive instrument by default. But early wartime operations revealed how incomplete the Navy’s doctrinal preparation was. The raids on the Marshalls and Gilberts in early 1942, followed by the Battle of the Coral Sea and the high-stakes clash at Midway, demonstrated both the power and the fragility of carrier warfare. These battles were won or lost not through perfect doctrine but through a mix of bold decisions, luck, and partial improvisation. At Midway, U.S. forces achieved a decisive victory, but coordination problems among dive-bomber squadrons, limited fighter protection, and inconsistent command arrangements revealed deep flaws in execution.[14]

It was in the Guadalcanal campaign of late 1942 that the Navy encountered its steepest learning curve. Tasked with covering landings and defending a tenuous perimeter, U.S. carriers were forced to operate close to shore under continuous air threat. The resulting engagements – at the Eastern Solomons and Santa Cruz – exposed important doctrinal shortfalls in carrier employment. Ships operated individually or in loosely connected pairs, lacking standardized formations, coordinated air plans, or consistent defensive doctrine. Communications were improvised, fighter direction was unreliable, and launch schedules conflicted. Losses were heavy. The carriers *Wasp* and *Hornet* were sunk, *Enterprise* was heavily damaged, and American air groups suffered from fatigue and uneven training.

These limitations were not ignored, and the flaws exposed at Santa Cruz triggered what gradually became a concerted institutional response. Admiral King’s staff issued a pair of classified “Battle Experience” bulletins in March 1943, analyzing the failures of August, September, and October 1942 and highlighting coordination breakdowns, particularly in fighter direction and escort screening. Rear Admiral Osborne Hardison, *Enterprise*’s captain at Santa Cruz, insisted that “what is urgently needed is a sound

doctrine,” acknowledging that even well-trained teams were overwhelmed by multi-vector attacks when guidance was lacking.[15] A core cadre of operational commanders – Admirals Fletcher, Halsey, Sherman, and Spruance – began pushing for doctrinal reforms rooted in wartime experience. Rear Admiral Frederick Sherman drafted a set of carrier handling principles that proposed grouping carriers into tight multi-ship formations, coordinating launch and recovery cycles, and standardizing fighter direction. Vice Admiral Fletcher emphasized the need for concentrated air power, arguing against the wide dispersal of carriers that had characterized earlier operations. Admiral Nimitz endorsed this shift, soliciting feedback from across the Pacific Fleet and encouraging experimentation in the field. These were key steps in a broader institutional realignment, evidence that doctrinal reform was already underway before 1943.[16] Even as the losses mounted, key decision-makers recognized that carrier effectiveness would depend ultimately on the ability to integrate command arrangements, fighter direction, and tactical doctrine into a coherent whole, and not just on the sheer numbers of ships and aircraft brought to bear.

These ideas coalesced into a new operational system: the carrier task force. Beginning in 1943 and fully realized under Vice Admiral Marc Mitscher’s leadership of Task Force 58 by early 1944, the U.S. Navy implemented a coherent model of multi-carrier offensive operations. This system was more than a larger version of earlier practice; rather, it was a doctrinal, organizational, and technological transformation. [17] Multiple carriers now operated in closely coordinated groups, supported by integrated communications networks, standardized deck cycles, and doctrine that allowed for tactical flexibility under centralized operational command. Fighter direction had matured, aided by new four-channel VHF radios, position-plan-indicator radar displays, and dedicated Combat Information Centers (CICs) that could sustain a continuous three-dimensional air picture.[18] With every fighter aircraft equipped with IFF transponders and each task group trained in real-time plot integration, the Navy reduced the risk of fratricide during complex, multi-squadron operations.

Air plans moved beyond crude pulse attacks. By the Truk and Jaluit raids in early 1944, strike doctrine had shifted to emphasize a “continuous flow” of aircraft into the target area, allowing for flexible allocation of ordnance delivery and persistent pressure on Japanese defenses. PAC-10, the Pacific Fleet’s new doctrinal foundation issued in mid-1943, codified lessons from the past year and enabled carriers to be mixed, reassigned, and recombined without requiring bespoke training or rewrites of task instructions.[19] By the time Mitscher issued Task Force Instructions (FastCar TFI-1) in May 1944, multi-carrier raids followed a highly refined rhythm: fighter sweeps to gain air superiority at dawn, followed by sequentially launched “deck loads” of attack aircraft striking primary and secondary targets, with coordinated recovery and re-strike windows tightly

choreographed across the formation. Defensive screens were organized to protect the carriers during their most vulnerable moments of aircraft launch and recovery. Doctrine, training, and organizational design were gradually brought into alignment.[20]

This marks the third phase of the strategic-technological adaptation cycle: wartime learning as the decisive arbiter. Combat feedback forced doctrinal overhaul and institutional structures to evolve, often in response to acute operational necessity. The result was not just improved tactics, but a reimagining of naval warfare itself. Carrier aviation moved from a niche capability to the central tool of American sea power, able to collapse geography, neutralize enemy fleets, interdict logistics, and support amphibious operations across thousands of miles. By early 1944, it was no longer plausible to view the carrier as an appendage to Mahanian surface warfare; it was the fleet’s nucleus.

Importantly, this transformation reflected much more than the technological advantage the U.S. had built up by this point. Japan began the war with better carrier aircraft, more experienced pilots, and refined doctrine. But the operational structures of the Imperial Japanese Navy were too rigid to absorb strategic shocks, especially once their elite aircrews were depleted. Pilot training pipelines were narrow and slow to adapt, carrier doctrine was rigid, and losses at Midway and beyond could not be absorbed into a dynamic learning process.[21] By contrast, the U.S. Navy had begun to institutionalize feedback loops: Battle Experience Bulletins synthesized lessons and disseminated them rapidly, planning staffs incorporated combat intelligence in near-real time, and task force commanders like Sherman, Mitscher, and Spruance operated with access to accurate, time-sensitive operational and strategic intelligence via JICPOA and PACFLT’s reorganized staff functions. The net effect was cumulative and systemic. Coordination of multi-carrier operations, efficient airspace deconfliction, adaptive escort screening, and a revised understanding of the relationship between tactical air operations and strategic objectives all became foundational elements of U.S. maritime dominance in the Central Pacific.

Technology Becomes Strategy Through Institutions

While the operational record of U.S. carrier development has been thoroughly chronicled by naval historians, this analysis reinterprets that record through the lens of institutional adaptability, distilling a simple conceptual model applicable to modern defense organizations navigating technological disruption. The case of U.S. carrier aviation offers enduring insights into how navies – or indeed, military institutions more broadly – adapt to such disruption. In this instance, the decisive factor was not the result of prewar planning or a single visionary, but an organization that learned under fire, institutionalized feedback, and reorganized itself

around a new operational grammar.

By 1944, the U.S. Navy had constructed an integrated system for massed carrier warfare. With its standardized doctrine, layered air defense, coordinated strike packages, and centralized fighter direction, the fast carrier task force evolved beyond tactical success to achieve a strategic breakthrough. It enabled the United States to project power across vast oceanic distances, support complex amphibious operations, and achieve maritime dominance in the Central Pacific. This system did not arise entirely from technological advantage; indeed, Japan began the war with better aircraft and more experienced aviators. But the U.S. Navy outpaced its rival in learning and absorbing setbacks, iterating doctrine, and translating experience into institutional reform.

Conclusion: From Improvisation to Institutionalization

There is no strong evidence that the U.S. Navy as a centrally coordinated organization responded swiftly and systematically to the setbacks of early 1942. It was individuals – most importantly Nimitz, Sherman, Halsey, Fletcher, Mitscher – who drove reflection and reform through memos, critiques, and tactical proposals. King’s “Battle Experience” bulletins were noteworthy but issued months after the events they analyzed, and even then, the Navy had no mechanism akin to today’s Center for Naval Analyses to synthesize and diffuse combat lessons institution-wide. Moreover, formal doctrinal publications were largely out of date: PAC-10 (the Pacific Fleet’s wartime doctrinal annex) was only beginning to be revised in light of 1942’s combat by early 1943. As late as the spring of 1943, no definitive guidance existed on how to organize multi-carrier formations, manage combat air patrols, or standardize deck cycles. The learning process was initially improvisational, interpersonal, and not yet “institutionalized” in the robust sense.

By early 1943, however, this leader-initiated feedback began to factor into formal organizational change. The Pacific Fleet’s operational staff (under Nimitz and Spruance) began issuing structured guidance and analyzing carrier operations systematically. Sherman’s “Principles of Handling Carriers,” for example, became a touchstone for later carrier group organization, influencing the structure of Task Force 58.^[22] And the increased centralization of planning and coordination under the newly established staff of the Fast Carrier Task Force in 1944 marked a transition from *ad hoc* to institutionalized command design. Inspired leadership, in this case, jumpstarted a process that eventually took root institutionally, though it was anything but inevitable, thus underscoring the critical point: technology creates new possibilities, but strategic effect depends on institutions. Aircraft carriers became decisive not because they existed, but because the Navy learned how to use them organizationally, doctrinally, and operationally. The example affirms a general rule: technological potential becomes strategic advantage only when institutions can adapt at scale, an insight which remains salient today. Contemporary debates about naval modernization may often still fixate on technologies, but the deeper question is almost always institutional: can naval organizations absorb these innovations and operationalize them effectively before conflict forces their hand? And can they then rapidly learn the lessons imposed by their competitors through conflict?

History provides both reassurance and warning. The U.S. Navy’s wartime performance in the 1940s demonstrated extraordinary adaptive capacity. But it also showed that such adaptation is not automatic. It must be designed, cultivated, and embedded. Strategy must be learned, and learning is not incidental. It requires processes, rapid feedback loops, and a professional culture that values critical reflection and has a willingness to shed obsolescence. In an era of accelerating change, such institutional features may prove more decisive than any other factor driving the Navy forward.

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- [7] See David M. Kennedy, "Victory at Sea," *The Atlantic* 283, no. 3 (March 1999) pp.54–64; Kennedy characterizes World War II as a rupture in naval history, emphasizing that submarines and aircraft carriers "rendered obsolete centuries of doctrine about waging war at sea." While he presents the rise of the carrier as a technologically logical development, he stresses that it was the totalizing pressures of global war that propelled naval aviation to sudden dominance.
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- [10] Hone, *Battleships vs. Aircraft Carriers*, p. 134: "the contention that the maintenance of the battle line drew off funds from all the other, and more important, from combat types is an oversimplification."
- [11] The phrase "lions led by donkeys," apparently popularized in German critiques of British command in the First World War, has become shorthand for describing intellectually stagnant or overly cautious military leadership. See Robert T. Foley, "Dumb donkeys or cunning foxes? Learning in the British and German armies during the Great War," *International affairs* 90 (2014) pp.279–298; such caricatures in the context of naval innovation fail to appreciate that putative conservatism often reflects the structural burdens of stewardship under uncertainty.
- [12] Albert A. Nofi, *To Train the Fleet for War: The U.S. Navy Fleet Problems, 1923–1940* (Newport, 2010) esp. chs.9 and 10; also Craig C. Felker, *Testing American Sea Power: U.S. Navy Strategic Exercises, 1923–1940* (Texas A&M, 2013).
- [13] Thomas C. Hone, "Replacing Battleships with Aircraft Carriers in the Pacific in World War II," *Naval War College Review* 66 (2013) pp.57–8.
- [14] Thomas Wildenberg, "Midway: Sheer Luck or Better Doctrine?" *Naval War College Review* 58 (Winter 2005) pp.128–31. Wildenberg underscores that dive-bombers from different carriers attacked separately and without coordination, torpedo squadrons lacked fighter protection and suffered near-total losses, and the timing of the successful strike owed much to chance rather than to doctrinal synchronization.
- [15] Hone, "Replacing Battleship with Aircraft Carriers in the Pacific in World War II," p.62, 63.
- [16] Hone, *Learning War*, p.105.

[17] Hone, “Replacing Battleships with Carriers,” pp.13–14.

[18] Mawdsley, *Supremacy at Sea*, p.102; Hone, *Learning War*, pp.94, 99.

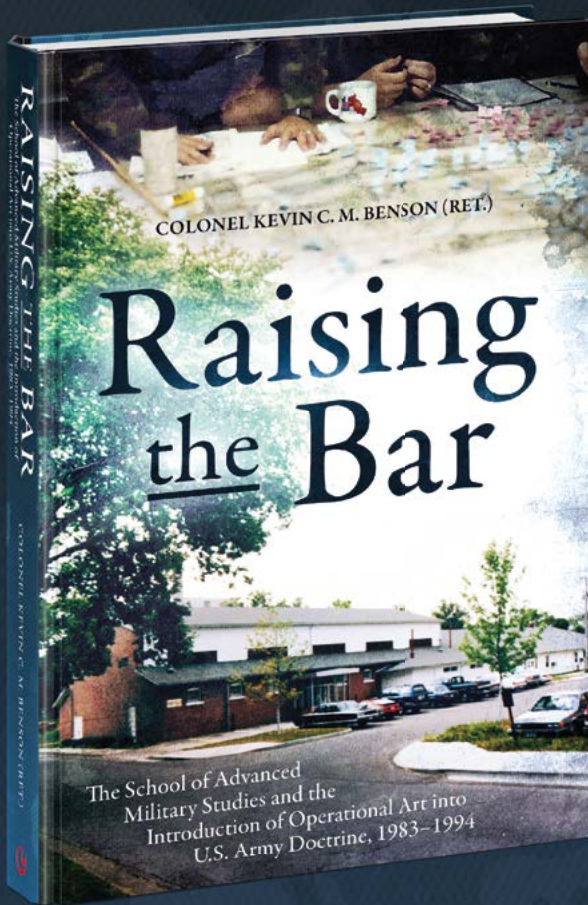
[19] Hone, *Learning War*, p.109.

[20] Trent Hone’s larger argument is that the U.S. Navy’s capacity for doctrinal and operational adaptation stemmed from its character as a “complex adaptive system” (CAS), shaped over decades by reforms in officer education, planning structures, and the cultivation of decentralized, safe-to-fail experimentation. This long-term institutional evolution laid the groundwork for the more rapid and effective doctrinal learning processes, such as those seen in the development of multicarrier operations and PAC-10, that this article highlights as decisive to wartime carrier success. See Hone, *Learning War*, 14–17.

[21] Jens Sagen suggests that Japan’s naval leadership remained committed to Mahanian principles and a surface-oriented ‘decisive battle’ doctrine even as naval aviation matured. Pilot training pipelines emphasized elite quality over scalable quantity and failed to adjust to wartime attrition, while carrier aviation, although technically advanced, remained doctrinally and organizationally subordinate to battleship-centric thinking. These technological, organizational, and human rigidities left Japan’s naval air forces unable to adapt to the strategic shocks of 1942 and beyond. Jens Sagen, “A Battle Against Tradition: The Rise of Naval Aviation in Modern Japan,” *Asian Cultural Studies* 30 (March 2004).

[22] Hone, *Replacing Battleships with Carriers*, p.60.

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Adaptation in Ambiguity: The Battle of Cape Esperance, 11–12 October 1942

Heather M. Haley – Naval History and Heritage Command



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Disclaimer: The views expressed in this article are those of the author and do not necessarily reflect the official policy or position of the Department of the Navy, the Joint Staff, the Department of War, or the U.S. Government.

A nearly imperceptible graphite circle disturbs the glossy patina of a reconnaissance photograph taken on the

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first day of U.S. air strikes on Japanese-controlled Rabaul in November 1943. Amid the plumes of smoke along the shoreline and adjacent to a transport ship burning in the harbor, a Japanese heavy cruiser appears untouched. Atop *Haguro*'s main mast—now identified by the faint circle—appeared the first “concrete evidence” of a Japanese ship-borne radar antenna (Image 1).[1] Until that day, the status of Japanese ship-borne radar was uncertain and widely disputed.[2] In the summer of 1942, a rumor circulated alleging the Japanese had acquired radar technology from their German counterparts. According to Commander Bruce McCandless, USS *San Francisco*'s communications officer, a Navy dispatch distributed to the fleet in the fall of 1942 suggested the “Japanese had radar receiving equipment which approximated the frequency band” of the American SC aircraft warning radar set. “This was further enhanced,” McCandless continued, “by the report submitted to [Rear] Admiral [Norman] Scott by a destroyer that it had successfully tracked our force by just such means.”[3] As a result of these reports, Admiral Scott ordered *San Francisco*'s SC radar to remain inoperative on the night of 11 October 1942 to prevent the flagship's presumed detection by the adversary.[4] The episode highlights a central uncertainty of the Guadalcanal campaign: whether Japanese surface forces could detect SC radar emissions well enough to track American movements at night, or whether U.S. commanders merely acted on that suspicion. Scott's strategy going into what became known as the Battle of Cape Esperance, therefore, relied on the controlled use of radio for essential messages and on contact reports from the operable SG surface-search radar sets of Scott's light cruisers.[5]



Image 1. Aircraft of the USAAF 3rd Bomb Group attack Japanese ships in Simpson Harbor, 2 NOV 1943. The heavy cruiser *Haguro* is in the foreground. The burning transport at the right appears to be one of the *Hakone Maru* class, of which *Hakone Maru*, *Hakozaki Maru*, and *Hakusan Maru* were still afloat at the time. The ship in the distance, partially hidden by smoke, appears to be the submarine tender *Chogei* or *Jingei*. Official U.S. Air Force Photograph, from the collections of the Naval

History and Heritage Command (NH 95558).

There is, however, no conclusive evidence to support the Navy's claim that the Imperial Japanese Navy (IJN) used ship-borne radar detecting equipment to identify SC radar emissions. In a reminiscence penned in 1956, Rear Admiral Raizo Tanaka described Japanese heavy cruisers *Aoba*, *Kinugasa*, and *Furutaka* as having simply “encountered” Admiral Scott's surface force at Cape Esperance.[6] In a recent history of night combat, historian Jonathan Parshall concluded that Scott “wrongly” believed the Japanese capable of detecting *San Francisco*'s SC search radar.[7] The after-action reports, memoranda, and war diaries authored by the officers involved in the campaign suggest the same. Ensign David Stafford Sterrett of USS *Laffey* told Navy officials that the Americans “had the drop” on the Japanese, while Scott himself cited “surprise” as “the primary cause” of American success that night, reporting that the “Japs [*sic*] were caught unawares.”[8] Had the Japanese cruisers been able to detect SC emissions in time to shadow Scott's approach, it is reasonable to surmise that the night action at Cape Esperance would have unfolded differently. Rather than assuming either Japanese technical capability or American error, this article argues that fears of Japanese detection of SC radar emissions at Cape Esperance reflected American uncertainty about the vulnerabilities of a new technology rather than any demonstrated Japanese capability. By examining the evidentiary limits of the operational use of the SC and SG radar at Cape Esperance, and the degree to which Admiral Scott's decisions reflected precaution amid ambiguity, this article argues that fears of IJN detection of SC radar signals stemmed from uncertainty about the vulnerabilities of a new technology rather than any demonstrated Japanese capability.

Early search radar technology was not incorporated into the decades of planning that preceded the war in the Pacific—not through oversight, but because of technological reality. Before 1940, the U.S. Navy possessed no operational radar sets, no doctrinal framework for their combat employment, and no wargaming rules capable of incorporating them. War Plan Orange, the product of the interwar Navy's strategic thought, envisioned a protracted campaign against the Japanese shaped by distance, attrition, and the eventual relief or recapture of the Philippines. Naval War College wargames reinforced these assumptions by modeling reconnaissance operations with scouting aircraft, cruisers, and submarines, while night actions relied on searchlights and star shells. Long-range detection relied on fallible human observation and radio intercepts.[9] The result was a fleet that entered combat in 1942 with rapidly fielded radar sets and unclear guidance on when to employ it, when to remain silent, and what the adversary might plausibly infer from American radar signals. In that context, the rumor that the IJN could “receive” SC radar transmissions and track U.S. warships was not merely technical speculation; it shaped command decisions at sea during the first months of radar-enabled naval warfare.

Lacking ship-borne radar at Guadalcanal, the IJN relied on scrupulously trained night lookouts and specialized binoculars with larger apertures that admitted more light, providing the Japanese with an initial night-battle advantage.[10] Unable to neutralize American air power on Guadalcanal by late summer 1942, the IJN settled on a pattern of fast convoy runs to supply reinforcements, provisions, and ammunition for troops still fighting on Guadalcanal. Branded the “Tokyo Express” by the Americans, Japanese warships departed Rabaul earlier in the day, passed through the New Georgia Sound—known as “the Slot”—delivered cargo near Guadalcanal’s northwestern cape, and withdrew before sunrise to avoid daylight attacks by American aircraft.[11] Although Japanese ground reinforcements achieved limited success against U.S. Marine defenses at Henderson Airfield, their desperate attacks to wrest operational control of the island from the Americans took their toll.[12] By early October 1942, Army Air Force Major General Millard Harmon ordered additional reinforcements to Guadalcanal.[13] This strategy was two-fold. Engaging the IJN would wear down Japanese efforts to reinforce Guadalcanal, eventually allowing the U.S. to secure the island. This had the added effect of eliminating the Japanese threat to communications between the U.S. and Australia. Secondly, with the establishment of an advanced base at Guadalcanal, U.S. forces could launch follow-on operations into the northern Solomon Islands, eventually linking up with Allied forces and bringing the fight to New Guinea.

Commanded by Rear Admiral Norman Scott, Task Group 64.2 was assigned to cover the transports delivering the “Americal” Infantry Division to the island.[14] Historian Richard B. Frank argued that the assignment carried two additional “implicit” tasks: developing an improved night-fighting doctrine and exacting revenge for the American humiliation at Savo Island. Two months of night actions preceding the Battle of Cape Esperance witnessed the sinking of eight Allied cruisers and three destroyers, while the IJN suffered no warship losses.[15] To prepare for night engagements, Scott drilled his task force intensively for two weeks in tactics that the IJN had demonstrated superiority. [16] Task Force 64.2 practiced night searchlight exercises, night battle and firing exercises, night illumination procedures, and the coordinated defense against a night destroyer attack.[17]

Comprised of a single column led by *Farenholt*, *Duncan*, and *Laffey*, followed by *San Francisco*, *Boise*, and *Salt Lake City*, with *Helena*, *Buchanan*, and *McCalla* in the van, Scott’s force echoed the column Vice Admiral Gunichi Mikawa had employed two months prior at Savo Island. The destroyers, divided three ahead and two astern, were to illuminate contacts with searchlights “as soon after radar contact as possible” and independently “fire torpedoes at large ships and gun DDs and small craft.” Per Scott’s advance instructions, the heavy cruisers were to maintain continuous fire at short range on small ship targets. The

third and fourth cruisers and rear destroyers were “to keep watch on disengaged flank” and “open fire without order.” Most importantly, the forward and aft destroyers were to remain alert to changes of course.[18]

SHIP	TYPE	RADAR SET(S) EQUIPPED
San Francisco (F)	Heavy Cruiser	SC ¹
Salt Lake City	Heavy Cruiser	FC, SC ²
Boise	Light Cruiser	FC, FD, SC, SG ³
Helena	Light Cruiser	FC, SG ⁴
Farenholt	Destroyer	FD (inoperable) ⁵
Duncan	Destroyer	FD, SC ⁶
Buchanan	Destroyer	FD ⁷
McCalla	Destroyer	FD ⁸
Laffey	Destroyer	FD, SC ⁹

Table 1. American Radars Present at the Battle of Cape Esperance, 11 October 1942

Sources: 1 “Operational Remarks (War Diary),” undated, Box 703, COLL/537, NHHC. 2 E. G. Small, “Report of Action of U.S.S. Salt Lake City Against Japanese Surface Naval Units Night of October 11–12, 1942 Off Savo Island, Solomon Islands.” October 20, 1942, Box 694A, COLL/537, NHHC. 3 B. K. Culver, “Action off Cape Esperance on night of 11–12 October 1942—Report of.” October 22, 1942, Box 113A, COLL/537, NHHC. 4 “USS Helena CL50 Leeward Battle Damage Report No. 1,” 1979, Box 366, COLL/537, NHHC. 5 B. Magoffin, “War Record—U.S.S. Farenholt (DD491),” March 1, 1945, Box 281, COLL/537, NHHC; Charles C. Cook, *The Battle of Cape Esperance: Encounter at Guadalcanal* (Annapolis, MD: U.S. Naval Institute Press, 1992), 37, 54. 6 E.B. Taylor, “U.S.S. Duncan (DD485) War Diary from July 1, 1942 to July 31, 1942,” September 25, 1942, WWII War Diaries, RG 38, NARA. 7 “USS Buchanan,” August 3, 1942, , Photo Section, NDL, NHHC. 8 Eli Vinock, “USS McCalla War History,” WWII War Diaries, RG 38, NARA. 9 “USS Laffey (DD-459),” September 4, 1942, , Photo Section, NDL, NHHC.

Scott’s strategy, as Trent Hone concluded, demonstrated a fundamental shift away from U.S. Navy pre-war tactics. In naval doctrine predating the war in the Pacific, emphasis rested on looser formations that enabled closer torpedo attacks by destroyers with long-range support from cruisers.[19] In contrast, Scott claimed a line formation was more practical for night actions because a single column allowed for easier coordination, maximized firepower, and reduced the risk of friendly fire, which underscored the chaos at Savo Island.[20] Despite Scott’s planning and training, inexperience and miscommunication nearly nullified the American advantage.

Concerned that steaming too far north would allow the enemy to pass unnoticed between Savo Island and Guadalcanal, Scott transmitted orders to reverse course. Over the Talk Between Ships (TBS) radio, he announced, “Execute to follow: left to course 230°.”[21] At 2333, the lead destroyer, *Farenholt*, swept to port, followed by *Duncan*

and *Laffey*. Unexpectedly, *San Francisco*, the lead cruiser in column, also turned to port, breaking the formation. *Boise* and the remaining cruisers followed, shifting the van destroyers to the rear position (Image 2).[22] In the confusion, Captain Robert G. Tobin, commanding the destroyers from *Farenholt*, ordered the three van destroyers to increase speed to starboard to regain their positions at the front of the column.[23]

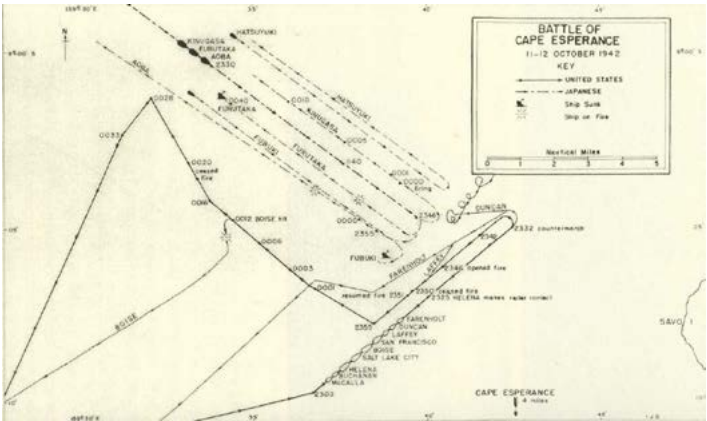


Image 2. Scott’s intended countermarch. From Samuel Eliot Morison, *The Struggle for Guadalcanal, August 1942–February 1943*, vol. 5, *History of the United States Naval Operations in World War II* (Boston: Little, Brown, and Company, 1949), 155.

While Admiral Scott’s order to keep *San Francisco*’s SC radar inactive remained in effect, *Salt Lake City*’s fire control and SC radars were operating. The historical record does not clarify Scott’s rationale for *San Francisco*’s SC radar silence—he was mortally wounded nearly a month later at the Battle of Guadalcanal—but Captain E. G. Small’s entries in *Salt Lake City*’s after-action report provide some insight. Small reported the cruiser’s FC and SC radars were “a direct function of gunnery” and, therefore, were “under the cognizance of the gunnery department.” *Salt Lake City*’s gunnery officers kept both systems operating to verify radar contacts.[24]

Shortly after the turn, at 2339, *Boise*’s SG surface search radar “made contact on a group of objects” about 14,000 yards distant.[25] *Helena* picked up an SG radar contact one minute later. At 2342, *Boise* reported five unidentified radar contacts. Scott admitted in his report, “There was also doubt in my mind as to the radar reports because of our destroyers coming up on that side” to resume their positions at the head of the column.[26]

2323	<i>Salt Lake City</i> reported SC radar contact, 335° (T), 7½ miles. Not identified by FC radar.
2324	<i>Salt Lake City</i> reported SC radar contact, 335° (T), closed to 5 miles. Not verified by FC radar.

2326	<i>Salt Lake City</i> reported three SC radar contacts, 273° (T), distance 16,000 yards, speed 20 knots. Verified by FC radar.
2332	CTG 64.2 to TG 64.2 – TBS “Execute to follow—column left to course 230°.”
2333	Column executes turn.
2338	<i>Boise</i> reported five SG radar contacts, bearing 295° (T), distance 14,000 yards.
2340	<i>Helena</i> reported SG radar contact, bearing 298° (T).

Table 2. Chronological Log of Radar Contacts Relative to Column Turn, 11 October 1942

Sources: B. K. Culver, “Action off Cape Esperance on night of 11–12 October 1942–Report of.” October 22, 1942, Box 113A, COLL/537, NHHC; Small, “Report of Action of U.S.S. Salt Lake City Against Japanese Surface Naval Units Night of October 11–12, 1942 Off Savo Island, Solomon Islands.”

At 2346, *Helena* used the General Signal Procedure over TBS and requested to open fire on the nearer targets. Scott misinterpreted the message to be a request for the Group Commander to acknowledge *Helena*’s last transmission of a radar contact. Scott’s response of “Roger,” he clarified in the after-action report, was not authorization for the cruiser to engage. *Helena*, however, commenced firing with the understanding that Scott’s “Roger” was authorization to engage. “The ‘Roger’ episode shows our lack of training,” Scott later admitted.[27]

In a situation akin to that of Savo Island, Scott feared friendly fire because he did not know the destroyers’ positions. Scott radioed Tobin to confirm his position, to which Tobin responded, “Affirmative, coming up on your starboard flank.”[28] Scott’s concern was justified, as *Farenholt* received several friendly fire hits and fell out of line. “During this period, very little fire was received from the enemy. He was not only surprised,” Scott reported, “but was in a poor formation.”[29]

Admiral Gōto Aritomo had arranged his force in a “T” formation with his flagship *Aoba* in the lead, followed by cruisers *Furutaka* and *Kinugasa*, with destroyers *Hatsuyuki* and *Fubuki* screening the forward port and starboard flanks, respectively. Upon receiving the initial volley of American shells, Gōto ordered a starboard turn, believing his force was the victim of friendly fire from an IJN reinforcement group led by Admiral Joshima Takaji. Gōto had no active radar aboard his flagship, did not suspect the proximity of American naval forces, and did not immediately recognize his force was under hostile fire. In that respect, the IJN found itself in a situation uncomfortably similar to that of the Allies at Savo Island two months earlier.[30]

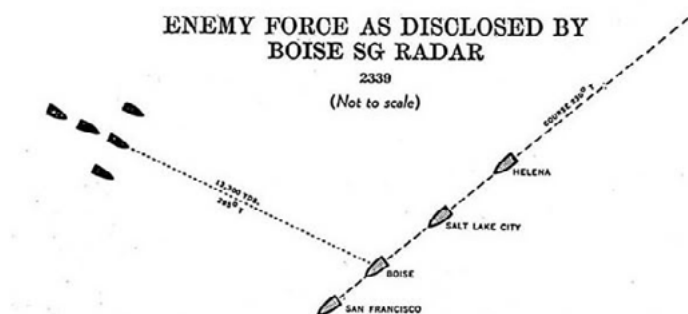


Image 3. Enemy force as disclosed by Boise SG radar. From Office of Naval Intelligence, *Solomon Islands Campaign: Battle of Cape Esperance, 11 October 1942, and Battle of Santa Cruz Islands, 20 October 1942*, vols. IV and V, *Combat Narratives* (Washington, D.C.: Publications Branch, 1943), 10.

Following the opening salvos, American lookouts observed a choking cloud of black smoke billowing from *Aoba* and, with the ship's foremast toppled, believed the cruiser out of action. Hit in quick succession by twenty-four shells, a direct hit to the bridge mortally wounded Admiral Gōto. His chief of staff, Captain Kikunori Kijima, assumed command.[31] Meanwhile, another shell struck *Furutaka*'s torpedo tubes, igniting a raging fire that illuminated the Japanese formation. Guided by the flames, *Buchanan* launched five torpedoes, one of which struck *Furutaka* in its forward engine and went dead in the water. Cruiser *Kinugasa* and destroyer *Hatsuyuki*, which had veered to port in the opening volleys, escaped with minor damage. *Fubuki*, however, joined the growing number of vessels to line Iron Bottom Sound after *Boise* and *San Francisco* raked the destroyer with gunfire. In the minutes remaining before midnight, every American ship except the disabled *Farenholt*, which had retreated to the disengaged side of the column, pummeled the Japanese force.[32]

In return, the Japanese torpedoes launched by *Kinugasa* at *Boise* missed their mark. *Boise*'s searchlight simultaneously targeted *Kinugasa* and revealed the American column's position. *Kinugasa*'s return fire struck *Boise*'s bow, forward turret, and number two magazine under the waterline. *Salt Lake City* took a shell in the boiler room, and *Duncan* took simultaneous hits from "four more shells," investigators noted later, "including several from our cruiser column." [33] At 0016 on 12 October, Scott ordered pursuit, but the "somewhat broken" column quickly lost sight of the enemy, and he "decided to retire." [34]

Heavily damaged by the torpedo hit, *Furutaka* succumbed to fire and sank at 0040. In the thirty-three-minute engagement, the Japanese lost heavy cruiser *Furutaka* and destroyer *Fubuki*, and their flagship *Aoba* was barely salvageable. Japanese losses exceeded 400 casualties, including Rear Admiral Gōto. The Americans, though elated by their victory, also suffered losses. *Duncan*, unable to get fires under control, sank six miles north of Savo Island.[35]

Boise incurred heavy damage, and *Farenholt*, which suffered three killed and forty-three wounded, only survived through extraordinary damage control efforts.[36] Scott's Task Force estimated 175 killed "and an unspecified number wounded." [37]

The Navy dispatch warning that Japanese surface forces could detect SC radar signals and exploit them to track U.S. warships exerted a tangible influence on Admiral Norman Scott's conduct of operations, most notably in his decision to silence his flagship's radar. The available evidence, however, does not support the conclusion that the Imperial Japanese Navy possessed either the equipment or the operational experience to exploit radar signals at that point in the war. American after-action reports consistently emphasize the adversary's surprise rather than anticipation as the defining feature of the night engagement at Cape Esperance. The absence of any demonstrable Japanese attempt to shadow or counter Scott's approach suggests that fears of SC vulnerability reflected unresolved questions about radar's risks rather than a confirmed enemy capability. The absence of an overarching strategic framework that defined radar's role in fleet operations only amplified those fears.

From this perspective, Scott's command decisions on 11–12 October 1942 may be seen as attempts to manage uncertainty in a battlespace reshaped by a transformative but not completely integrated technology. Radar entered fleet service before doctrine and strategy could guide its effective employment.[38] While tactical uses of radar for search, fire control, and contact reporting were improvised, the Navy had yet to articulate a strategic doctrine governing signals control, counter-detection, or the balance between information acquisition and operational exposure. At Cape Esperance, radar was neither a fully understood tactical instrument nor a strategically integrated capability. Instead, it operated within a space of uncertainty that shaped command decisions as much through perceived risk as through demonstrated advantage.

The Battle of Cape Esperance marked a transitional moment as U.S. night-fighting began to shift toward a radar-centered, formation-oriented, and fire-controlled approach. These changes were documented in the Office of Naval Intelligence's *Combat Narrative* series and underscored by Samuel Eliot Morison in his critique of Scott's confused maneuvers.[39] Preceded by the failures at Savo Island and the torpedo disaster of Tassafaronga, Cape Esperance was the shift between early missteps and the Navy's later mastery of night-fighting techniques. As one young lieutenant observed, "battles were being won or lost by the judicious or misuse of the SG radar." That insight was borne out one month later at the Naval Battle of Guadalcanal, where Vice Admiral Willis Lee's battleship action demonstrated a more fully realized form of what Captain Robert G. Tobin attempted at Cape Esperance with radar-directed gunnery and a better, if imperfect, understanding of how to fight and survive the radar-lit nights in the Solomon Islands.[40]

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Dilemmas, Dilemmas: The Frustrations of Late-Imperial Chinese Naval Strategy

Tommy Jamison – Naval Postgraduate School, Monterey, CA



Chinese armored cruiser; sunk in February 1895 during the Sino-Japanese War. By unknown author, in the public domain, via Wikimedia Commons. Minor digital image restoration for clarity and reproduction quality with AI assistance.

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Chinese Qing Dynasty (1644–1911) officials long recognized the imperative of building naval forces as a check against piracy and foreign threats.[1] Beginning in the 1860s, an appreciation for “self-strengthening” (自强) at sea deepened, yielding an impressive naval order of battle.[2] By 1890, when Alfred Thayer Mahan published *The Influence of Sea Power Upon History* in the United States, the leaders of the Imperial Chinese Navy (ICN) could already look with satisfaction on a fleet of armored battleships, protected cruisers, and torpedo boats backed by domestic shipyards

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and naval academies. The North Sea Fleet alone—as People’s Republic of China (PRC) propagandistic films today still note—was not only preponderant in its region, but it was also “even larger than the U.S. Navy.”[3] Unfortunately for the Chinese, this materially awesome power—strong ships with powerful cannon (船坚炮利)—was functionally brittle. Within four years of its apogee, the Imperial Japanese Navy (IJN) destroyed or captured the Chinese North Sea Fleet in its entirety during the First Sino-Japanese War (1894–1895). [4]

Historians have long debated the proximate and ultimate causes of the ICN’s calamitous defeat.[5] The stakes of this question were (and are) high, given its relevance to the collapse of the Qing Dynasty (1912) and what the Chinese Communist Party (CCP) calls “the Century of National Humiliation” (百年国耻, 1839–1949). Beyond tactics or logistics, this essay ties the poor performance of the ICN to deeper levels of strategic causation: to questions of strategic employment, force design, geostrategy, and most fundamentally institutional adaptation. From the First Opium War (1839–1842) to the Sino-Japanese War, Chinese navy builders faced four contradictions that stymied their ambitions. Alongside an *external* security dilemma with foreign powers that spurred investments in maritime defense, Qing naval strategy confronted four *internal* strategic dilemmas: between “application” and “root,” continental and maritime frontiers, centralization and regionalism, and finally, symmetrical and asymmetrical technologies. An inability to reconcile those dilemmas undermined Chinese naval power from the start and may well do so again as the PRC’s “New Navy” goes to sea in the 2020s.[6]

Root and Application

Most foundationally, advocates of Chinese naval expansion in the nineteenth century faced the challenge of how to import foreign knowledge and technology without sacrificing the core of Chinese civilization. Given the fantastic power of industrial machines, something clearly had to be learned from the West, but what and how much? Chinese officials pursuing “Wealth and Power” (富强) wrestled with this question for more than a century (and to an extent still do so today).[7] Responding to the shock of defeat in the First Opium War, the scholar official Wei Yuan articulated a formula for China’s self-strengthening that attempted to strike a balance. He argued that the Chinese should “study foreign techniques in order to control the foreigners” (师夷长技以制夷).[8] China would have to adopt the artefacts of the Western world in order to preserve sovereignty, but not necessarily foreign values. Wei and subsequent reformers sensed that it would benefit China very little if in appropriating “foreign techniques” the Chinese mortgaged away their distinctiveness as a civilization. Another official, Feng Guifen, refined Wei’s position in 1861, arguing that reformers should use “Chinese knowledge for the root,

and western knowledge for the application” (中学为体西学为用); watchwords of subsequent Chinese policy debates. [9] In recent years, historians have textured this formula by describing a kind of traditional/modern or Chinese/foreign “hybridity” (rather than polarity) running through Chinese attitudes about science, medicine, and technology.[10] But as late as 1898, Zhang Zhidong—a leading military official—was still empathic about the application/root bifurcation, arguing that, “scholars today must master the [Chinese] classics first” so as to preserve Chinese culture and society.[11] Note that a preference for “Chinese knowledge” sustained the Imperial Examination system until 1905.

While rhetorically elegant, the balance between “root and application” was an impediment to Chinese naval development. The Chinese could acquire hardware from foreign shipyards, and even build ships and coastal defenses domestically, but cultivating sufficient human talent to use those weapons was a far greater hurdle. Skill and expertise with industrial technology required more than mastering mechanical appliances. It meant engaging with underlying systems of knowledge and science. Without that expertise, the Chinese would be forever dependent on machines and the foreigners that could build and maintain them.

Leaders who, by the 1880s, appreciated (or at least expressed) the need to learn scientific principles—like Zuo Zongtang and Li Hongzhang—had trouble translating their initiatives into changes in institutional culture.[12] At a minimum, the demands of “root and application” distorted what would today be called “talent management.” Military entrance examinations that sorted talent first through knowledge of classical Chinese texts were ill-suited to the task of modern technical education—even if they helped to preserve the distinctiveness of Chinese civilization. Competition with the Imperial Examination system curtailed the number and quality of applicants to regional military academies. [13] Confucian ideals of reciprocity and propriety further “disesteemed” military service as disreputable or vulgar. [14] Students returning from the United States and Europe with new skills faced xenophobic skepticism or outright hostility from Chinese officials.[15] All these biases made it exceedingly difficult to find or cultivate enough Chinese with the root knowledge necessary to use warships.

As an addendum, a word on the strategic sense of “Chinese Conservatism.”[16] It is easy to ridicule Chinese reformers as reactionary or obstinate, clinging to ancient texts and rejecting real change in order to protect their own positions in the existing regime. After the Sino-Japanese War, observers and historians—in and outside of China—caricatured “Chinese” or “Confucian” conservatism as a kind of strategic culture hostile to military power and institutional adaptation. On their own terms, however, most Qing-era Chinese could frame the limitations of their training and personnel system(s) as a mark of success. The point of a navy was to defend China, its territorial sovereignty, and its values. If building such a force required

Chinese officials to repudiate their own culture, why bother with “strong ships and powerful cannon” at all? What use are ways and means, if those ways and means are hostile to one’s ultimate ends?

Concentration and Regionalization

Regionalism—a sense of parochial loyalty, usually to a province—further hampered Chinese naval organization and expansion. Throughout the self-strengthening period a “Grand Council” (军机处) composed primarily of ethnic Manchus reported directly to the emperor on matters of imperial security, but in reality decisions about fleet design and acquisitions took place among Han Chinese officials in the provinces. Arsenal and shipyards relied on the patronage of these provincial governors, making consistency of effort a persistent irritation. The quality of naval hardware varied, following the energies or attentions of local leaders. Coordination between regions was still more challenging. Northern forces were reluctant to assist those in the South and vice versa. That sort of regional fragmentation had disastrous implications for fleet design and deployment during the Sino-French (1883–1885) and Sino-Japanese Wars (1894–1895).

Ironically, the regional character of Chinese self-strengthening began as a successful experiment. Military regionalism was a calculated and likely necessary response to internal rebellions—above all the Taiping War (1850–1864). Unlike contemporaneous wars of “national consolidation,” around the world, for China victory against the Taipings came at the cost of the Qing Empire’s fragmentation. [17] In 1865, for example, the United States defeated the Confederacy, and won a nation state united by a federal political system, railroads, and telegraphs. Facing their own army of Southern rebels—the Taiping—Chinese officials took a different tact. Instead of centralizing their forces, Chinese officers discovered that their best troops were regionally organized by provincial commanders. Army units recruited locally from Anhui or Hunan were most cohesive and therefore militarily effective. Combat motivation—as it so often is—was a function of geographic loyalty. By 1864, such units were strong enough to put down the Taiping Rebellion. But that then left a recursive problem: how to manage regional armies and powerbrokers that were now both strong and attenuated from central control?[18]

Most damagingly for the Chinese navy, patterns of regionalism resulted in divided Northern and Southern Fleets, augmented by forces on the Yangtze River and in Guangdong. These fleets were geographically aligned and struggled to integrate as a joint force for political reasons. For most of late-Qing history it is more appropriate to speak of “Chinese navies” in different regions than it is to imagine a unified, imperial whole. During the Sino-French War, French forces destroyed the Chinese fleet at Fuzhou while forces in the north avoided combat. Leaders of the North

Sea Fleet came under scathing criticism for their failure to aid their Southern counterparts—not that this pressure moved them to action. On paper, the central government addressed the problem by unifying naval forces under an “Admiralty” or “Naval Yamen” in 1885, but this did little to solve internal divisions or jealousies.[19] Li Hongzhang, the Governor General of Zhili with responsibility for Hebei Province, Beijing, and Tianjin built one kind of military in the Bohai Gulf. Zuo Zongtang, Governor General of Shaanxi and Gansu, pushed for another. Such rivalries—regional, bureaucratic, and ethnic—made crafting a unified imperial strategy for force design or employment impossible. When war with Japan came in 1894, the Imperial Japanese Navy attacked as a concentrated force against the Chinese North Sea Fleet. With the war on the line, Northern officials appealed for support. No help came. Chinese forces in the south sat out the decisive battles of the First Sino-Japanese War, motivated by self-preservation, regional rivalry, and petulance. Divided, they fell.

Regionalism was effective as a strategy for confronting insurgency in the 1850s and 60s—the then existential threat to the Qing Dynasty. As an inherent tradeoff, it also built divisions into Chinese self-strengthening. Fragmentation complicated naval construction in the 1870s and 80s. As an operational matter, it rendered unified fleet action untenable. Regionalism was antithetical to the Mahanian principle of concentration, and the results showed in Chinese defeat to the French and Japanese. On a slightly longer timeline, the devolution of military power to the provinces was fatal to the Qing Empire. In the 1911 Xinhai Revolution, when Han revolutionaries far from Beijing rose up to topple the dynasty, regional powers overmatched the tottering central authorities.[20]

Land and Sea

Zuo Zongtang was one of the foremost regional leaders to emerge from the Taiping War. After his success as a counter-insurgent, he turned his attention to constructing a naval arsenal and shipyard in Fuzhou. Zuo intended the Fuzhou Navy Yard to become the industrial heart of a new Chinese navy. On the yard’s completion in 1867, however, Zuo had no time to admire his achievement. Almost immediately, the imperial government called him away to campaign against rebellions in western China (Nian Rebellion, 1851–1868; Xinjiang, 1862–1877).[21] His diversion from coastal to frontier security is a telling example of a long-running dilemma in Chinese geostrategic debates; a tension between naval and frontier defense (海防与塞防) that would tie up resources and degrade the efficacy of Chinese naval expansion.

That dilemma came to a head most clearly in 1874. That year, Japanese forces raided Taiwan while at the same time a rebellion in Xinjiang threatened the Qing’s far western frontier. Leaders argued over how to prioritize those threats—one maritime one continental. No less than

Li Hongzhang and Zuo Zongtang hashed out the issue in a series of memorials; what can be read as a proxy debate over China's geostrategic identity as a "land" or "sea" power.[22] Li thought the maritime threat from Japan required an immediate answer—to do otherwise meant humiliation. Zuo argued that Xinjiang and the Russians mattered far more than a coastal incursion by the Japanese. Regionalism exacerbated matters. As Governor General of Shaanxi and Gansu, Zuo naturally focused his regional military on the western frontier with Russia; from his position in Tianjin as the Governor General of Zhili, Li prioritized Japan. The continental threat won out and Zuo led a massive army west. Zuo often maintained in his writings that *both* maritime and continental defenses were critical to Chinese security, but in the real world it was (and is) impossible to defend all things simultaneously.[23]

As Zuo's experience demonstrates, at the level of imperial strategy, Qing leaders were forced to deal with divided geostrategic attention. Whether China was intrinsically a "landpower" was less important to leaders than the concrete and simultaneous demands for security on land and sea.[24] The threat of Russia on the continental frontier, maritime raiders on the coast, and internal rebellion made for a difficult balancing act. In 2012, a PRC historian contended that the Opium War reformer Wei Yuan anticipated Mahan's concept of sea power by half a century.[25] Perhaps, but while Wei and subsequent navy builders like Zuo and Li recognized the importance of the sea, they never had the advantages of Mahan's United States after the Civil War: a unified, territorialized nation-state with secure borders to the north and south. For Chinese advocates of naval funding, threats from within and along the continental frontier were an ever-present distraction. It was a rough neighborhood.

Variations of this attentional dilemma are at work in the histories of other continental states turning to the sea. In the late-nineteenth and early-twentieth century, France and Germany struggled unsuccessfully to build navies that could contend with Great Britain, while also maintaining standing armies to defend against each other. Contemporaneously, and by clear contrast, Meiji Japan was free of a continental threat. Its naval victories over China (1894-1895) and subsequently Russia (1904-1905) relied on that geostrategic advantage.

Fleet and Coastal Defense

Even with funding, Qing naval planning faced a final dilemma: what naval technologies to prioritize? After generations of Great Power peace, it was unclear what weapons were best to deliver victory at sea. One official reviewed the "unceasing" (日新月异) nature of technical change in the 1860s, complained that the pace of innovation made decisions about acquisitions fraught with danger.[26] Should navy builders in China purchase battleships

to attack an enemy fleet? Small torpedo or "mosquito" boats to defend near shore? A network of fortifications and torpedoes for a land-based coastal defense? Each of these strategies had proponents, but without hard data about novel weapons under combat conditions, no one knew with any certainty which was best. New technology was an opportunity to "catch up" with foreign standards, but it also posed massive risks—what if officials got choices about acquisition wrong?

As a product of such uncertainty, by the 1890s Chinese maritime defenses were a kind of curious and expensive hybrid of coastal defense, brown water, and blue water navy. In part, this confusion owed to regional patterns in self-strengthening that encouraged different leaders to experiment with different weapons in different geographic contexts. It was also a product of a global uncertainty (and anxiety) about what Alfred Thayer Mahan in 1875 called the "very unsettled, transition state" of navies given technological advances in metallurgy, propulsion, electricity, etc.[27] Many schools of thought contended. Some argued in line with the French *Jeune Ecole's* preferences that torpedo boats were the key to an economical defense.[28] Success in acquiring "mosquito boats" in the 1870s—small ships that acted as floating gun platforms—primed thinking about asymmetrical forms of defense.[29] Most Chinese agreed that battleships conferred prestige, but fifty torpedo boats could be had for the price of one ironclad.[30] Other leaders promoted the construction of coastal fortifications as a panacea against foreign gunboats on the cheap; an idea Li Hongzhang dismissed as no defense at all unless supported by torpedoes and ships.[31] Still others wanted large platforms—"strong ships with powerful cannons"—capable of deploying to sea. Toward that end, the North Sea Fleet maintained two battleships, the "glorious" German-built *Dingyuan* and *Zhenyuan* that could fight at sea and represent Chinese prestige in peacetime.[32] These were supplemented by a force of gunboats and protected cruisers of varying designs. Largely because of its heterogeneity, the Qing's ability to maintain these forces and to upgrade platforms with new subsystems was poor. The best strategy for using such a mixed force in battle was, likewise, unclear.

To make matters worse, the Qing conversation about what technologies to acquire was driven as much by budgetary constraints as it was strategic calculation. Foreign loans floated to finance campaigns against internal rebellions in the 1870s put naval funds under pressure. Much of what remained was lost to chronic graft in the 1880s and 90s. Foreign advisors to the Chinese complained frequently about "corruption, speculation, and nepotism." [33] In this environment, acquisitions would have to account for technological uncertainty as well as budgets riddled by fraud and waste. Having sunk funds into large, armored battleships, Li Hongzhang complained constantly of insufficient resources for training, maintenance, and logistics to keep them working. Platforms offer little without money for coal, ammunition, and personnel. "Strong ships

and powerful cannons” was a good slogan, but wholly insufficient as a strategy given the gaps between Chinese naval aspirations, security needs, and its budgetary realities.

Conclusion

Chinese naval development in the nineteenth century was motivated by external threats and then hamstrung by a series of internally imposed strategic dilemmas. Observations of foreign naval power—particularly in the hands of the Japanese—clarified China’s need for a navy. Articulating a coherent strategy for the construction and employment of naval power was a more nettlesome challenge; one that the Qing never fully resolved. Striking the correct balance between root and application, centralization and regionalism, land and sea, and coastal defense vs. blue water navy, was simply too much. As a historical matter, those failures of strategy—in regards to force design, geostrategic balance, and institutional adaptation—shaped the course of the Sino-Japanese War and the waning years of the Qing Dynasty.

Because we too, like these earlier navy builders, live in a world of radical technological change and “Great Power Competition,” Qing-era dilemmas are also relevant to modern policymakers wrestling with geostrategy, force design, joint operations, and institutional culture. Those hoping to deter the People’s Liberation Army Navy (PLAN) today might consider the fraught experience of the late-Qing navies. Start with geostrategy. The CCP successfully absorbed the borders of the Qing Empire (mostly) after 1949 and in doing so inherited its geostrategic conundrums. Balancing between internal, continental, and maritime threats is as much a challenge for Xi Jinping as it was for Li Hongzhang in the 1890s, or Mao Zedong in the 1970s. The “triangular” configuration of power between China, Russia, and maritime empires (in succession imperial Britain, Japan, and the United States) remains and with it the pressure to split focus between continental, internal, and maritime security.[34]

Equally enduring, are conversations about force design, and

most particularly the right mix of coastal defense vs a blue water power projection. Qing self-strengtheners invested in a program of coastal defense fortifications, mines, and small ships—what might be called “Anti-Access/Area Denial.”[35] At the same time, leaders maintained an ambition to build an armored fleet. Given resource constraints, this was likely an inappropriate match between means and ends. Today, the doctrinal division between “near” and “distant” seas in PLAN documents reflects the latest iteration in a debate dating to Qing-era questions about ironclads, torpedoes, and mosquito boats.[36]

Thinking institutionally, the People’s Liberation Army quest for “integrated joint warfare” (一体化联合作战) between branches and commands has come a long way administratively.[37] Since the 1990s, the modern PLA has celebrated joint operations as a marker of military professionalism.[38] Administratively, the old “Military Regions” are gone, replaced by “Theater Commands” in 2016 that promise greater integration.[39] Those reforms should allow the PLAN to avoid the kind of regionalism that beset the Qing. But the legacies of a land force-dominated budget and service culture are sticky. So too are differences in geographic priorities. On paper, the Qing unified its naval forces a decade ahead of the First Sino-Japanese War, but in practice regional divisions endured—fatally.

Most fundamentally is a question of political-military culture. To wit: can the institutional demands of a modern navy—leveraging technocracy and meritocracy—co-exist with an authoritarian CCP political system?[40] Or will a prioritization of political reliability curtail the lethality of PLAN hardware much as a late-Qing bureaucratic culture frustrated naval officers in the 1890s? For officers in the late-Qing it was a balance of application and root; for the Maoists it was a seesaw between being properly “red” and sufficiently “expert” (又红又专).[41] Today, ambitious PLA officers face a similarly unenviable test: of whether to prioritize party loyalty or military competence. Almost all the dilemmas of late-Qing naval strategy exist today in an evolved form. Whether or not the PLAN will address those challenges better than its predecessor remains to be seen.

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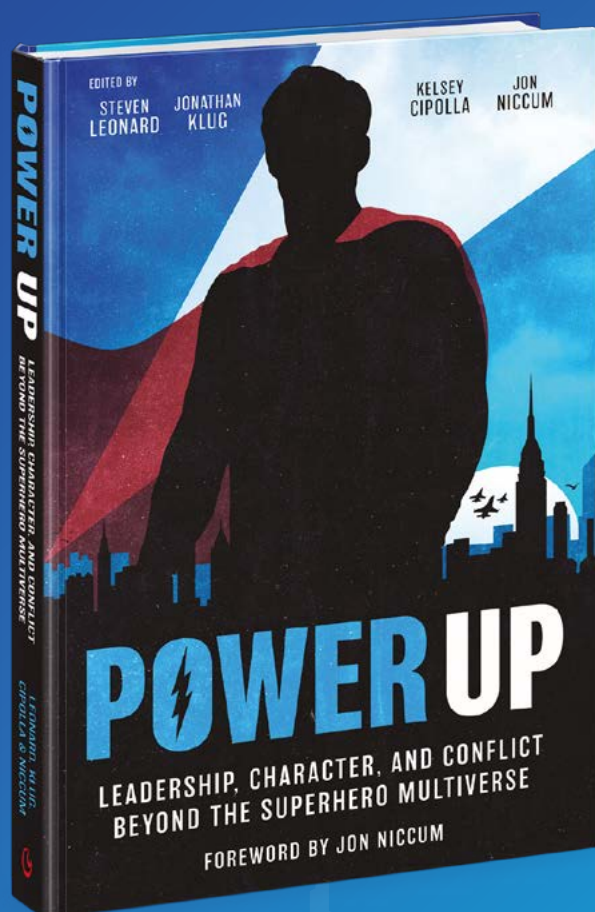
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The Best-Laid Plans of the British Navy, 1783–1794

Evan Wilson – U.S. Naval War College



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This is a story about a navy’s strategic failure. It really should be a story about a navy’s strategic success. After all, the navy in question did everything right in preparing for war. It invested in shipbuilding and dockyards. It examined its recent strategy and operations and came to a clear understanding of what had gone right and what had gone wrong. It knew who its enemy was going to be, and it knew

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how it was going to fight that enemy. Yet when the war came, it comprehensively failed to capitalize on its strengths. The question this article seeks to answer is, what went wrong?

In the age of sail, Britain and France engaged in a long-term competition for global supremacy. Britain won, but as the Duke of Wellington put it after the battle of Waterloo in 1815, it was “the nearest-run thing.”[1] Across the eighteenth century, both Britain and France scored major victories that seemed to herald a shift in the balance of power. After the Seven Years War (1756–1763), Britain was ascendant, with new conquests in Canada and India. Yet in the next war, the French and Spanish undermined that new empire by helping the thirteen colonies gain independence. It is in the aftermath of the American Revolutionary War (1775–1783) that our story begins.

After the embarrassing and presumably costly loss of the colonies, the British fretted that their isolation in Europe had caused their geopolitical situation to be irretrievably damaged. They had fought the American War with no major allies, and it was fair to wonder whether they could recover their dominant position. Yet some high-profile naval defeats in the last years of the war in the Caribbean meant that the French were unsatisfied with the peace as well. The result was a major naval arms race in the 1780s, in which the French and Spanish competed with the British to put themselves in the best possible position when the war resumed, as everyone knew it would.

The British were remarkably successful in the arms race. Fears about the consequences of losing the colonies proved overblown, as trade with the United States quickly returned to its pre-revolutionary levels. The economy boomed in the 1780s, growing at six percent per year. On several measures, this decade saw inflection points in British growth: tonnage leaving British ports, total exports and imports, and trade with the East Indies, West Indies, and central Europe all grew substantially.[2] The government taxed this growth, increasing its revenues to such an extent that the new 24-year-old prime minister, William Pitt the Younger, was able to create a sinking fund to manage the national debt. He also invested substantially in naval infrastructure and completed the shipbuilding that had been started during the war. His investments were sustainable, thanks to the underlying economic growth, and the British navy entered the 1790s in a much stronger position than many of its officers thought possible amid the humiliations of the American Revolutionary War.[3]

The French were remarkably unsuccessful in the naval arms race. That is not to say that they failed to build ships. On the contrary, the French and Spanish navies combined in 1789 were larger than the British. The French could put 324,000 tons of warships to sea and the Spanish 253,000, while the British navy boasted just 473,000 tons. The problem was that the French state could not actually afford all the ships that

it had built. Naval spending made a significant contribution to the financial crisis of 1788. To raise revenue, the French King Louis XVI called the Estates General in 1789, which precipitated the French Revolution.[4]

Over the next three years, France tore itself to pieces in rebellion and civil war. All thoughts of a naval competition with Britain faded, replaced by a vicious fight over the future of the new Republic, which was declared on September 21, 1792. Three months later, the Republic executed Louis XVI, scaring monarchs around Europe into action to halt the spread of revolutionary republican ideology. The civil war and chaos of the revolutionary years left the French fleet in no state to meet the British when the European war began in 1792 and 1793.[5]

The British victory in the naval arms race combined with the chaos in France suggested that Britain had an opportunity not only to recover the prestige lost during the American War but perhaps also deal France’s global ambitions a fatal blow. The three men responsible for directing Britain’s war effort were Pitt, Lord Grenville the Foreign Secretary, and Henry Dundas the Home Secretary. They were competent and clear-sighted, even if they did not always agree.[6] Dundas convinced Pitt in the war’s early months to establish clear policy ends for British strategy: to prevent a French invasion and to capitalize on Britain’s naval supremacy to relieve France of her major overseas colonies.

They had to take the threat of a French invasion seriously because a French army moved into the Austrian Netherlands and defeated a Prussian army at Valmy in September 1792. It was difficult to invade Britain from the French coast of the English Channel because the prevailing winds blow from the west and there are few good ports along the French side of the coast. It was much easier, however, to launch an invasion from the Netherlands. French Revolutionary armies massed there were possibly an existential threat that could not be ignored.[7]

Pitt, Grenville, and Dundas determined to respond to the threat in the Low Countries by tackling French sea power first, but without making the mistakes of the American Revolutionary War. After all, an army in the Netherlands was destined to remain in the Netherlands if it had no fleet to carry it to Britain. While the British navy went about tackling French sea power, Britain could send a small army to the Low Countries to help the larger armies of the German states. Here was the first mistake of the American Revolutionary War that ministers vowed not to repeat. In that war, Britain had not been able to rely on a continental ally; this time, perhaps, would be different.[8]

The strategic model they had in mind was what Pitt’s father had done in the Seven Years War: concentrate British forces in European waters with the goal of keeping the French also in European waters. If that could be done with less than all of Britain’s available forces, the remainder would

then be free to operate in the empire to capture French colonies. Doing so would, they assumed, bring France to the negotiating table, as it had done in all previous eighteenth-century wars.[9]

British deployments in 1793 emphasized protecting the western approaches to the English Channel and watching the French fleet at Toulon. Those two fleets—the Channel Fleet and the Mediterranean Fleet—accounted for a large percentage of the available forces, but not all. There were about half a dozen ships of the line, and possibly as many as thirteen thousand troops, available to be launched at some suitable target. This is what the theorist Sir Julian Corbett later called the disposal force. The question facing Dundas was where to send it.[10]

Dundas's answer reflected his study of previous wars: the West Indies. It was widely assumed that France's economy depended on overseas trade, in particular from the West Indies. That region generated about two fifths of France's foreign trade and two thirds of its deep-sea shipping. Furthermore, the islands in the region were easy to isolate with naval power, weakly defended, and fabulously wealthy. Capturing French islands would strengthen Britain's position at the negotiating table when this war, like all previous wars, inevitably caused financial crises in the major combatants and petered out. The West Indies were therefore a suitable target.[11]

That, then, was the strategic situation for the British in February 1793: Britain had a stronger navy than its traditional enemy, and that navy was unhampered by revolution. Britain had a competent, experienced leadership team—Pitt had been in office for ten years—while France had just guillotined its king. Britain had a coherent strategy that relied on recent history to help it avoid obvious pitfalls. In short, there was every reason to expect that Britain would be able to destroy what remained of French sea power quickly, take control of valuable colonies, and cruise to an easy victory. Having thought about their enemy in advance for a decade, the British were poised to exploit their enemy's weaknesses and capitalize on their own strengths.

Instead, none of that happened. Britain's strategy was wrongly conceived and poorly executed. Five years later, Britain had still not destroyed French sea power. Eight years later, when the war finally ended, Britain had to concede most of her gains to secure a peace, and that peace lasted less than two years before war resumed on a scale previously unknown. The first two years of that new war were characterized by a serious invasion threat, and once again France and her allies had more ships of the line than the British. What went wrong?

Pitt, Grenville, and Dundas made two mistakes. The first was that they misunderstood how the French Revolution had changed France's war aims. They were no longer fighting

Louis XVI's France—literally, as he was dead—but more than that, they were no longer fighting a France whose foreign policy was shaped by dynastic concerns. British leadership was slow to recognize that the Revolution changed both why France was fighting and how France would fight, and that those changes should have major implications for British strategy.

Revolutionary France's primary war aim was the survival of the French Republic, which was declared two days after the victory at Valmy. Its enemies were both foreign and domestic, and its aspirations were as much ideological as geopolitical. What Pitt was doing in 1793, then, was doubly dangerous. Not only was he fighting to recoup losses in the last war, but he was literally fighting the last war. Meanwhile, France was fighting a different kind of war, for different reasons.[12]

From the first mistake flowed the second. Sending the disposal force to the West Indies might still have made sense in a war with Revolutionary France, but the turmoil inside France caused Pitt and his team to hesitate about sending their primary strike force overseas. There was a clear need to bolster allied forces in the Austrian Netherlands following their defeats the previous autumn. Then, a month after the war began, a major rebellion against the Revolutionary government broke out in the Vendée region in western France. Here was an interesting opportunity for the British because the region was accessible by sea. There were always likely to be challenges to supply the rebels and coordinate with them, but through the spring, summer, and fall of 1793, it was reasonable to argue that committing British resources here would do major harm to Revolutionary France.[13]

Finally, another opportunity presented itself when counterrevolutionaries in Toulon, site of France's largest naval base in the Mediterranean, took control of the city and offered the French Mediterranean fleet to the blockading British squadron. Admiral Hood, the commander-in-chief of the Mediterranean, boldly chose to accept their offer and take possession of the city in the name of Louis XVII (the Bourbon claimant to Louis XVI's vacant throne). Perhaps here a disposal force could be used to take out half of France's naval power in one swoop while simultaneously undermining the authority of the Convention in Paris. Like the Vendée, the rebellion in Toulon could be supported by sea. While neither rebellion seemed likely to bring about a comprehensive counterrevolution, both provided tangible, achievable missions for a disposal force that would contribute to the larger fight against revolutionary ideology, not just France's military power.[14]

The Cabinet met at Grenville's office on November 16, 1793, to consider their options. They compared the possible benefits of the expedition to the West Indies with supporting rebels in the Vendée and Toulon. The Cabinet also considered sending more reinforcements to the Low Countries. They

concluded that it would be worth sending some troops to the Vendée at the expense of the West Indies, even if the chances of real success were low.[15]

Second, ministers compared the West Indies expedition with Toulon, and Pitt concluded that Toulon might have a better chance of success even than the West Indies. Admiral Hood, the commander-in-chief in the Mediterranean, had been screaming for more resources for the last two months, both because he recognized the value of the opportunity and because he saw the risk of losing it if he was insufficiently supported.[16]

The result of the Cabinet meeting was, predictably, that the disposal force was divided into three. The original strike force for the West Indies was 13,000 men; now it was to be just 7,000. The other 6,000 were divided between the Vendée and Toulon.[17] All three expeditions failed.

In the Vendée, British hesitation cost them their opportunity. British forces arrived too late to support the rebels, and the government in Paris not only defeated the rebellion but also ordered mass executions that resulted in the deaths of 225,000–250,000 people.[18]

At Toulon, the outcome was mixed. Revolutionary forces, including a young Napoleon Bonaparte, overran Hood's Anglo-Spanish-French coalition forces, which were not strong enough to hold the city. The allies managed to destroy nine ships of the line and burn some stores, but thirteen ships of the line and five frigates escaped. It was an enormous missed opportunity.[19]

In the West Indies, the expedition was initially successful, capturing Guadeloupe, Martinique, and St. Lucia in March and April 1794. Shortly thereafter, though, French reinforcements arrived at Guadeloupe, declared the abolition of slavery, and reversed British gains.[20]

Pitt, Grenville, and Dundas made some good choices in the buildup to the war and even in its first year. They invested

in the infrastructure necessary to sustain naval power, and they recognized that keeping French forces in Europe should be a high priority. Where they went wrong was in failing to understand the ways the Revolution had changed France. We should be forgiving of them—it is difficult to recognize epochal events that overturn the international system while they are happening. Nevertheless, the execution of Louis XVI was surely shocking enough to jolt them out of their established patterns.

This historical case raises questions policymakers today should consider about the insufficiency of peacetime investments and the importance of understanding the enemy's war aims. Peacetime investments provide a platform for success, but they need to be paired with an understanding of how the enemy's war aims should shape one's own war aims. From those questions flow the deployment of force. Pitt, Dundas, and Grenville should have asked themselves: How might the enemy's new ideological underpinnings cause them to behave, and does that suggest that our best approach is to stick to our pre-war strategy, or adjust based on new information? Both approaches might have worked, but the middle path did not.

Moreover, as Mahan pointed out more than a century ago, it is very difficult for a sea power to win a quick victory against a land power.[21] The more prudent course of action for Pitt and his team would have been to reconsider the point of the West Indies expedition altogether given the developments in France in 1793. With their enemy clearly in turmoil, adopting a more patient, blockade-and-see approach would have retained the strategic flexibility that underpins effective sea power. To adopt this course of action, though, would have required a reconsideration of their own war aims, and they were not able to do that in 1793. The result was that the strategy the British adopted, of half measures in all, was never likely to succeed. They assumed that chaos in France meant weakness in France, and as a result, threw away many of the advantages they had spent the last decade building up.

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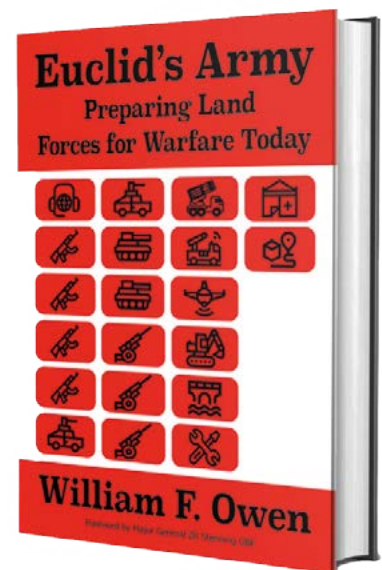
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At just before three in the afternoon on Saturday 12 April 1924 the battlecruiser HMAS *Australia* rolled over and made her final journey to the

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deep. Overhead a Royal Australian Air Force aircraft circled and dropped a wreath, whilst a 21 Gun Salute was fired by the cruiser HMAS *Brisbane*. All told it was a most unusual fate for a ship.

Australia was scuttled off Sydney Heads, a decision ultimately determined by British imperial policy and the signing of the Washington Treaty that limited naval armaments. The passing of the ship elicited a considerable display of national emotion in a country still coming to terms with its Great War losses. Stanley Bruce, the Australian Prime Minister, noted that the country ‘sacrificed her with regret, rendered poignant by memory of great services’.[1]

In the decades that followed the story of those great services faded rapidly as Australian popular culture and identity was reformed around the ANZAC myth and the deeds of Australian soldiers at Gallipoli and on the Western Front. Following the Second World War *Australia* was largely forgotten in the public memory, despite remaining as the only capital ship ever to have been commissioned into the Royal Australian Navy. Where the ship has been mentioned, it is invariably in the context of questioning the ties with Great Britain. Why should Australia have expended so much treasure on the ship in the first place, and then had to scuttle her so soon thereafter, all on the basis of British imperial policy? Even much of the academic literature has questioned the policy behind the acquisition of the battlecruiser and her career.[2]

When viewed in this light it appears that HMAS *Australia* is an unlikely model for the current AUKUS agreement under which Australia will acquire eight nuclear powered attack submarines (SSNs), working together with the United States and the United Kingdom. This article will, however, argue that *Australia* is a useful lens through which to look at the enduring nature of Australian maritime strategy and that the ship’s wartime career, whilst on one level unremarkable, offers interesting insights into the potential roles that could be played by Australian SSNs. Australia’s early efforts to provide itself with security at sea rested on the duality of maintaining a degree of self-reliance within a wider alliance-based maritime strategy. HMAS *Australia* embodied this duality. Whilst much has changed over the following century, including the identity of Australia’s key alliance partner, the fundamentals of the country’s geography and demography ensure that this duality remains at the heart of Australian strategic policy, and is an inextricable part of the premise of AUKUS.

The roles played by *Australia* during the First World War reflected that duality with divisions, and at time tensions, between independent operations and those directly supporting its larger ally. However, they also quietly reveal another fundamental in Australian security. Australia was, and remains, a maritime nation, and its security depends upon access to the seas. HMAS *Australia* helped secure this, more through deterrence and denial than through action,

but the results were the same. In order to be successful AUKUS submarines will need to contribute to both independent and coalition efforts ensuring that Australia continues to be able to use the seas, something that will have a far greater strategic impact than any individual naval action. When viewed in this light if the current acquisitions prove to be as successful as HMAS *Australia* in furthering Australia’s national interests, then the AUKUS agreement will have been a great success.

HMAS Australia: “the conscientious objector”

On one level it is easy to see why the battlecruiser *Australia* does not rank highly in the pantheon of the country’s military history. Despite serving throughout the First World War, she earned no official battle honours.[3] She only fired her guns in anger twice, once at a German auxiliary in early 1915, and again at a suspected submarine nearly three years later.[4] *Australia* spent the early part of the conflict in the Pacific, firstly escorting Australian troops to seize the German possessions in New Guinea, and later scouring the ocean in search of Vice Admiral Maximilian von Spee’s East Asian Squadron.

Following von Spee’s eventual demise at the Battle of the Falkland Islands in December 1914, *Australia* was transferred to the Grand Fleet. There followed nearly four years of tedium. The ship spent much of the time at anchor at Rosyth and Scapa Flow, participating in occasional sweeps in the North Sea that encountered little more than fog and bad weather. *Australia* was to miss the Battle of Jutland, the seminal event of the First World War at sea, in a rather ignominious fashion. Whilst on a sweep in the southern North Sea in April 1916 *Australia* collided with her sistership *New Zealand*, and she was still in dockyard hands when the battle took place a month later. This misfortune, or good luck depending on one’s perspective, earned the ship the unwanted sobriquet “the conscientious objector”.[5] A further collision, this time with the battlecruiser *Repulse* ensured that *Australia* also missed the Second Battle of Heligoland Bight, the last big ship action of the war.

Just under eleven years after being commissioned *Australia* was scuttled, having previously been laid up and then stripped of anything of value. In many respects it was an undignified fate for a ship that had only a decade previous been labelled the ‘pride of the southern seas’, and had in many ways been seen to symbolise the birth of the independent nation of Australia. Despite her limited battle honours there was near universal regret expressed at the time in Australia at the decision to scuttle the ship. In the words of the Sydney *Daily Telegraph*, ‘that her end should be so unworthy is a fault that lies not at her door... Few events have so struck at the hearts of Australians as this pitiless decision to extinguish the life of an honourable and historic fighting ship.’[6] Whilst the mainstream media was unwilling to specifically name those who were responsible

for the decision, others were not. *The Australian Worker*, for example, attacked the Prime Minister as a ‘liveried lackey’ for failing to properly stand up for the ship, and by extension for the country.^[7] In its demise, as in its existence, HMAS *Australia* reflected the country’s deep ties to Great Britain, and at the same time embodied the tensions and questions around sovereignty and independence that came with those ties.

Early Australian maritime strategy

The reason why Australians at the time were so supportive of the ship was that there was a clear understanding of the roles that she had played during the Great War, and how they fit into the wider frame of Australian national and maritime strategy. Australians in the early twentieth century had a much better understanding of the maritime fundamentals of their security and prosperity, and were aware of the ways in which *Australia* had contributed to them between 1914 and 1918.

Australian maritime strategy in 1914 was based around two core requirements that were at times in tension. The first of these was for there to be a sufficient force based in Australian waters to deter, and if necessary, defeat, any immediate threat to Australian territory and shipping. Ideally this independent Australian naval force should be under Australian command, or at least focused in the region until any realistic threat had passed. The second requirement within Australian maritime strategy was that to contribute to the wider security provided by the Royal Navy and British imperial forces. It was universally acknowledged that the best way to defend Australia was to prevent any threat from entering the region in the first place, and in this period that meant ensuring the maritime supremacy of the Royal Navy. The question of whether Australia’s naval efforts should go into reinforcing an imperial fleet, or providing for its own immediate security had dominated the debate in the decades prior to the First World War, and the “fleet unit” of which HMAS *Australia* was the centrepiece was the product of a slightly uneasy compromise.^[8] Under an agreement between the imperial government and the government of the Commonwealth of Australia the forces of the Royal Australian Navy would be based in Australia and under Australian control in peacetime. In wartime, however, the Commonwealth would hand over control of its forces to the Admiralty in London, which would deploy them as it saw fit.^[9]

Despite certain ongoing tensions between London and Melbourne, *Australia* and her fellow Royal Australian Navy vessels managed to fulfil both core requirements with a remarkable degree of success during the First World War. As the conflict opened *Australia* was off the coast of Queensland, and following a brief return to Sydney for

stores, she spent much of August and September searching for the German East Asian Squadron and escorting New Zealand and Australian expeditionary forces to Samoa and New Guinea respectively. This activity, and the absence of any meaningful result in terms of engaging the enemy, was the source of huge frustration to the crew of *Australia*. In reality, however, the battlecruiser was already having a significant impact on the course of events. Since the turn of the century the Imperial German Navy had been developing plans for its East Asian Squadron to conduct commerce warfare operations in Australian waters on the outbreak of a war.^[10] The arrival of *Australia* in Australian waters in 1913 significantly altered the calculus for such operations. As Vice-Admiral von Spee wrote in a letter to his wife in August 1914, ‘*Australia*. . . is such a superior opponent that it must be avoided’.^[11]

The East Asian Squadron’s long voyage across the Pacific to its eventual fate off the Falkland Islands was not a desired outcome, but one driven by ‘force of circumstance’, not least of which was the power, range and speed of *Australia*.^[12] In early 1924, as part of a campaign to save the ship, Senator John Newland wrote that ‘Australians slept more soundly in their beds because of the protection of the *Australia*. As an historical fact, we now know that but for her presence on our shores Sydney, Melbourne and possibly other Australian towns would have experienced the horrors of bombardment.... That this was not done we owe to the powerful guns of the *Australia*’.^[13] There is a degree of hyperbole in Newland’s comments, but there is also a significant degree of truth.

From 1915 to 1918 *Australia* was fulfilling the second of the core requirements in Australian maritime strategy, namely reinforcing the imperial fleet. Life in the Grand Fleet was tedious and hard, and *Australia* suffered from more than her fair share of bad luck which meant that she missed the major engagements. However, this presents something of a skewed image of the contribution that the ship made. The Grand Fleet as a whole did not achieve the second Trafalgar that its officers and men so earnestly desired. Contrary to much modern analysis this does not mean that the fleet did not achieve its core purpose.^[14] The ultimate role of the Royal Navy was to ensure that Britain had sufficiently secure access to the global seas and oceans to be able to conduct the war as it saw fit. The Grand Fleet, including *Australia*, did not destroy the German High Seas Fleet, but it did force it to lie largely inactive in Wilhelmshaven, and in doing so provided what in the British tradition of maritime strategy is referred to as “cover”.^[15] By ensuring that no major German vessels could exit the North Sea, the Grand Fleet provided general command of the sea, meaning that smaller vessels could exercise that command without risk of being overpowered by a larger force. It was this principle that ensured that from the end of 1914 vessels sailing in Australian waters could do so at very little risk, and also

provided the overarching umbrella of security under which the troops of the 1st Australian Imperial Force were transported to the Middle East and the Western Front. This action of sea power lacked the trappings of a great naval victory like Trafalgar, but it too built ramparts of British power that ‘stretched to the ends of the earth’ and in doing so was critical in ensuring Allied victory in the First World War.[16]

Across both of the two critical requirements of Australian maritime strategy, *Australia* proved to be a highly effective weapon of war in the period 1914–1918. As the historian David Stevens has remarked ‘without doubt, *Australia* did her best work by presence and deterrence rather than through action.’[17] In maritime strategy, however, this matters little. Accounts of great naval victories were, in the words of Julian Corbett, ‘literary rather than historical’, and it is how sea power impacts upon the wider war that truly matters, and here *Australia* proved her worth.[18]

AUKUS and twenty-first century Australian maritime strategy

The value of HMAS *Australia* during the First World War is clear, but some readers may rightly be wondering what a century old battlecruiser has to do with AUKUS submarines. The answer lies in the enduring elements of Australian maritime strategy. Australia in 2026 remains a vast island continent which is absolutely dependent on the sea for trade and communications. Australia’s strategic circumstances have evolved, but its fundamentals, which are grounded in geography, economics and demography, remain largely unaltered. For Australia distance is both a blessing and a curse. It is a very long way from any potential adversaries, something that makes a direct attack on Australian territory challenging. At the same time, it is also a very long way from its friends and sources of trade. Australia’s economic lifelines run vast distances across the oceans and are extensive enough that the country cannot hope to secure them on its own. This is one of the fundamental drivers for Australia’s persistent search for security in alliances.

The continuity in Australia’s grand strategy means that whilst additional requirements have been placed upon the Royal Australian Navy in the century since the First World War, the two core principles which underpinned its maritime strategy at the beginning of the twentieth century remain. In the event of a major conflict the Royal Australian Navy still needs to be able to mount sufficient force in its home waters to deter, or if necessary, destroy any realistic threat that might enter its immediate region. Australian policymakers have long determined that the country should possess sufficient naval capability to conduct this task independently if necessary. The recent deployments of major People’s Liberation Army Navy (PLAN) task forces into the waters surrounding Australia serves to underline the ongoing importance of this requirement, and Chinese

capacity to operate in this region is only going to expand. [19] The ability to secure Australia’s immediate area of interest against an adversary of growing size and capacity is therefore a critical challenge facing the Royal Australian Navy going forward.

However, in the event of such a conflict Australia would not be fighting alone. Instead, it would be operating as part of a larger US-led coalition, with by far the most likely adversary being the People’s Republic of China. In such a conflict Australian security, and the coalition war effort more generally, would be absolutely reliant on the ability to maintain sufficient sea control over the wider reaches of the Indo-Pacific. In exactly the same way that Australian security in the early twentieth century rested upon the ability of the Royal Navy, assisted by its allies and partners, to command the world’s oceans, so twenty-first century Australian security is predicated on safe and secure access to those same oceans. Under current Australian grand strategy this task is largely devolved to the US Navy, albeit with considerable support provided by its allies and partners, including the Royal Australian Navy.

The AUKUS submarines which should start commissioning into the Royal Australian Navy from the early 2030s will arguably be the first capital ships that the service has operated since HMAS *Australia* (I) decommissioned in 1921. In the event of a conflict they will be expected to fulfil the same core roles that the battlecruiser did over a century ago. The presence of US, and ultimately Australian SSNs operating from HMAS *Sterling* in Western Australia will provide a very significant deterrent effect on any vessels that might wish to conduct offensive operations against Australian territory or shipping, especially early in a conflict. Just as HMAS *Australia* deterred von Spee from approaching the region in 1914, so AUKUS submarines will, it is hoped, deter any future adversary from mounting offensive operations in Australian waters.

Longer term securing the waters immediately surrounding Australia will not be enough, and it can be expected that Australia’s AUKUS submarines will support US Navy submarines and other assets in assuring wider coalition sea control. At the heart of any such efforts will likely be an attempt to exercise choke-point control on the exits to the first island chain.[20] This effort will seek to deter or interdict PLAN vessels from existing the confined waters closest to China’s coasts. The language may have changed from the ideas of distant blockade and cover that were used to describe the roles played by HMAS *Australia* in the Grand Fleet in the First World War, but the strategic principles remain. By operating alongside their major coalition partner, AUKUS submarines would provide localised sea denial around critical chokepoints so as to prevent major Chinese forces from contesting coalition control over the wider expanses of the Indian and Pacific Oceans. In doing so they would secure not only coalition supply lines to the United States, but also the island of Australia itself.

The battlecruiser HMAS *Australia* was scuttled only eleven years after her commissioning, and without achieving any meaningful success in battle. As with AUKUS submarines her fate was deeply tied into debates over Australian sovereignty and the balance of the relationship with her key ally. Despite this, she proved hugely successful in further

Australia's maritime and by extension national strategy in time of war. Little more can be asked of a military capability, and the future AUKUS submarines, perhaps including a new HMAS *Australia*, will serve the country well if they can emulate this achievement.

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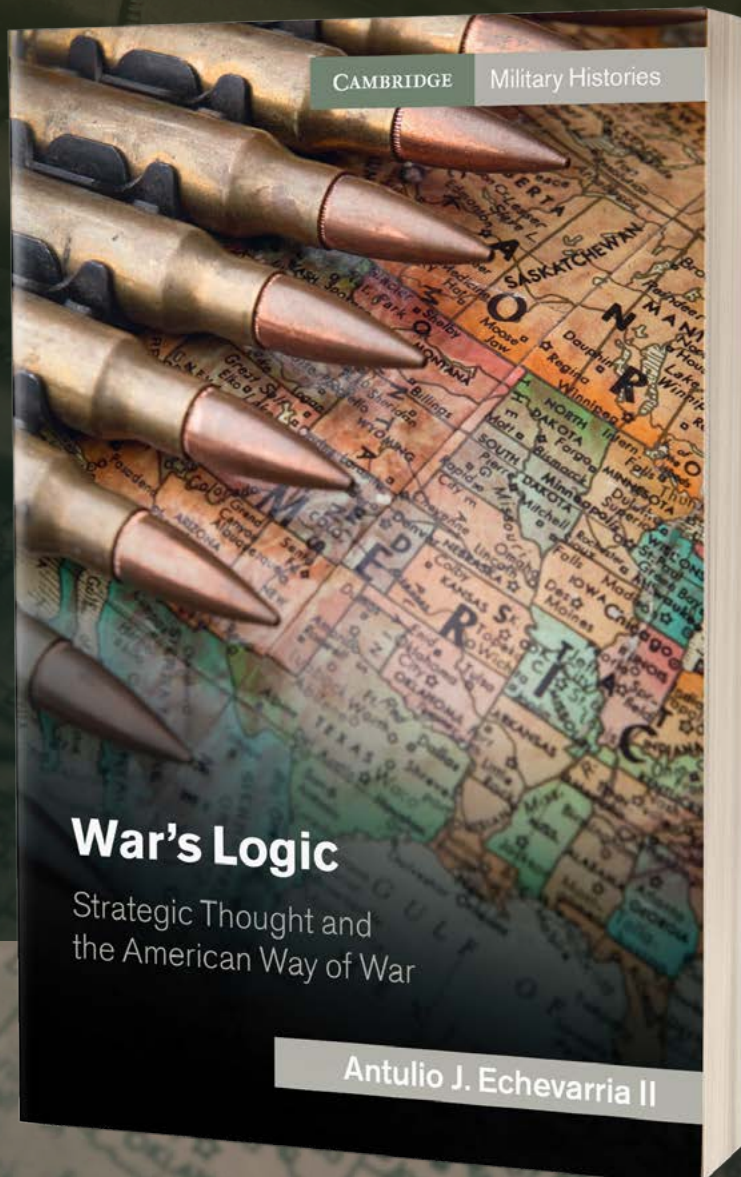
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Was the Battle of Midway Won or Lost? Considerations for Strategists

James J. Wirtz – Naval Postgraduate School, Monterey, CA



“USS Yorktown, 4 June 1942.” By USN, Public domain, via Wikimedia Commons. Image adapted to landscape format for publication.

About the author

James J. Wirtz has written extensively about intelligence, strategy, military innovation, and nuclear deterrence. He recently revised and updated Colin Gray's *War, Peace and International Relations: An Introduction to Strategic History*, 3rd edition (Routledge, 2024).

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The story of the June 1942 Battle of Midway is well known and well told. It is portrayed as a victory of intelligence, a quintessential analytical success that produced a detailed warning that allowed the U.S. Navy

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to counter-ambush the *Kido Butai*, the Imperial Japanese Navy's carrier strike force.[1] It is also portrayed as a victory of bravery and sacrifice. American aviators, flying mostly obsolescent aircraft, pressed home attacks at great cost, catching Japanese carriers at their most vulnerable while refueling fighter aircraft that made up their combat air patrol on their flight decks and re-arming their strike aircraft on their hangar decks.[2] Indeed, this historical narrative is so powerful that it not only has shaped our understanding of World War II in the Pacific but also our understanding of analysis, warning, and intelligence producer-consumer relations.

Although this conventional narrative remains compelling and firmly in place, historians have turned to the inevitable strategic questions about whether and how the Japanese contributed to their defeat.[3] Some have identified new minute-by-minute timelines of the battle to explain key turning points; for instance, why the *Kido Butai* was caught in a vulnerable position by American airstrikes.[4] While interesting, this sort of detailed analysis tends to enter the realm of friction and fortuna. Instead, what follows here is a more general evaluation of Japanese doctrine, operations, and thinking; that is, how good was the Japanese Navy at *fighting* aircraft carriers as they approached Midway? If intelligence positioned the U.S. Fleet for success, did Japanese operational decisions create a pathway leading to their defeat? Or, as Carl Cavanagh Hodge put it, "Was the battle of Midway won or lost?"[5]

The answer to this question is important to land, sea, air, space, or cyberspace strategists because it alerts us to the way history influences thinking about future engagements at sea or elsewhere. Midway reveals much about the connections among tactics, operations, and strategy when it comes to war at sea, connections that remain relevant today. Additionally, the relationship of empirics to theory has always been an issue for strategists. Colin Gray warned that it is important to exercise caution when advancing narrow explanations of battlefield outcomes, while Ben Connable has recently noted that our thinking is based on only a few historical events that might not be representative of emergent trends or even recounted accurately.[6] Instead of being portrayed as materially and operationally superior to their American opponents, were the Japanese actually a notch or two below their American competitors when they met in the waters around Midway? Even with the gift of over 80 years of hindsight, it is hard to avoid the observation that the Japanese made some odd mistakes. What should strategists garner from all of this when it comes to today's maritime strategy?

Fire Effectively First

Both Japanese and U.S. aviators appeared to possess a similar approach to carrier operations in the run-up to the Battle of Midway, which reflected Wayne Hughes's

admonition offered years later: the key to naval victory is to fire effectively first.[7] Both navies seemed to adopt a "salvo model," which treated carrier airstrikes as pulsed firepower to penetrate defenses and inflict mission kills on opposing warships. As Hughes suggests, the side that strikes effectively first gains an advantage because attrition can facilitate increasing de facto numerical superiority as warships are damaged or sunk, leading to outcomes anticipated by the Lanchester Square Law. That is, under certain circumstances found in naval or air combat, when multiple units can fire on individual units, combat power grows by the square of the number of units. Ten units ($10 \times 10 = 100$) are not twice as strong as five units ($5 \times 5 = 25$); they are four times as strong. Striking effectively not only knocks out opposing units, but it also increases this de facto numerical superiority; ten units are more than ten times as strong as three units, etc. In practice, matters are not so easily quantified or cut and dried: weather, pilot proficiency, damage control capabilities, and tactical doctrine can alter "effective" force ratios from those predicted by Lanchester equations. Nevertheless, the key operational and tactical consideration for naval strategists is to position their forces so that they can fire effectively first to make sure that the Lanchester Square Law is working in their favor. Americans recognized the situation they faced. As the commander of U.S. naval air reconnaissance for the Midway operation noted: "The problem at Midway is one of hitting before we are hit." [8]

The air attack on Pearl Harbor on 7 December 1941 would suggest that Japanese planners understood the realities revealed in the previous paragraph: the aircraft carrier was best conceived as a source of pulsed firepower that could "shoot and scoot." Tactical considerations forced the Japanese to fire their carrier weapon in two pulses during their attack on Oahu: it was most efficient to form up about half of the aircraft available in a strike; otherwise, aircraft launched initially would already be running low on fuel before they headed towards the target. So, the Japanese had the right operational idea: they launched as many aircraft as practical for their rendezvous with destiny. Because the Japanese also caught the Americans unprepared to repulse an air attack and with ships at anchor, the *Kido Butai* faced little risk of a U.S. counterattack. Pearl Harbor is an example of the lopsided victory that can follow when one side fires effectively first and confronts minimal risk of a counterstrike to boot.

In passing, it must be noted that this "success" is an often-referenced example of a brilliant tactical evolution and exquisite operational concept that produced catastrophic strategic failure. In one moment, the Pearl Harbor attack eliminated the political prerequisites of Japan's Pacific strategy.[9] When they turned the key to tactical success by firing effectively first, Japanese planners violated the first rule of strategy: do no political harm.

This same approach to tactics and operations emerged

during the May 1942 Battle of the Coral Sea, the first naval engagement fought without the opposing fleets coming within sight of each other. As much a story of dueling reconnaissance efforts as anything else, the main engagement began on 7 May as both the Japanese and American carrier groups launched pulsed air attacks against flotillas misidentified as the opponent's primary carrier force. The Japanese sank the fleet oiler *Neosho* and the destroyer *Sims*, while the Americans sank the light carrier *Shōhō*, which was with the Japanese invasion force headed towards Tulagi. The Japanese then launched a strike late in the day, which failed to find any target at all.[10] The next morning, both groups detected each other at about the same time, each rushed to put about 70 aircraft in the air, and both arrived over the opponent nearly simultaneously. The Americans heavily damaged the carrier *Shōkaku* and destroyed so many aircraft on the carrier *Zuikaku* that the Japanese deemed it largely mission-ineffective. The Japanese hit the two American carriers in the battle: *Yorktown*, which made it back to Pearl Harbor, and the *Lexington*, which exploded and sank in the Coral Sea.[11] The fact that neither side remained combat effective after suffering the other's pulsed attack is noteworthy, highlighting the impact of firing effectively first.

The Battle of Midway as Pulsed Firepower

Three lessons were offered by the battle of the Coral Sea: (1) find the enemy first; (2) attack effectively first; and then, if possible, (3) capitalize on Lanchester's insights by launching subsequent firepower pulses. The Americans took these lessons on board in the run-up to Midway. Using their direct experience at Coral Sea, along with the experience gained in an earlier series of carrier raids conducted against Japanese positions in the Marshall and Gilbert islands, Wake Island, Marcus Island, and Salamaua-Lae (New Guinea), the *Yorktown*'s carrier air wing worked to refine tactics to concentrate airstrikes and penetrate defenses, and the *Yorktown* itself underwent emergency repairs in a few days, instead of the initial months-long repair estimate. For that matter, Americans jury-rigged weapons on several types of aircraft so they could generate more firepower against Japanese warships.

In contrast, the Japanese withdrew *Shōkaku* from service for months of repairs, and *Zuikaku* was sidelined so that it could reform its air wing instead of reconstituting it with replacement pilots. While *Shōkaku*'s participation in the return to the Hawaiian Islands was never in the cards, they might have paired one of the two medium carriers attached to diversionary operations in the Aleutians (*Junyo* or *Ryūjō*) and the new light carrier *Zuihō* with *Zuikaku* to give the *Kido Butai* overwhelming combat power. Fortunately, from the American perspective, Japanese planners apparently underestimated the task at hand.[12] As a result, the Japanese only moved on Midway with four, not six carriers, which roughly evened the balance between opposing forces.[13]

For decades, historians have offered various cultural and bureaucratic explanations for the extremely detrimental decision to leave available carriers behind, which ultimately culminated in the concept "victory disease" (*senshōbyō*), a term coined by the Japanese themselves to describe their thinking before Midway.[14]

Another manifestation of this victory disease was the Japanese willingness to endure repeated air attacks during the operation. The U.S. Pacific Fleet Commander, Admiral Chester Nimitz, hoped that a series of land-based airstrikes and submarine attacks would whittle down the size of the Japanese force before it got within reach of American carriers lying in wait northeast of Midway. While the Midway narrative focuses on the carrier-launched dive bomber attacks that destroyed three ships of the *Kido Butai*, that attack was the 7th air strike to reach the Japanese.

The invasion force was initially spotted about 500 miles south-west of Midway on the morning of 3 June 1942, and the Americans attacked immediately:

1. B-17 four-engine bombers from Oahu attacked the invasion force from high altitude at about 1500 on 3 June, scoring no hits.
2. Four PBY "flying boats" from Oahu hit the oiler Akebono Maru with a jury-rigged torpedo around 0100 on the morning of 4 June.

By about 0530 on 4 June, a PBY from Midway spotted the *Kido Butai*. Reminiscent of events on the Coral Sea, the Americans on Midway, and Japanese carriers launched simultaneous airstrikes against each other:

3. At about 0719 six Navy TBF torpedo bombers and four Army B-26 Marauders (with jury-rigged torpedoes) attacked the Akagi. *No hits were scored, but one B-26 executed a strafing run across the length of the ship, and Lieutenant James Muri and his crew almost managed to crash their damaged B-26 into the bridge of the Akagi.*
4. At about 0745, 16 Marine Dauntless dive bombers attacked the carrier Hiryu, *with no hits, only near misses.*
5. *At about 0755, 17 B-17s from Midway bombed Soryu and Kaga from high altitude, scoring no hits.*
6. At about 0800, 11 Marine Vindicator bombers from Midway attacked Soryu and Kaga, scoring no hits.[15]

As the Americans continued to throw the kitchen sink of obsolete aircraft, malfunctioning weapons (torpedoes), inexperienced operators, flawed tactics (high altitude bombing), and experimental contraptions at the Japanese, the mood among senior officers aboard the *Kido Butai* began to change. By about 0820, American carriers were reported in the vicinity. The commander of the *Kido Butai*,

Vice Admiral Chuichi Nagumo, rattled by his near-death experience on the bridge of the *Akagi*, equivocated: arm aircraft with high explosives for a second strike on Midway or load armor-piercing ordnance to go after the American carriers? In the event, both types of ordnance littered his hangars when the seventh, and effective, American strike arrived overhead, starting at about 0915.

A Battle Won? A Battle Lost?

The Japanese clearly were not setting themselves up for success when *Shōkaku* and *Zuikaku* fell out of the Midway operation. A six-carrier *Kido Butai* would have provided the tactical options Vice Admiral Nagumo required, more striking power, and probably an increase in the rate of pulsed fire generated by the Japanese flotilla. This opened the door to American victory. What kept that door wide open was the Japanese failure to (1) find the enemy first, (2) attack effectively first, and to (3) capitalize on Lanchester's insights by launching subsequent firepower pulses. This left them open to repeated U.S. efforts to launch a devastating air strike. Airstrike #4, undertaken by Marine dive bombers from Midway, for instance, came close to hitting the *Hiryū*. The Japanese seemed to ignore the realities of carrier warfare and left themselves open to attack and disaster. It is safe to say that they enabled American victory.

Midway still represents a quintessential intelligence success, but in a maritime setting, strategists should view this intelligence success as contributing greatly to the tactical and operational requirement of finding the enemy first. Intelligence allowed the Americans to concentrate near Midway, which further capitalized on the Japanese decision to go with a four-carrier *Kido Butai*. That smaller flotilla and apparent willingness to shrug off repeated air attacks gave the Americans a 7 to 1 advantage in pulsed fires, which overcame Japanese defenses and luck.

Conclusion

Today, the exchange models that capture the pulsed firepower of carrier and missile operations remain similar to those operating during the Battle of Midway, although one hopes that analysis of "swarmed" firepower is also underway.[16] For strategists, this suggests that maritime operations are always shaped by the need to position ships for a potential fight. Crises at sea can become a game of cat and mouse as both sides attempt to find opposing flotillas and maneuver and mass to fire effectively first.

Bringing opposing naval forces into tactical proximity is

a risky evolution because it creates "ratcheting effects" as pressures to "use it or lose it" increase. U.S. commanders on the eve of Midway, for instance, recognized that they courted disaster if the Japanese managed to strike first. Those same consequences follow at the outset of hostilities. It is not entirely clear that political leaders understand that maritime standoffs could lead to inadvertent escalation.[17] There is a persistent risk that the urgency of tactical pressures might push events beyond the scope of what is intended in capitals thousands of miles away. It is also not obvious if everyone understands that formations subjected to even one pulsed attack can be rendered ineffective, or that when ships are sunk, it can lead to hundreds or even thousands of casualties promptly.[18]

A maritime deterrence strategy would attempt to capture these ratcheting effects to increase the shared risks that would follow during a crisis or actual engagement. In other words, if opponents cannot control the potential risks inherent in crossing red lines, they are less likely to cross them. By contrast, if weapons, operations, strategies, or stratagems are available to control risks, deterrence failure is increasingly likely.[19] The Japanese, for example, believed they could control the risks inherent in attacking Pearl Harbor. Their reasoning was flawed – they believed that the Americans would reach a negotiated settlement rather than fight over territory that was not important to them. Generating risk, the potential for "entanglement" leading to horizontal and vertical escalation, is one way that maritime forces can contribute to deterrence.

One might decide to run these risks for political considerations. Recent U.S. naval operations in the Red Sea are a case in point. Commanders understood that lingering in harm's way was not in the best naval tradition. If Naval forces cannot silence land-based fires, they would be well advised to move away from the area. But U.S. Navy commanders took these risks for broader national security objectives, which were costly in terms of defensive munitions expended and aircraft losses due to accidents and friendly fire.[20]

The tactical and operational exigencies that create risk during crises and war at sea are displayed during the Battle of Midway. Nevertheless, the traditional narrative that highlights the role of intelligence during the battle pushed these considerations into the background. As Gray suggests, focusing on just one aspect of a conflict can provide an inaccurate picture of the dynamics that shape victory and defeat.[21] U.S. Naval intelligence did its part to set the stage for the American victory at Midway, but Japanese actions also contributed to the failure of their Central Pacific strategy.

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“What’s My Age Again?” German Naval Strategy – The First 175/70 Years

Sebastian Bruns – Kiel, Germany



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Grouped around two regional flotillas and a naval aviation command, today’s German Navy has evolved from a coastal defense force of the early Cold War years – a navy “with an unlimited horizon, but limited tasks”[1] – to one facing a return to high-intensity warfare in the Baltic Sea and on the European northern flank after three decades of low-intensity missions. With seven decades since its creation in early January 1956, the German Navy has outlived its many

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predecessor navies by a long shot. At the same time, its effectiveness as a sea power – based on the basic, but highly illuminating definition coined by the late German admiral Edward Wegener – rested on the simple mathematical product of fleet size times bases (or better, geographical location). Naval strategy, in this context and for the purpose of this essay, was hence both: overcoming Germany’s more continental disadvantage at sea by building a fleet large and strong enough to attain overarching strategic objectives and through political or military means enhance the country’s sea-strategic position.

Germany’s checkered naval history

In January 2026, the German Navy celebrated its 70th anniversary. Curiously enough, in 2023, the *Deutsche Marine* also celebrated “175 years of German Navies” with a dedicated nation-wide promotional campaign and a multitude of events. It thus acknowledged its own long history dating back to the Revolution of 1848. While there were maritime predecessors, a unified German Navy was not created until the mid-19th century. On 14 June 1848, the Frankfurt Paulskirche parliamentary assembly ruled to procure and operate a navy. Earlier that year, the first Schleswig War had crippled German maritime trade in the Baltic and North Seas due to a Danish naval blockade of Schleswig-Holstein. The creation of a navy was seen as operationally necessary and vital to the nascent German state’s national identity. Planners even looked towards the United States of America to help procure and operate a modern warship. However, the counter-revolution in Germany was soon in full swing, and the *Reichsflotte* (Imperial Fleet) was auctioned off in 1852. In the 1860s, the state of Prussia created what can be considered as the second German Navy. Its operational reach and impact, such as in the German-Danish War of 1864, remained limited by a lack of strategy, industrial base, and a naval vision. After the Austro-Prussian War of 1866, Prussia emerged victorious from the conflict nonetheless, and its navy was soon reorganized as the North German Federal Navy, which in turn was succeeded by the Imperial Navy in 1871.

Buttressed by a multitude of innovations at the turn of the century, such as the torpedo, submarines, and fixed-wing aircraft, and lighter-than-air dirigibles, and the overarching political top cover from the 1890s through Kaiser Wilhelm II and Grand Admiral Alfred von Tirpitz (State Secretary of the German Imperial Naval Office), Germany built a navy that was designed to turn the unified Reich into a venerable sea power. Beyond a naval build-up, there was little to no strategy for the High Seas Fleet. The Kaiser, it appears, wanted big ships to upstage his British cousins or for fleet reviews. When World War I broke out in 1914, the Royal Navy held the German fleet in check by administering a distant blockade. The few vicious battles that did occur – the Falklands in 1914, Dogger Bank in 1915, and the Battle of Jutland in 1916 – did not meaningfully affect the course

of the war. While Germany resorted to unrestricted U-boat warfare, the High Seas Fleet “fell asleep in port”, as one sailor put it.[2] Frustrated, underprovided, and impatient, the crews of the warships revolted against an impending final one-way “final” deployment as negotiations were underway between a new government in Berlin and the Entente for an armistice. The ensuing Kiel Mutiny overturned the ruling military classes, forced the Kaiser to abdicate, and brought the war to an end. The remainder of Germany’s fleet was escorted to the British naval base at Scapa Flow, where it was scuttled on 21 June 1919 to prevent the capital ships from falling into enemy hands.

The naval officer caste remained skeptical, if not outright hostile, to the Weimar Republic, the first German democratic state. The Versailles Treaty limited any German maritime force to a meager 15,000 men, relegated to coastal defense, mine clearing, and commerce protection. The admirals sought to ease some restrictions through negotiations with former enemies and technological innovation, including weapons like aircraft and submarines banned by the Treaty. Three 10,000t *Deutschland*-class armored cruisers (*Panzerschiffe*), dubbed pocket-battleships by foreign navies but effectively powerful commerce raiders, were procured from 1928. However, a strong navy no longer served to unify the doomed Republic. After a series of domestic political turnovers, Adolf Hitler and the National Socialists came to power in 1933 and soon rebuilt Germany. The Third Reich did away with all democratic institutions, jailed and murdered domestic opposition or those of Jewish faith, threatened its European neighbors, and began a massive military build-up.

Under its commander, Grand Admiral Erich Raeder, the *Kriegsmarine*, as it was known since 1935, developed a hyper-ambitious “Z Plan”. If it had come to fruition by the late 1940s, it would have created a huge force of battleships, aircraft carriers, cruisers, and panzer ships. Alas, World War II broke out in Europe on September 1, 1939, when Germany invaded Poland. Although the opening salvos came from the 35-year-old obsolete battleship *Schleswig-Holstein*, which had pulled into the port of Danzig in a Trojan Horse operation a few days earlier, the *Kriegsmarine* was seen as unfit and unprepared for the escalating conflict. The force structure was disconnected from strategy, and World War I-era ships mixed with the Anglo-German naval agreement fleet and the 1939 Z plan paper fleet. France’s and Great Britain’s declaration of war against Hitler’s Germany led to despair already.

“Echoing Trotha’s call in 1918 for the fleet to ‘go down with honor’, Raeder acknowledged that the surface forces were ‘too weak in number and strength’ and could only ‘show – through [their] full engagement – that they know how to die gallantly [...]’[3]

As it were, Germany’s good dozen of major surface combatants were sunk or disabled. Raeder was replaced

by Karl Dönitz, who focused all shipbuilding and pretty much all operational planning on unrestricted submarine warfare. In the Battle of the Atlantic, German “wolf packs” threatened allied convoys, but the allies prevailed. More than 72,000 merchant mariners, sailors, and airmen, perished in this theater alone. Of the 40,000 German *Kriegsmarine* submariners alone, who went down to sea in fighting ships, 30,000 never returned. Even at the highpoint of subduing Europe, the Nazis failed to appreciate the value of naval power through their expansion. Instead, maritime power was limited to submarines. Capital ships drew Adolf Hitler’s disdain. The *Kriegsmarine* leadership remained fervent Hitler supporters and, to avoid being accused of backstabbing the overall German war effort as it was seen in 1918, remained loyal through the end. After Hitler’s suicide on 30 April 1945, it was Dönitz who assumed the position of Chancellor of the Reich. His bizarre “Flensburg government” outlasted Germany’s capitulation to the Allied powers on 8 May 1945 while the available navy and civilian ships finally received the fuel in the waning days of the war – an action Dönitz and his supporters would later claim credit. They successfully framed the *Kriegsmarine* as apolitical and single-handedly exercising the evacuation of military and civilian personnel from East Prussia and Pomerania to Schleswig-Holstein. After 1945, this would contribute to the well-tendered myth of the “clean *Kriegsmarine*”, a force that had allegedly always acted honorably, did not partake in the murderous dictatorial Nazi regime but remained loyal to the end, and managed to gallantly save tens of thousands of countrymen from the Soviet wrath. Former *Kriegsmarine* personnel, supported by post-war allied and German policy-makers, even saw this as a veritable method to whitewash their own personal history and that of the military they served.

Ironically, the two most senior naval leaders of the *Kriegsmarine* survived the war and the Nuremberg war crime trials. Karl Dönitz was sentenced to 10 years in prison. Erich Raeder was sentenced to life in prison but released on medical grounds in 1956. At Raeder’s 1960 funeral, a remorseless Dönitz (†1981) gave the eulogy. The shadows of the *Kriegsmarine* loomed large over the West-German Navy, as the *Großadmiralsfrage* – the question how to deal with and assess the grand admirals and the wider German naval legacy – of almost Faustian proportions.[4]

The Bundesmarine, West Germany’s navy (1956–1990)[5]

Right after the war, the superpower confrontation turned former allies into enemies. The U.S.-led North Atlantic Treaty Organization (NATO) in the West faced the Soviet Union’s Warsaw Pact in the East. An “Iron Curtain” had come down across Europe, cutting Germany in half. In light of the Korean War (1950–1953) and the evolution of the nuclear bomb with its devastating power, a West German defense contribution to Europe was increasingly desirable.

After the Western allies relinquished their rule over West Germany in 1955, the Konrad Adenauer government worked towards joining NATO (in parallel with European integration efforts). In this vein, the Bundeswehr was founded. The 1950 Himmerod Abbey memorandum had already outlined a defense contribution. Former *Kriegsmarine* had been employed in mine-clearance and river patrol, and strategic, operational and tactical lessons from World War II were studied in depth by a Naval Historical Team, supported by the U.S.

Buttressed by strong U.S. and Royal Navy support, the West German *Bundesmarine* was soon equipped to contribute to geographically limited alliance defense in the Baltic Sea and the North Sea. Admiral Arleigh Burke, the U.S. Navy’s Chief of Naval Operations 1955–1961, remarked that “[...] If we [the United States] were to support the development of a German Navy at all, we should do it wholeheartedly.”[6] Yet, tonnage and operational restrictions would remain in place until the 1960s and 1980s, respectively.[7] From its outset, the German Navy was integrated into NATO command structures. NATO was the vehicle, and thus the enabler and limitation at once, of what the German Navy would and could do. Perhaps most strikingly, NATO offered an alliance that would both contain the Germans who were so very much needed in the defense of the West, but also provide – for the first time in German naval history – by implication the geographic scope and location spanning the North Atlantic proper that previous German attempts at maritime influence never could attain.

Through such conscientious efforts put in place by skeptical Western allies, readily adopted by new generations of *Bundesmarine* naval officers, this new navy simply emerged as an “alliance navy”. Its strategic culture reflected that. Its operational focus was on securing the Baltic Approaches, holding at bay a Red Banner fleet amphibious assault on Jutland and Schleswig-Holstein, and helping escort allied reinforcements into Europe’s North Sea ports. The West Germans managed to create and maintain a navy that remained at the operational-conceptual level because the NATO strategy framework in which it operated was several echelons above. There was no need for a genuine naval strategy, with sea powers such as the United Kingdom and the United States on the West German home team.

It was not until the final phase of the Cold War that the German Navy truly expanded its scope, neatly aligned with the naval renaissance of the U.S. Maritime Strategy, which i.e., focused strongly on the North European theatre. [8] Three U.S.-built guided-missile destroyers (Charles F. Adams-class) were commissioned in 1969–1970. The 1980s saw a modernized force, with Tornado naval jets gradually replacing the ageing Starfighters. Eight guided-missile frigates of the *Bremen*-class, built under a program with the Netherlands, came online to replace older frigates and destroyers. A new class of fast-patrol boats (*Gepard*-class), modern mine-hunters, and signal intelligence ships were

also added. Crucially, there was not a 1-on-1 replacement as old units were retired. The force shrank from a Cold War highpoint of 200 vessels somewhat, but confidence in new technology and platforms, as well as a renewed strategic vigor, helped float the *Bundesmarine’s* boat. With the Concept of Maritime Operations (CONMAROPS), a trilateral effort to conceptualize combined containment, defense in depth, and keeping the initiative activities at and from the sea, German naval strategic thought began to take a wider space.[9]

The Deutsche Marine: The Unified Germany’s Expeditionary Navy (1990–2014)

In 1987, the then-Chief of Navy, Vice Admiral Hans-Joachim “Jimmy” Mann, gathered a group of naval leaders and created “Marine 2005”, colloquially dubbed “Sylt Fleet” for the North Sea island on which the first conference had been held. Its proposed force reductions were not seen as the minimum; rather, they were seen as a top-level that could be chipped away as the Cold War eased and ended. Suddenly, the German Navy’s business model was in limbo: The Bundeswehr had to absorb former *Volksmarine* personnel (only 2,000 were integrated, ~16,000 people were fired), and all of the 100 or so East German warships and planes were soon sold or scrapped. German unification proved to be a herculean task domestically, and part of the 2+4 negotiations was the clear-cut reduction of Bundeswehr end strength from a Cold War high of 500,000 to no more than 370,000, in addition to the departure of the troops of allied powers from Germany by 1994.

For the Deutsche Marine, a name formally adopted in 1995 to distinguish itself from its Cold War predecessors and signal a unified country, the world did not wait. When U.S. President George H.W. Bush amassed an international, United Nations-mandated coalition against Iraqi dictator Saddam Hussein in 1990/1991, Germany opted for “checkbook diplomacy”. It only deployed some of its venerable mine-sweepers to the Gulf region after hostilities had ended. With a fresh verdict by the High Constitutional Court in 1994 to allow for out-of-area operations, German frigates patrolled the Adriatic Sea (first under a Western-European-Union mandate, later under NATO command) in the long Balkan Wars of the 1990s. S-boats, coastal submarines, and minesweepers appeared to be a thing of the past, and German thought turned to more expeditionary assets, including sea-basing.[10]

Since 2001, the “War on Terror” has consumed naval resources. Germany operated off the Horn of Africa as part of Operation Enduring Freedom, conducted maritime domain awareness in the Mediterranean Sea, and its frigates have routinely been integrated in U.S. and French aircraft carrier groups. Anti-piracy and migrant rescue operations kept the navy busy, but echoing Samuel Huntington’s 1954 verdict on American naval missions, that is not what navies

are procured for.[11] On the home front, the navalized Tornado aircraft were transferred to the Luftwaffe in 2005, and type flotillas of the Cold War were reorganized into two geographic commands in the Baltic Sea (Flotilla 1, Kiel) and the North Sea (Flotilla 2, Wilhelmshaven). Germany began building the F125 Baden-Württemberg-class “stabilization frigates,” designed for low- and medium-intensity scenarios. Overtime and over budget, only four were procured. The suspension of the draft in 2011, at the time a pure cost-cutting effort, robbed the Navy of a key recruitment pool, a problem the Deutsche Marine suffers from until today. Readiness problems and a series of high-profile scandals around the proud sail training ship *Gorch Fock* hampered the reputation. Slowly but steadily, the force hollowed out, despite having grown from a mere coastal waters navy of the Cold War to one with regular regional force projection missions (albeit under NATO, European Union, or United Nations mandates).

The German Navy and the Zeitenwende (since 2014)

When Russia annexed Crimea and began a brutal war of aggression in Eastern Ukraine in 2014, the Deutsche Marine turned out to be quick on its feet. As if buried Cold War muscle memory were reactivated, the naval leadership under Vice Admirals Andreas Krause and Rainer Brinkmann refocused on the Baltic Sea. They understood that the Baltic, one of Russia’s front lines with the West, would quickly become a center of conflict. Having served as operators in the Baltic on submarines and S-boats, respectively, the admirals sought to build cooperation across the Baltic Sea. Across-the-board European cuts had affected all navies in the region.[12] That left the Deutsche Marine as the largest force of the economically most powerful nation on the Northern flank. Putting 2+2 together, this spelled German naval leadership in its home waters. Admiral Krause even commissioned a capstone document, written outside of hierarchical structures.[13] While the document was not published as a stand-alone work, its ideas reflected the strong Allied spirit of the military. As an “alliance navy”, it also sought to be more ambitious rather than outsourcing all strategic thought to NATO or the EU. In terms of force structure, some modest building programs – including new U.S. P-8A “Poseidon” maritime patrol aircraft (MPA) – made progress but served little to actually grow the navy in size.

When Vladimir Putin escalated his war against Ukraine and the West in earnest in February 2022, the German chancellor Olaf Scholz proclaimed a *Zeitenwende* (or sea change). The 100bn € for defense, it soon emerged, was but the first step toward a wider rearrangement of defense spending, procurement, and strategy. As it were, the German Navy needed some time to provide a force structure plan that the parliament would fund. Yet, the Deutsche Marine looks at a significant increase in its ship numbers and capabilities, i.e. more MPAs, more large conventional submarines jointly

procured with Norway, two generations of anti-submarine and air defense frigates (though ballooning to be venerable cruisers if judging by prospective tonnage alone). For a country that for ten years had navigated around even committing to basic NATO GDP spending goals of 2% and having hoped that Russia would come to its senses and the U.S., and other capable allies would forever guarantee national survival and alliance defense, this is nothing short of a sea change. Scholz’ successor Friedrich Merz and his allies in parliament have essentially done away with defense spending caps, seek to re-instate a military draft of some form, and be stronger on defense and foreign policy than the previous government. Whether Germany can fulfill its broader global ambitions – such as regular Indo-Pacific deployments of 1-2 warships every other year – in light of the drastic and likely lasting changes in European security remains to be seen. The German Navy can only be as effective as the policy-makers and the defense-intellectual and defense-industrial complexes allow it to be. Because of the size of the Navy still lingering around 46 warships, any new possible operation – politically viable as it might be, such as the discussion on sending minesweepers to the Strait of Hormuz – risks overwhelming what Vice Admiral Jan Kaack, Chief of Navy, recently called “Germany’s

smallest navy ever”.[14]

Today’s German Navy holds little to no connections to its predecessor navies. For instance, when the Kiel naval base was renamed from “Tirpitzhafen” to “Marinestützpunkt Kiel-Wik” in 2021, the most indignant individuals appeared to be senior citizens and some retirees. In terms of its strategic culture, it has to navigate with the challenges of any big warfighting organization: Different unions (warfighting areas), a geographical dispersal, and an uncertain future operating environment across the whole spectrum of conflict. At the same time, the departure of the U.S. as an ally appears to be imminent and European solutions with strong German leadership have to be considered.[15] From a cocktail reception on a frigate’s flight deck in a visiting port to high-intensity warfare, the German Navy remains a prime tool for a maritime-dependent nation such as Germany. Still, Admiral Wegener’s dialectic of maritime power as the product of fleet size and bases holds true, even in the 2020s. It will take a sizeable, larger and more capable German Navy to play its role in a European pillar of NATO, one that reaches from the North Cape to Gibraltar, and beyond. That includes ships, personnel, the industrial base, and the political will.

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