

# NAVAL WAR COLLEGE REVIEW

**Spring 2014**

Volume 67, Number 2



Report Documentation Page				Form Approved OMB No. 0704-0188	
Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.					
1. REPORT DATE <b>2014</b>		2. REPORT TYPE		3. DATES COVERED <b>00-00-2014 to 00-00-2014</b>	
4. TITLE AND SUBTITLE <b>Naval War College Review, Spring 2014, Volume 67, Number 2</b>				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) <b>Naval War College,,Newport,,RI,02841</b>				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT <b>Approved for public release; distribution unlimited</b>					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT <b>The story of the Navy's Maritime Strategy of the 1980s is a well-known one, at least in khaki circles, but for many it has receded into an iconic past that seems to hold few obvious lessons for the present. In "Creating the 1980s Maritime Strategy and Implications for Today," John Hanley asks us to revisit the context and development of the original, Soviet-inspired Maritime Strategy in the light of the challenge currently posed to the United States and its allies by the People's Republic of China.</b>					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT <b>Same as Report (SAR)</b>	18. NUMBER OF PAGES <b>149</b>	19a. NAME OF RESPONSIBLE PERSON
a. REPORT <b>unclassified</b>	b. ABSTRACT <b>unclassified</b>	c. THIS PAGE <b>unclassified</b>			



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Volume 67, Number 2



NAVAL WAR COLLEGE PRESS  
686 Cushing Road  
Newport, RI 02841-1207

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686 Cushing Rd., Newport, RI 02841-1207

Fax: 401.841.1071

DSN exchange, all lines: 841

Website: [www.usnwc.edu/press](http://www.usnwc.edu/press)

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The *Naval War College Review* was established in 1948 as a forum for discussion of public policy matters of interest to the maritime services. The thoughts and opinions expressed in this publication are those of the authors and are not necessarily those of the U.S. government, the U.S. Navy Department, or the Naval War College.

The journal is published quarterly. Distribution is limited generally to commands and activities of the U.S. Navy, Marine Corps, and Coast Guard; regular and reserve officers of U.S. services; foreign officers and civilians having a present or previous affiliation with the Naval War College; selected U.S. government officials and agencies; and selected U.S. and international libraries, research centers, publications, and educational institutions.

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Periodicals postage paid at Newport, R.I. POSTMASTERS, send address changes to: *Naval War College Review*, Code 32S, Naval War College, 686 Cushing Rd., Newport, R.I. 02841-1207.

ISSN 0028-1484



# CONTENTS

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**From the Editors** . . . . . 3

**President’s Forum** . . . . . 7

**Creating the 1980s Maritime Strategy and  
Implications for Today** . . . . . 11

*John T. Hanley, Jr.*

The approaches that allowed the Chief of Naval Operations’ Strategic Studies Group to contribute so vitally to the U.S. Navy’s 1986 maritime strategy might be effective as well in confronting the challenges that the Navy faces today.

---

*Asia Rising*

**Strategic Features of the South China Sea**  
**A Tough Neighborhood for Hegemons** . . . . . 30

*James R. Holmes*

Alfred Thayer Mahan’s analysis of the Gulf of Mexico and the Caribbean Sea offers present-day students and practitioners of maritime strategy a framework to think through the challenges of the South China Sea.

**The Japan Maritime Self-Defense Force in the Age of  
Multilateral Cooperation**  
**Nontraditional Security** . . . . . 52

*Captain Takuya Shimodaira, Japan Maritime Self-Defense Force*

The Japan Maritime Self-Defense Force should take the initiative in promoting the concept of the Noncombat Military Operation (NCMO), especially humanitarian assistance and disaster relief, in the Asia-Pacific region. It should begin by forming a new mind-set—“Yes, it is possible.”

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**Cyber War, Cybered Conflict, and the Maritime Domain** . . . . . 71

*Peter Dombrowski and Chris C. Demchak*

Those who dismiss cyber war as mere hype or as driven by potential profits dismiss much too quickly growing evidence of the importance of cyber operations—to which the Navy may be uniquely qualified to adapt.

## Promising Privateers?

Understanding the Constraints of Contemporary Private Security at Sea . . . . . 97

*Christopher Spearin*

A clear understanding of the current nature and activities of private military and security companies at sea is important to assess accurately their future implications. Are they modern-day privateers?

## Innovation for Its Own Sake

The Type XXI U-boat . . . . . 117

*Marcus O. Jones*

The World War II German navy's Type XXI submarine is sometimes derided as a wishful "wonder weapon." But in context of a decision to impose ruthless and innovative technocratic priorities, it appears more rational. It may also serve as a cautionary example of the extent to which social explanations of technological adaptation must include appreciation of constraints on military effectiveness.

## Book Reviews

*Conflict Analysis: Understanding Causes, Unlocking Solutions,*

*by Matthew Levinger*

reviewed by Lawrence Modisett . . . . . 131

*Strategic Thinking in 3D: A Guide for National Security, Foreign Policy, and Business Professionals,* *by Ross Harrison*

reviewed by Alexander B. Gray . . . . . 132

*War from the Ground Up: Twenty-First-Century Combat as Politics,*

*by Emile Simpson*

reviewed by Jeffrey Shaw. . . . . 133

*Chinese Anti-Ship Ballistic Missile (ASBM) Development: Drivers, Trajectories, and Strategic Implications,* *by Andrew S. Erickson*

reviewed by Bernard D. Cole . . . . . 134

*Maritime Border Diplomacy,*

*edited by Myron H. Nordquist and John Norton Moore*

reviewed by Richard Norton . . . . . 135

*Maritime Piracy and the Construction of Global Governance,*

*edited by Michael J. Struett, Jon D. Carlson, and Mark T. Nance*

reviewed by Martin Murphy. . . . . 136

*Lawrence in Arabia: War, Deceit, Imperial Folly, and the Making of the Modern Middle East,* *by Scott Anderson*

reviewed by Thomas E. Seal . . . . . 137

*The Capture of Louisbourg, 1758,* *by Hugh Boscawen*

reviewed by John B. Hattendorf. . . . . 139

Reflections on Reading . . . . . 141



## FROM THE EDITORS

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The story of the Navy's Maritime Strategy of the 1980s is a well-known one, at least in khaki circles, but for many it has receded into an iconic past that seems to hold few obvious lessons for the present. In "Creating the 1980s Maritime Strategy and Implications for Today," John Hanley asks us to revisit the context and development of the original, Soviet-inspired Maritime Strategy in the light of the challenge currently posed to the United States and its allies by the People's Republic of China. The primary focus of his discussion is the role of the Chief of Naval Operations' Strategic Studies Group (SSG) as catalyst of the strategy. Writing as one intimately familiar with this organization and those then associated with it, many of whom would occupy very senior positions in the Navy in later years, Hanley emphasizes the critical importance of the SSG not only in effective exploitation of sensitive intelligence on the Soviet navy (by now a relatively well-known part of the story) but also in conceptual breakthroughs in combined-arms anti-submarine operations and in what later came to be called "net-centric warfare." He suggests that a group with the attributes of the SSG (collocated with the Naval War College but working more or less directly for the Chief of Naval Operations) might profitably refocus its efforts to concentrate on developing imaginative strategic counters to the near-term Chinese threat to American global maritime operations. John Hanley, a former Navy nuclear submarine officer, served on the Strategic Studies Group for eighteen years, eventually as deputy director.

Central to Chinese maritime preoccupations in the twenty-first century is certain to be the South China Sea. For some years, China has advanced a vague claim to "sovereignty" over a large swath of that strategic body of water (the "nine-dotted line"). More recently, it has tried in various ways to strengthen its hold on the Paracel and Spratly Islands, ownership of which remains contested with several Southeast Asia nations (as well as Taiwan), and has attempted to exert greater control over fisheries there and the transit of foreign shipping. James R. Holmes, in "Strategic Features of the South China Sea: A Tough Neighborhood for Hegemons," offers an analysis of the region that takes its point of departure from the geopolitical writings of the great American naval strategist Alfred Thayer Mahan. Specifically, Holmes argues that Mahan's analysis of the significance of the Gulf of Mexico and the Caribbean for the maritime security of the United States at the beginning of the twentieth century provides a useful template

for understanding China's relationship to the South China Sea today and in the future. His conclusion is that China's geostrategic position there is weaker than many may be inclined to think.

One of the most important mechanisms for keeping the peace in East Asia is the U.S.-Japan security relationship. Its importance for the United States is all the greater given the steady buildup of Chinese naval and maritime capabilities in the region that we have witnessed in recent years. In "The Japan Maritime Self-Defense Force in the Age of Multilateral Cooperation: Nontraditional Security," Captain Takuya Shimodaira, JMSDF, argues that Japan needs to ramp up maritime cooperation with friendly navies, above all with that of the United States, by a new emphasis on the conduct of what he terms "Noncombat Military Operations," particularly humanitarian assistance and disaster relief. Captain Shimodaira is currently the Japan Maritime Self-Defense Force Liaison Officer to the Naval War College.

In "Cyber War, Cybered Conflict, and the Maritime Domain," Peter Dombrowski and Chris C. Demchak provide a synoptic overview of an increasingly important topic on the global security agenda. They adopt a middle position between those of alarmists and skeptics concerning the potential of "cybered conflict" (a term they seek to introduce) to be a "game changer"—that is, to have a truly strategic impact—in the future security environment. Paying particular attention to the evolution of cyber capabilities in the Navy, they hold out hope that properly developed cyber forces can serve to maintain or enhance traditional American military advantages. Peter Dombrowski and Chris Demchak are professors in the Strategic Research Department of the Center for Naval Warfare Studies.

Also high on the current global security agenda is the issue of piracy. Christopher Spearin, in "Promising Privateers? Understanding the Constraints of Contemporary Private Security at Sea," provides a careful discussion of the nature and role of private military and security companies (PMSCs) today in addressing the threat of piracy, particularly in the waters off Somalia. He argues that it is misleading to understand these entities, as many have suggested, as analogous to the privateers of earlier centuries. Many questions remain to be answered, however, concerning their relationship to national navies and authorities. Christopher Spearin is a professor at the Royal Military College of Canada.

Finally, Marcus O. Jones, in "Innovation for Its Own Sake: The Type XXI U-boat," offers a fascinating case study in naval technological innovation in wartime. He argues that the introduction of an entirely new submarine design by Nazi Germany in 1943, often understood as reflecting the German obsession later in the war with technological "wonder weapons" that would compensate for strategic and tactical weaknesses, was instead a reasonable gamble that

acknowledged the growing ineffectiveness of the Nazi U-boat effort in the teeth of superior American and British countermeasures. However, he also notes that it represented a poor allocation of resources by the German high command and that it made no difference in the outcome of the war.

#### OUR LATEST NEWPORT PAPER

*Commerce Raiding: Historical Case Studies, 1755–2009*, Newport Paper 40, edited by Bruce A. Elleman and S. C. M. Paine, of the Naval War College, is now available in print for online sale by the U.S. Government Printing Office, at bookstore.gpo.gov. This, our latest monograph (also available on our own website) collects expert analyses of commerce raiding during the past two centuries in terms of the factors of time, space, and force, as well as with respect to positive and negative objectives. A consideration of the range of historical case studies in this volume provides an opportunity to reflect on the ways in which old and long-forgotten problems might reemerge to challenge future naval planners and strategists.

#### IF YOU VISIT US

Our editorial offices are now located in Sims Hall, in the Naval War College Coasters Harbor Island complex, on the third floor, west wing (rooms W334, 335, 309). For building-security reasons, it would be necessary to meet you at the main entrance and escort you to our suite—give us a call ahead of time (841-2236).



Rear Admiral Walter E. “Ted” Carter, Jr., became the fifty-fourth President of the U.S. Naval War College on 2 July 2013. A native of Burrillville, Rhode Island, he graduated from the U.S. Naval Academy in 1981, was designated a Naval Flight Officer in 1982, and graduated from Top Gun in 1985.

His career as an aviator includes sea assignments in Fighter Squadron (VF) 161, on board USS Midway (CV 41); in VF-21, the “Freelancers,” on board USS Independence (CV 62); in Carrier Air Wing Five (CVW 5); in command of the VF-14 “Tophatters”; and as executive officer of USS Harry S. Truman (CVN 75), culminating in command of USS Camden (AOE 2) and USS Carl Vinson (CVN 70). Subsequent fleet command assignment includes service as Commander, Enterprise Carrier Strike Group (CSG 12).

Carter has served in numerous shore assignments, including VF-124, the “Gunslingers”; in Fighter Wing Pacific; as executive assistant to the Deputy Commander, U.S. Central Command; as chief of staff of the Joint Warfighting Center, U.S. Joint Forces Command; as Commander, Joint Enabling Capabilities Command; and as Director, 21st Century Sailor Office (N17).

He has led strategic projects, including the disestablishment of U.S. Joint Forces Command, and most recently, was charged with leading Task Force RESILIENT.

He is the recipient of various personal awards, including the Defense Superior Service Medal (two awards), Legion of Merit (three awards), Distinguished Flying Cross with Combat V, Bronze Star, Air Medal (two with Combat V and five strike/flight), and Navy and Marine Corps Commendation Medal (two with Combat V). He was also awarded the Vice Admiral James Bond Stockdale Leadership Award and the U.S. Navy League’s John Paul Jones Award for Inspirational Leadership and was appointed an Honorary Master Chief by the Master Chief Petty Officer of the Navy.

He has accumulated 6,150 flight hours in F-4, F-14, and F-18 aircraft and has made 2,016 carrier-arrested landings, the record among all active and retired U.S. naval aviation designators. He has also flown 125 combat missions in support of joint operations.



## PRESIDENT'S FORUM

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### *Education That Matters*

THE YEAR 2014 MARKS the 130th anniversary of the General Order that established the Naval War College to conduct “an advanced course of professional study for naval officers.” Over the ensuing decades the College has expanded to include students from all military services, from national-security-related agencies, and from over sixty-five allied nations. Today, the College is organizationally adaptable, educationally flexible, and more Fleet relevant than ever. The decisions officers make to seek out a service college education are complex, and we are working to make the Naval War College an irresistible choice for our brightest and best young officers.

An officer's career of twenty to twenty-five years can have as few as a half-dozen decision points when key assignment choices must be made. Many of these choices are essentially “hardwired” as mandatory “career gates” necessary to achieve due-course progression within a chosen community. At the same time, promotion within the officer community is a highly competitive process, and thoughtful officers carefully weigh the advantages that each potential job will bring in terms of increased operational experience, development of executive and decision-making skills, and expansion of their knowledge of “big picture” issues necessary to provide leadership at the most senior levels. Even with the need to stay on a career-relevant “glide slope,” every career has time for professional development, and I would argue that there is no better or faster way for officers to transition from platform-centric expertise to executive leadership competence than completion of the Naval War College program. The investment of one year of study will pay significant dividends for the remainder of their careers. We recognize, however, that there have been administrative hurdles that may have discouraged some “hot-running” officers from seeking the benefits that a service-college education can

provide. We are committed to addressing these important issues and removing these impediments to the maximum extent possible.

In the past, officers attending the resident Naval War College course were provided with “not observed” fitness reports that simply documented their time at the College. Many officers chose not to attend the course out of fear that a year-long “hole” in their career would be detrimental to their chances for promotion. I am happy to announce that a change was recently implemented to provide officers who excel in our academic program (finishing in the top 20 percent of each class) with “observed” reports signed by a Navy two-star. Selection boards will now be able to see that these officers competed with joint service officers in a highly demanding educational program—and came out on top!

While the College’s well-known core courses are extremely rigorous and rewarding, a number of other programs have been developed to enrich further the Newport experience.

- Through a new program, Advanced Studies in Naval Strategy (ASNS), a select group of students will complete a focused concentration on the strategic use of maritime power in the modern age, in addition to completing the College’s three highly relevant core courses, which provide a broad, graduate-level education in joint military operations, the national security environment, and the interaction of strategy and policy. Simultaneously with their core curriculum studies, these select students will also complete a series of three advanced elective courses focusing on international security, strategy and economics, and the strategic role of sea power, both historically and in the future. The final component of the ASNS program will be a focused thirteen-week capstone project that enables students to develop strategic products tailored to specific issues identified by the Fleet and Combatant Commanders. Successful graduates will be assigned a Navy subspecialty code 2300-P to identify them as “Naval Strategists.” The pilot offering of the ASNS program is being conducted during academic year 2013–14, with a ramp-up to a fully staffed program expected by 2015.
- Students with an interest in taking a “deep dive” into research on a range of topics can augment their core courses with selection as Halsey, Mahan, or Gravelly Scholars. These scholars engage in collaborative student/faculty efforts that use operational analysis supported by free-play war gaming to examine in detail such issues as the medium-intensity access/denial challenge; high-intensity conventional warfare centered on a technologically sophisticated access-denial challenge posed by a “near peer” military competitor; and strategic-level challenges, such as nuclear weapons, deterrence, and escalation-control issues. The analysis is conducted at the classified, tactical

level and relies on military and civilian student expertise to maintain its relevance to the Fleet and appropriate staffs.

- Students participating in the College of Naval Command and Staff (CNC&S) intermediate-level Joint Professional Military Education (JPME) course may apply for a competitive appointment to the Maritime Advanced Warfighting School (MAWS), which educates officers to be operational-level leaders—to understand and apply maritime power effectively; to stand up and lead Operational Planning Teams (OPTs); and to think creatively and critically, evaluating complex, chaotic security problems, identifying key causes and effects, developing exhaustive alternatives, and effectively implementing the best courses of action. MAWS also educates officers to conduct effective operational planning as members of planning teams in multinational, interagency, joint, and maritime environments. In addition to the core courses offered by the CNC&S, MAWS students complete a series of planning-oriented electives and a thirteen-week capstone project.

We are also currently reviewing our highly regarded Electives Program to ensure that the student effort expended here, which constitutes 20 percent of their entire academic program, provides the critical education and essential credentials needed to best serve the Joint War Fighter.

The years between the first and second world wars are often referred to as the Naval War College's golden era, when officers who would ultimately win World War II in the Pacific spent time in Newport studying the many potential futures they were likely to face. Today, we find ourselves in a similar period, having drawn down from a dozen years of conflict, and officers should now seek out the opportunity to invest in themselves and further improve their ability to think strategically and contribute to the needs of the Joint Force of the future. Just as no two students are alike and no two careers mirror one another, the "Newport experience" varies by an individual's aspirations, interests, and goals. At the College students are allowed to create educational experiences tailored to their personal needs. The three core courses function as the firm foundation on which each individualized program is built. By choosing one of the specialized programs outlined above or by selecting a series of elective courses in a given Area of Study, students can craft the educational program that best prepares them for the rest of their careers—and beyond!

The Naval War College truly provides *education that matters*.

WALTER E. "TED" CARTER, JR.

*Rear Admiral, U.S. Navy  
President, Naval War College*

*Dr. Hanley served with the first eighteen Chief of Naval Operations Strategic Studies Groups as an analyst, program director, and deputy director. He earned his doctorate in operations research and management science at Yale University. A former U.S. Navy nuclear submarine officer and fleet exercise analyst, he served as special assistant to Commander in Chief, U.S. Forces Pacific; in the Office of the Secretary of Defense (Offices of Force Transformation; Acquisition, Technology and Logistics; and Strategy); and as deputy director of the Joint Advanced Warfighting Program at the Institute for Defense Analyses. Retiring from government in 2012 after serving as director for strategy at the Office of the Director of National Intelligence, he is now an independent consultant.*



## CREATING THE 1980S MARITIME STRATEGY AND IMPLICATIONS FOR TODAY

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*John T. Hanley, Jr.*

While important differences exist, the first decade of the twenty-first century paralleled the 1970s for the Department of Defense and the U.S. Navy. U.S. armed forces were embroiled in extended and expensive counter-insurgency wars. American military equipment was growing old, budgets were tight, and extended projections called for significant decreases in the nation's armed forces, just as the main prospective military adversary was both rapidly modernizing and expanding its forces, particularly its navy. "From 1962 to 1972, the navy had programmed the construction of 42 ships per year, but between 1968 and 1975 only 12 ships, or less than a third as many per year, were programmed. In 1975, given the age of ships already at sea, and the navy-expected service life for a warship of 25–30 years, the service anticipated retiring about 4 percent of the active fleet each year."<sup>1</sup> The Soviets were extending their defensive perimeter from two to three thousand kilometers.<sup>2</sup> Today, the Chinese suggest extending their defensive perimeter from the "first island chain," enclosing the East and South China Seas, to the second, bounded by the Marianas, three thousand kilometers from the Chinese coast.<sup>3</sup> In the 1970s, the United States questioned its own ability to fight forward, defend allies, and achieve objectives—as many defense analysts and many in the Navy do now.

The maritime strategy of the 1980s rapidly changed the 1970s Navy's narrative and perspective. In the early 1980s the Navy came to believe that it could play a decisive role in a global war with the Soviet Union. Using sensitive intelligence on Soviet operations, plans, and military science, a newly created group of upwardly mobile officers working directly for the Chief of Naval Operations (CNO) and interacting with the Navy leadership and fleet commands employed operations

analysis and war gaming to create novel operational concepts and campaigns to defeat the Soviet strategy. The operational concepts that became William A. Owens's "system of systems" and that Arthur K. Cebrowski branded "network-centric warfare" provided underpinnings for this turnaround.<sup>4</sup> These concepts involving close cooperation among Navy, Marines, Air Force, and allies, akin to today's "Air-Sea Battle," were key to victory in the maritime theaters.<sup>5</sup> Revisiting the creation of the 1980s strategy suggests opportunities for dealing with the antiaccess/area-denial challenges presented by China and others today.

### THE SPIRIT OF THE U.S. NAVY IN THE '70S: WRINGING OF THE HANDS

"The accelerating obsolescence of the U.S. Navy since the end of World War II as opposed to the impressive growth of and modernization of the Soviet Navy during the same period" was in the forefront of Admiral Elmo "Bud" Zumwalt's mind when he became Chief of Naval Operations in 1970.<sup>6</sup> American and Soviet maritime development were "asymmetrical" in a number of fundamental respects:

- The United States was a "world island" long experienced in the use of the seas, but the Soviet Union was a self-sustaining land power.
- The Soviets were able to "protect their most important client states or attack all but one of its most likely enemies without going to sea," while "the political interests and commitments of the United States require[d] that it be capable of having a large military influence overseas."
- The U.S. Navy had been at its largest at the end of World War II and was now retiring large numbers of aging ships, while the Soviet navy, having been destroyed, was rebuilding.
- The Soviets had an advantage in naval cruise missiles.
- The Soviets had only limited access to the seas but were increasing their operations in the Mediterranean, in the Persian Gulf, in the Caribbean, and around Africa.
- The Soviet navy controlled land-based, long-range aircraft armed with cruise missiles, as well as merchant ships and fishing fleets.
- The U.S. Navy was emphasizing power projection rather than sea control, in response to the demands of the Vietnam War.
- The U.S. services' budgets were limited, as was their control over roles and missions.

All these factors led, in Zumwalt's view, to an unbalanced fleet with a rapidly diminishing capability to deal with the Soviet navy.<sup>7</sup> Zumwalt estimated "that

as of 1 July 1970 the United States had a 55 percent chance of winning a major conventional war at sea, and was heading toward a 45 percent chance as of 1 July 1971, and [a] considerably smaller one than that by 1 July 1972 if budget levels under discussion were maintained.”<sup>8</sup>

Nuclear arms control agreements were driven by “Henry Kissinger’s world view: that the dynamics of history are on the side of the Soviet Union; that before long the USSR [Union of Soviet Socialist Republics] will be the only superpower on earth and that the United States will be an also-ran; that a principal reason this will happen is that Americans have neither the stamina or the will to do the hard things they would have to do to prevent it from happening.”<sup>9</sup>

On coming to office in 1977, President Jimmy Carter directed in Presidential Review Memorandum 10 “that a comprehensive examination be made of overall U.S. national strategy and capabilities.”<sup>10</sup> The review generated “alternative integrated military strategies,” all of which emphasized Central Europe. The strategies planned on losing territory but holding for thirty days. Strategies to take territory back were deemed unaffordable. The strategies counted on Soviet hostility with China to pin Soviet forces in Asia. They contained no viable approaches for conflict termination. While they acknowledged options for conflicts outside Europe, they did not analyze these. The Joint Chiefs of Staff footnoted in several places that “adoption of any of these [alternative integrated military strategies] contains the high risk of the loss of Western Europe or early initiation of a nuclear response, should deterrence fail.”<sup>11</sup> The plans called for swinging U.S. forces, particularly naval forces, from the Pacific to Europe, though there was a question whether they would arrive within the thirty days needed to stop a Soviet advance.<sup>12</sup>

Secretary of Defense Brown seemed to be trying to bring the huge defense budget under control by strengthening NATO’s land and air forces through reduction of the navy’s role and budget. The Assistant Secretary of Defense for Program Analysis and Evaluation, Russell Murray, was quoted as saying that [the Defense Department’s] short-term objective was to ensure that NATO would not be overwhelmed in the first few weeks of a *blitzkrieg* war, and he advised that the navy should be concerned with local contingencies outside the NATO area.<sup>13</sup>

Further,

In February 1978, the Chief of Naval Operations, Admiral James L. Holloway III, testified to the House of Representatives Armed Services Committee that in the event of war with the Soviet Union the U.S. Navy could not maintain complete superiority in the western Pacific or protect vital commercial shipping to allies in Japan and Korea. As Holloway later recalled in his memoir, “Supporting NATO was our first priority. With the continuing decline in our naval force levels, we had become a one-ocean navy.”<sup>14</sup>

The assessment of the 1978–79 *Military Balance*, produced by the International Institute for Strategic Studies, was that NATO no longer had the capacity to exert sea control in all areas vital to the alliance at the start of a NATO–Warsaw Pact war.<sup>15</sup>

#### THE CHIEF OF NAVAL OPERATIONS STRATEGIC STUDIES GROUP

In July 1981 the CNO, Admiral Thomas B. Hayward, established a Center for Naval Warfare Studies at the Naval War College, with Robert J. Murray, who was just leaving his position as Under Secretary of the Navy, at its helm and a Strategic Studies Group (SSG) as its centerpiece. As commander of the Seventh Fleet in 1976–77, “Hayward became aware that it was not until the three-star level that a senior officer was faced with having to make strategic decisions.”<sup>16</sup> He “had two parallel interests: to create a core of future naval leaders who were well versed in the role of naval forces in national policy and strategy and to reestablish the Naval War College, in everyone’s view, as the pinnacle for education in naval strategic thinking.”<sup>17</sup> As CNO, Hayward “wanted to break away from the program planning process that seemed to dominate so much of the navy’s thinking and to focus on a realistic and effective strategy for fighting at sea.”<sup>18</sup> As commander of the Pacific Fleet he had initiated a “Sea Strike” concept for employing naval forces in the Pacific in the event of war with the Soviets.<sup>19</sup>

Hayward wanted to form a group made up of extremely capable and successful naval officers with recent fleet experience, and who themselves would be the future leaders of the navy, to work toward this new strategy. . . . In selecting the first group of officers for the Strategic Studies Group, Hayward received nominations from a wide variety of sources within the navy, and then he personally reviewed the service jackets of candidates, spending hours on them in an attempt to find the men he felt would certainly be the best future choices for flag rank.<sup>20</sup>

The first SSG consisted of six naval officers (commanders and captains) and two Marines (a lieutenant colonel and a colonel), assigned to the Center for Naval Warfare Studies for a year as “CNO Fellows.”<sup>21</sup> This group had no template for how to conduct its studies. Its members spent a considerable amount of time talking to the commanders of fleets and unified commands (i.e., in this connection, theater commands, today realigned and known as “unified combatant commands”), well-known academics, and former senior defense officials to familiarize themselves with the strategic context and issues facing the Navy. Each of the officers chose a topic of interest relating to practical war fighting. They tested their collective ideas as they developed them in a series of war games. Of the individual efforts, a P-3 Orion maritime patrol aircraft pilot, Captain Dan Wolkensdorfer (who was selected for rear admiral while with the SSG), worked with a submariner, Commander Bill Owens, on a “combined arms” approach to



antisubmarine warfare. Commander Art Cebrowski focused on the air campaign in NATO's northern region. These efforts, informed by high-quality intelligence, coalesced into a campaign and strategy aimed at defeating the Soviet naval strategy in a way that was to affect the fundamental Soviet approach to war.<sup>22</sup>

## THE SSG'S MARITIME STRATEGY

*One of the important findings of our Strategic Studies (Review) Group at [the Naval War College] and the [CNO Executive Panel] folks here, during their fleet visits and discussions with navy leadership, is that there is a great deal of confusion about strategies and analysis relating to force acquisition and strategy for winning wars. Much of the analysis done is more related to the first than the latter.*

ADMIRAL WILLIAM SMALL, VICE CHIEF OF NAVAL OPERATIONS, 1982

In the Pentagon, the focus of the Navy Staff was on programming and budgeting.<sup>23</sup> The SSG focused its efforts instead on war fighting with existing forces. The SSG's approach was to identify strengths that U.S. and allied forces could apply against Soviet weaknesses in the maritime theaters to attack the Soviet Union's strategic sensitivities in a global war. The first SSG concentrated its analysis on the Soviet Northern Fleet and NATO's northern region as presenting the greatest leverage for NATO. Soviet sensitivities to the "correlation of forces," particularly nuclear, and "combat stability" became targets for the SSG's strategy.

Though a forthcoming new national intelligence estimate on the Soviet's naval strategy had not yet been published, the SSG had access to the intelligence on which it was based as it was analyzed. Key findings were these:

Within the Soviets' overall wartime strategy, however, the primary initial tasks of the navy remain:

- To deploy and provide protection for ballistic missile submarines in preparation for and conduct of strategic and theater nuclear strikes.
- To defend the USSR and its allies from strikes by enemy ballistic missile submarines and aircraft carriers.

Accomplishment of these tasks would entail attempts to control all or portions of the Kara, Barents, and northern Norwegian and Greenland seas, the seas of Japan and Okhotsk, and the Northwest Pacific Basin, and to conduct sea-denial operations beyond those areas to about 2,000 kilometers from Soviet territory. We believe that virtually all of the Northern and Pacific Fleets' available major surface combatants and combat aircraft and some three-quarters of their available attack submarines would be committed initially to operations in these waters. Other initial naval wartime tasks are: support of ground force operations in the land theaters of military operations

(including countering naval support to enemy operations in peripheral areas such as Norway), and some interdiction of Western sea lines of communication (SLOCs).

... We expect these requirements—particularly the need to counter Western units armed with the new Tomahawk land-attack cruise missile—will drive the Soviets to expand the area in which their navy would initially deploy the bulk of its Northern and Pacific Fleet forces for sea-control/sea-denial operations—possibly out to 3,000 kilometers from Soviet territory.<sup>24</sup>

Analysts at the Center for Naval Analyses, Alexandria, Virginia, who had been studying Soviet naval writings for decades had come to the conclusion that the Soviets would use most of their naval forces to provide “combat stability” for their nuclear-powered ballistic-missile submarines (SSBNs) and to defend against strikes on their homeland. The dominant Navy vision, in contrast, had been of Soviet submarines flooding the Atlantic to sink U.S. shipping bound for Europe, as the Germans had done in World War II.<sup>25</sup> Sensitive intelligence was now confirming the center’s findings. The new Delta class of Soviet SSBNs, armed with SS-N-8 missiles, had the range to reach American targets from bastions in Arctic waters rather than having to transit into the Atlantic, as SSBNs of the previous classes had to do. The bulk of the Soviet Northern Fleet would be north of the Greenland–Iceland–United Kingdom gap.

The SSG also was aware of the Soviet emphasis on calculating “correlation of forces” to assess whether the Soviet Union had sufficient forces to succeed in an operation, including nuclear war fighting.<sup>26</sup> Changing the Soviet perception of the correlation of forces in NATO’s favor—in the maritime theaters, so as to require the USSR to devote forces to defense early in a conflict, and also in nuclear forces, and rapidly, so as to deter escalation to the use of nuclear weapons by either side—set the strategic intent for the SSG.

From discussions with the unified commands early in its year of study, the first SSG quickly learned that the United States had no coherent global strategy for fighting the Soviets. Each theater commander was operating on a different timeline.<sup>27</sup> From discussions at the headquarters of Supreme Allied Commander Europe, the SSG knew that its commander, then General Bernard Rogers, believed that he would have to resort to nuclear weapons within days of a Soviet invasion of Western Europe.<sup>28</sup> U.S. Navy war plans of the 1970s called for breaking contact with the Soviets as they extended their defensive perimeter with (in the antiaccess/area-denial approach of the day) naval aviation and surface forces armed with cruise missiles, falling back and later, over time, fighting back toward the Soviet Union.

Nonetheless, the United States had a huge advantage in antisubmarine warfare (ASW) over the Soviets. In 1949, facing demobilization, the U.S. submarine force had adopted ASW as a new mission, establishing Submarine Development Group

2 to develop required capabilities. Over two decades of close cooperation with Navy laboratories and intelligence, the group had developed tactics for emerging technologies through rigorous scientific analysis of submarine exercises. The submarine force had gone from having essentially no ASW capability to being the Navy's premier ASW capability.<sup>29</sup>

The SSG's campaign approach called for using combined-arms antisubmarine operations to exploit that advantage further. Plans at the time called for maritime patrol aircraft, carrier battle groups, surface action groups, and submarines

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*A renewed focus on war-fighting strategy and operations might dust off some old SSG concepts while focusing on the development of new ones.*

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to operate independently in separate areas. Taking a page from U.S. Army concepts of combined arms and using lessons from the Navy's Coordination in Direct Support

program, the SSG developed concepts for ASW forces working as integrated teams.<sup>30</sup> Analysis indicated that the primary U.S. submarine losses would be from counterfire (i.e., weapons fired in immediate response to torpedo launches—the United States had the quietest submarines and noisiest torpedoes in the world) and mines. Having maritime patrol aircraft and helicopters from surface ships conduct the attacks would not only reduce submarine losses but accelerate attack rates, by preserving the most effective sensors and preventing submarines from having to withdraw to reload their tubes. Combined arms offered the prospect of higher Soviet SSBN-loss rates at the onset of conflict than did independent ASW operations, a differential that would affect the nuclear correlation of forces within days.

To allow the maritime patrol aircraft to operate forward, the submarines needed to sink the Soviet navy ships that carried antiaircraft missiles. The Soviets had about fifteen such ships available in their Northern Fleet. They operated them in surface action groups arrayed to provide defense for their SSBNs and against air strikes against their homeland. To target these surface action groups, the SSG's concept called for U.S./NATO Airborne Warning and Control System (AWACS) aircraft operating in a maritime mode to provide location data to the submarines, using digital data links (Link 11). To achieve the intended strategic effect, the intent was to sink the key Soviet air-defense ships in the first days of the war, rapidly expanding the area in which combined-arms ASW could be conducted. The AWACS could then return to their role in the air battle over Norway.

Sinking the Soviet air-defense ships would have another effect on the nuclear correlation of forces. The Soviet surface action groups operated where U.S. bombers planned to refuel on their paths from the United States to Moscow. Sinking these ships rolled back the Soviet defenses against both aircraft carrier

and intercontinental bomber strikes toward the heart of the Soviet Union, placing greater pressure on national air-defense forces (Voyska PVO Strany).

To be in position at the outset, U.S. submarines and maritime patrol aircraft would have to move quickly. The SSG used intelligence on Soviet fleet readiness to lay out U.S. and Soviet timelines for deploying forces to station. Detailed analysis of the Northern Fleet battle and war gaming of all the maritime theaters indicated rates at which to expect Soviet and American losses. Intelligence officers with access to the latest assessments played the “Red” teams in the war games, employing their best understanding of Soviet plans and operations.

As with the war at sea, the SSG carefully analyzed the air war over northern Norway and gamed the air war in the maritime theaters. The Soviets organized their forces within “theaters of military operations,” each with its own command and assigned forces.<sup>31</sup> The primary mission of Soviet Naval Air Force (SNA) Bear and Backfire bombers in the Northwestern, Southwestern, and Far East Theaters was to prevent strikes by U.S./NATO naval forces on Soviet forces and territory. The SSG’s appreciation was that the SNA had two possible routes for attacking U.S. carrier battle groups coming from the Atlantic. They either could go around the North Cape of Norway, as they did during routine training and surveillance flights, or test Swedish neutrality by flying over Sweden. The latter risked adding the very capable Swedish air defenses to those NATO had deployed. Gaining air control over northern Norway would increase Northwestern Theater SNA losses should they fly over or close to land, significantly reduce the range at which they could attack U.S./NATO naval forces, and similarly limit attacks on Iceland.

Campaign analysis and gaming indicated that U.S. naval air, working with the NATO forces assigned to the northern region, could be decisive in gaining and maintaining air control over northern Norway. Furthermore, maintaining control over northern Norway provided airfields for strikes against Northwestern Theater SNA and Voyska PVO Strany bases, further rolling back defenses against U.S. strategic bombers. The PVO Strany was, and is, a separate branch of air forces dedicated to defense against air strikes on Soviet and now Russian territory, a structure reflecting the priority placed on defense of the homeland. At that time, only U.S. naval air had all-weather, nighttime attack capabilities. Marine expeditionary airfield equipment could be used to expand rapidly the ability of Norway’s airfields to handle military jets. The SSG envisioned using these fields in a manner similar to that in which Henderson Field on Guadalcanal was occasionally used in World War II—that is, to extend the range of carrier-based air strikes by recovering, refueling, and rearming aircraft.

The key to effective, coordinated air operations over northern Norway was creating the means to share information between the NATO Air Defense Ground Environment command-and-control system and U.S./NATO naval data links



(Link 4 and Link 11). Since only the Marines worked regularly with sea/air/ground forces, only a Marine “tactical operations center” had all the networks needed for the desired coordination. The Marine Corps prepositioning plan in Norway included a tactical operations center.

Combined-arms ASW and networking the U.S./NATO sea-, air-, and ground-surveillance and command systems were at the core of the SSG’s operational concepts, designed to allow the Navy to fight forward, negate Soviet combat stability, and change both the conventional and nuclear correlations of forces. This was the SSG’s alternative to losing in the center and falling back on the flanks. Bill Owens would later frequently recall that his year on the SSG had been an epiphany—beginning with the perspective of a submariner, he had quickly come to appreciate the power that could come from integrating the advantages of each Navy branch and military service into a war-fighting whole. As Owens and Art Cebrowski advanced in their careers, they would continue to refine and expand on their notions of system of systems and network-centric warfare.

The first SSG departed early in the summer of 1982, and the second SSG convened in August. SSG II picked up where SSG I had left off, focusing on NATO’s southern flank (the USSR’s Southwestern Theater of Military Operations) and Northeast Asia (the Soviet Far East Theater) in the way that the first SSG had focused on the NATO northern and Soviet Northwestern theaters. Its members followed the SSG template of visiting senior commanders and strategists and analyzing and gaming their concepts. The team working on the Pacific included officers who had participated in Admiral Hayward’s Sea Strike concepts when he commanded the Pacific Fleet. The Mediterranean team came from command of ships recently deployed there. Recalling how Soviet T-34 tanks arriving from the Far East Theater had saved Moscow in World War II, Sea Strike planners intended to use naval forces to prevent Soviet far-eastern forces from moving west.<sup>32</sup> The team working the Mediterranean also focused on pressing the Soviet correlation of forces in the Southwestern Theater and targeting the few available Soviet / Warsaw Pact lines of communication that would support an attack on NATO’s south.

SSG II added two significant refinements to the work of the previous year. One was the concept of “havens.” SNA bombers had to lock their cruise missiles onto their targets before they launched. The SSG, using data on the flight profiles of the bombers and technical intelligence on Soviet cruise missiles, adopted a concept from a paper by a former amphibious-squadron commander at the Naval War College to use the islands of the Aegean and eastern Mediterranean to prevent the SNA from targeting carriers or their escorts with cruise missiles. Though islands are sparse in the western Pacific, the concept offered opportunities there also. The fjords of Norway were well suited to this tactic.

The second refinement was teaming with the U.S. Air Force, which had the best low-altitude models for penetrating Soviet air defenses. Using these models, the SSG focused its efforts on “targets that count,” in terms of limiting the effectiveness of Soviet air forces and the ability of the Warsaw Pact to move large ground formations along the limited land lines of communications supporting the maritime theaters. The “targets that count” approach evolved into a Joint Warfare Analysis Center, focusing on “effects-based operations.”<sup>33</sup>

The strategy called for close Air Force / Navy cooperation in the Pacific theater. The distances involved in the conduct of strikes demanded extensive in-flight refueling for carrier-based aircraft. Also, B-52s played a large role in a planned mining campaign. In addition to being the origin of network-centric warfare, the SSG’s maritime strategy was in effect “Air-Sea Battle 1.0.”

### IMPLEMENTING THE SSG MARITIME STRATEGY

To meet Admiral Hayward’s aims as CNO to stimulate strategic discourse within the Navy leadership, he encouraged the SSG to meet with as many flag officers as it could. “In many ways, the Strategic Studies Group acted like a small swarm of honeybees, migrating from one flag officer to another, discussing issues, exchanging views, and carrying the pollen of stimulating thought from one widely separated command to another.”<sup>34</sup> By the end of their year at the Center for Naval Warfare Studies, Owens and Cebrowski had briefed 162 flag officers.<sup>35</sup> A key briefing came in October 1982, when they were invited back to present their ideas to Admiral James D. Watkins, the new CNO, at his first Navy “four-star” conference—that is, with the Navy’s four-star admirals and the Navy Staff’s three-stars attending. The briefing, scheduled for forty-five minutes at the end of the day, went on for almost six hours; Admiral William J. Crowe (Commander in Chief, U.S. Forces Pacific, later Chairman of the Joint Chiefs of Staff) continued the conversation afterward with Art Cebrowski, using a chart on the hood of his car. By 1983 the first SSG concepts were being reflected in revised Navy war plans and the CNO had signed a memorandum of understanding with the Chief of Staff of the Air Force to work jointly on the concepts contained in the maritime strategy.<sup>36</sup>

War gaming involving admirals in operational and staff commands and senior representatives from other services became a very effective mechanism for familiarizing those outside the SSG with its concepts even as it was refining them. The SSG conducted games every few months to explore its concepts, and its members served as theater commanders in the Naval War College’s annual Global War Game. As the Global War Game series matured, flag and general officers from the theater commands came to play their forces, and other services brought their campaign models to adjudicate game outcomes.

Following their respective years in the SSG, its fellows were assigned by the CNO either to positions where they could influence implementation of the strategy or to command. Dan Wolkensdorfer was assigned to develop ASW programs on the Navy Staff, and Bill Owens became executive assistant to the Director for Naval Warfare on the Navy Staff, responsible for balancing naval warfare capabilities in Navy programs. Art Cebrowski went immediately to command a carrier air wing. The Center for Naval Warfare Studies staff worked with the Navy Staff on writing a new formal document, *The Maritime Strategy*. CNO Fellows from the SSG also held important positions in Navy policy and served as direct links to or supervisors of the drafters of the Navy's *Maritime Strategy* briefing

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*The SSG's approach was to identify strengths that U.S. and allied forces could apply against Soviet weaknesses in the maritime theaters to attack the Soviet Union's strategic sensitivities in a global war.*

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and classified booklet and of the U.S. Naval Institute *Proceedings* supplement about it (published in January 1986) by Admiral Watkins and the Commandant of the Marine Corps, P. X. Kelley.

The SSG's concepts led also to exercises and technology development. When in command of a submarine squadron, Owens had exchanged an officer with a nearby maritime patrol aircraft squadron to coordinate exercises by which, at every opportunity for a submarine and P-3 aircraft to operate within range of each other, clandestine communications for use in forward areas could be developed. As chief of staff for Commander, Submarine Force Atlantic Fleet, Owens had established an exercise called AGILE PLAYER to get all available submarines out of port and headed toward their wartime patrol areas within seventy-two hours. By 1985 the Second Fleet had begun exercising the carrier-haven concept in Vestfjord as part of Exercises NORTHERN WEDDING and OCEAN SAFARI. As Commander, Submarine Group 2, Rear Admiral J. D. Williams (who had played in SSG war games) initiated submarine exercises with AWACS aircraft to work out tactics and resolve technical glitches in Link 11 communications. Commander, Submarine Force Atlantic Fleet and the commander of Development Squadron 12 worked with their counterparts in the fleets and other Navy branches to exercise and develop combined-arms ASW.

In March 1986, a large NATO exercise covering the Norwegian Sea and commanded from the Northwood headquarters in the United Kingdom demonstrated the effectiveness of combined-arms ASW. Using Bayesian approaches to estimate where the adversary submarines were, the NATO force achieved detection rates that exceeded the ability of attack aircraft to sortie in response, reversing the normal constraint in ASW. Against the expectation that the Soviets would

target fixed command headquarters, in 1988 a combined-arms ASW exercise demonstrated the ability of a mobile command center deployed to an air base in Norway to command ASW forces near the North Cape.<sup>37</sup> Other fleets conducted similar exercises, both in national exercises and with allies. In November 1987 during Exercise NORPAC87, the commander of the Third Fleet, Vice Admiral Diego “Duke” Hernandez, used a series of havens along the Aleutians, to cover his approach to the Kamchatka Peninsula.<sup>38</sup>

### THE EFFECTS OF THE MARITIME STRATEGY

The work of the SSG added to *The Maritime Strategy* operational depth and detail that has not otherwise been achieved in strategy documents coming from the Pentagon. These efforts rapidly changed the Navy’s narrative from one of hand-wringing over the growing advantages of the Soviet navy to a belief that it could make a decisive difference in the maritime theaters and create conditions that could lead to war termination on conditions acceptable to NATO and without the use of nuclear weapons.<sup>39</sup> The exercises with allies—particularly Japan, Norway, and Turkey—not only developed confidence within the U.S. Navy that it could fight forward but demonstrated its intent and increased allied confidence in American support in the event of war, thereby contributing to alliance cohesion and to deterrence.<sup>40</sup> The emphasis on forward operations played to the Soviets’ concern for protecting their naval bastions and the homeland against strikes from aircraft carriers and cruise missiles, reinforcing their instincts to keep the bulk of their naval forces near home waters rather than interdicting reinforcements to NATO and Pacific allies. Following the demise of the Soviet Union, Russian naval leaders were mistakenly to infer that the next U.S. Navy capstone document—*Forward . . . From the Sea*—meant that the United States felt that it no longer had to worry about the Russian navy but could sail up to the coast and attack from there.<sup>41</sup>

Even at the time, the maritime strategy sparked a vigorous debate in the West among academics and former government officials.<sup>42</sup> “By the end of 1986, the public and professional discussion of the issues surrounding *The Maritime Strategy* had taken a sophisticated form. The issues of naval strategy could be, and were, understood and being debated widely. This contrasted starkly with the absence of such discussion a decade earlier, and at the same time, seemed to demonstrate a widespread appreciation of strategy within the officer corps.”<sup>43</sup>

Following the end of the Cold War, Owens’s appreciation for the power of combined arms, as opposed to forces operating independently, as well as his conviction that networking all service and allied intelligence, surveillance, and reconnaissance (ISR) capabilities into a system of systems could lead to a decisive information advantage over adversaries, was to govern his actions.<sup>44</sup> As

commander of the Sixth Fleet, he exchanged officers with Army and Air Force counterparts in an effort to bring joint capabilities into the exercises he oversaw. As Vice Chairman of the Joint Chiefs of Staff, he made every effort to ensure that service ISR capabilities were interoperable. Similarly, Art Cebrowski was to develop the “brand” of “network-centric warfare” and to refine its concepts in his positions as Director for Command, Control and Communications on the Joint Staff and as President of the Naval War College, contributing to a rapid growth in military network capabilities.

## IMPLICATIONS FOR TODAY

China’s People’s Liberation Army (PLA) has replaced the Soviet military as the most challenging for U.S. forces in the vicinity of its homeland. The strategic relationship of the United States with China differs in important ways from that with the Soviets. On the national level, rather than containing the Chinese, the United States encourages them to promote security and peaceful development that benefits China’s rise, while deterring its use of armed coercion or aggression to settle territorial claims and other disputes.<sup>45</sup> The competition with the Soviets was perceived largely as a zero-sum game, wherein any advance for the Soviets was a loss for the free world—though all would lose massively in a large-scale war. The game with the Chinese, in contrast, is one in which both sides win big or lose big.

The overall military concept for deterring the Chinese is similar to that embodied in *The Overall Strategic Concept for Defense of the North Atlantic Treaty Organization Area*, or MC 14/3.<sup>46</sup> The overall concept is defensive. The United States has no intention or reason to initiate armed conflict. Its intent is to provide for security and peaceful development by credible deterrence, effected by working with the nations of the region and leading the Chinese to conclude that if they launched an armed attack on the United States or its allies the chances of a favorable decision to them are too small to be acceptable, and that fatal risks could be involved. The overall military concept, rather, is a balance of deterrence and encouragement, inviting the PLA to play a responsible and constructive role in promoting security and peaceful development and join in coalition operations, as it has in countering piracy in the Indian Ocean. Underpinning this concept is the 2010 Quadrennial Defense Review (QDR), analysis for which began in 2008.<sup>47</sup> “High-end asymmetric threats,” presented mainly by the PLA, were the focus of much of that analysis.<sup>48</sup>

Within the Pentagon today, the last decade of double-digit growth in Chinese military expenditures and increasing Iranian military sophistication, largely focused on U.S. forces moving to and within the nearby theaters, has led to another period of hand-wringing. Iran’s capabilities are much more limited in scale,

geographic scope, and forces than are China's, but they are potent in the restricted waters near shore and against bases in nearby countries. The Pentagon's approach to programming future forces centers principally on capability shortfalls created by adversary militaries, rather than creating concerns among adversaries regarding their own military capabilities against U.S. forces. The Pentagon, stimulated by Congress and the defense industry, turns to superior technology (the means)

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*In the early 1980s the Navy came to believe that it could play a decisive role in a global war with the Soviet Union.*

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rather than to strategy (the ways) to accomplish its desired ends. Reacting to what the PLA and other military forces are doing cedes the

initiative to them at a time when technology is rapidly shared and copied around the globe and the U.S. military budget is declining.

In July 2009, in a constructive effort to redirect somewhat this unproductive approach, the Secretary of Defense, with strong support from Navy and Air Force leadership, initiated an Air-Sea Battle effort to address concerns raised in the QDR. The initiative recalls the Air Force / Navy cooperation engendered by the 1983 memorandum of understanding.<sup>49</sup> The Air-Sea Battle is not a strategy but a concept "to better integrate the Services in new and creative ways."<sup>50</sup> War-fighting strategies as such are the responsibility of the combatant commanders, not the services. The Air-Sea Battle concept concentrates on identifying cost-effective methods for disrupting "effects chains" in an adversary's processes of command, control, communications, computers, intelligence, surveillance, and reconnaissance, ideally precluding attacks on friendly forces; on destroying or neutralizing adversary weapon platforms to enhance friendly survivability and provide freedom of action; and on defeating weapons that have been launched so as to defend friendly forces and allow sustained operations.<sup>51</sup>

However, a declared design to "attack in depth" has triggered a vigorous debate over the escalatory potential of Air-Sea Battle and how it fits into a strategy for war with China.<sup>52</sup> T. X. Hammes has offered an "offshore control strategy" that eschews any strikes on the mainland, calling instead for a long-duration blockade to cripple the Chinese economy.<sup>53</sup> Similarly, Wayne Hughes and Jeffrey Kline have argued for a war-at-sea strategy involving blockade and destruction of PLA forces at sea without strikes on the mainland, thus reducing possibilities of escalation.<sup>54</sup> David Gompert and Terrence Kelly too have argued for greater emphasis on defensive measures, to include giving antiaccess/area-denial capabilities to allies in Asia to deny the Chinese the use of the seas.<sup>55</sup>

These concepts and strategies differ in their judgments on the feasibility and wisdom of strikes on the Chinese mainland, but all aim to align program planning and budgeting for future force development rather than to provide strategy



and concepts for winning a war using forces and capabilities that could be available in months. To the extent that these proposed concepts and strategies require future investment for success, their credibility is suspect in today's budget environment. Also, given current international dynamics, the security situation may change significantly in the decade or two that would be required to procure the force structures envisioned by these concepts and strategies. Both factors suggest putting more effort into developing strategic and operational concepts for prevailing with today's forces to effect credible deterrence and reassure allies. The public debate is useful. However, more important would be a declaratory strategy that is effective in a long-term competition with the PLA, supported by a military strategy in which American leadership and military officers have confidence.

The military operational challenge posed by the PLA is similar to that which the Soviet military presented in the early 1980s. The SSG addressed the latter by focusing on Soviet military strategy, Soviet concepts of war fighting, Soviet sensitivities and vulnerabilities, and command and bureaucratic structures that affected Soviet decisions and operations, in addition to details of Soviet military technology. A similar effort would carefully investigate the perspectives of Beijing and PLA regional and local commands; it would emphasize PLA military science, strategic concepts, campaign theories, and command and operational practices, so as to take advantage of Chinese and PLA sensitivities and theories of victory. Such Chinese concepts as "victory of form" (winning without fighting), "*shi*" (psychological momentum using both strength and deception), force groupings, command arrangements, and the importance of the Second Artillery as a special branch analogous to the Voyska PVO Strany should play into new strategic concepts. While the Second Artillery has responsibilities for intercontinental nuclear strike, the effectiveness of missiles generally is central to PLA theories of victory and warrants particular attention.

SSG operational concepts in the early 1980s trumped the typical Washington analysis of technical weapon-system capabilities that suggested the Navy would be "taking a knife to a gunfight" in a battle with Soviet naval aviation.<sup>56</sup> The first SSG devised approaches for controlling key geography at sea and over land to limit the SNA's lines of approach to the U.S. fleet and for extending the range of U.S. strikes by using expeditionary air bases ashore. SSG II added the concept of aircraft carrier havens and "targets that count" to compensate for the limited range and sortie rates of naval strike aircraft.

A renewed focus on war-fighting strategy and operations might dust off some old SSG concepts while focusing on the development of new ones. All U.S. concepts and strategies exploit the limitations of the PLA's ASW capabilities. Shortly following the end of the Cold War the U.S. Navy lost its competence in combined-arms ASW; these capabilities are now receiving renewed attention. Over the last

decade the value, limitations, and vulnerabilities of network-centric warfare have been further explored. Electronic warfare has received renewed emphasis, after being bureaucratically submerged in “information operations” and generally neglected. Perhaps the most fertile field for concept development is cyber war fighting, which receives scant attention in most public discourse. New concepts in these fields should consider investment primarily in payloads that could be procured in a few years, or months in an emergency, vice platforms, etc., taking decades to develop and deploy.

In 1985 the CNO, with the urging of Secretary of the Navy John Lehman, assigned a director to the SSG separate from the dean of the Center for Naval Warfare Studies, thereby disconnecting the SSG from the center. In 1995, Admiral Mike Boorda, as CNO, changed the direction of the SSG to focus on warfare innovation and the “Navy after next.” The current CNO, Jon Greenert, reportedly is pleased with the work that the SSG is doing for him under its current charter and approach, and the rate of promotion to flag rank of CNO Fellows has returned to that of the 1980s. That said, the ingredients that led to the success of the maritime strategy would likely contribute as well to the success of new strategic and operational concepts. A core of future naval leaders working directly for the CNO and with the Navy leadership, counterparts from other services, and the relevant combatant commands; provided with access to special intelligence and programs; located away from the Pentagon but in an environment where they can think, experiment with games, and learn; supported by first-rate operational analysis; focused on war fighting rather than programs and budgets; and assigned thereafter to positions where they can implement the concepts they helped develop—such a group could again rapidly generate an effective declaratory strategy underpinned by strategic and operational concepts in which the military and civilian leadership could have confidence.

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## NOTES

The author was directly involved in the events discussed and made direct personal contributions to the development of the maritime strategy of the 1980s. This article draws extensively on his own experience in those years, without citation except at points of particular interest or contention. The author would like to thank John Hattendorf, Wayne Hughes, Michael McDevitt, David Rosenberg, Peter Swartz, the *Naval War College Review*, and anonymous referees for their improvements to this article.

1. John B. Hattendorf, *The Evolution of the U.S. Navy's Maritime Strategy, 1977–1986*, Newport Paper 19 (Newport, R.I.: Naval War College Press, 2004), pp. 9–10. Also see John B. Hattendorf and Peter M. Swartz, eds., *U.S. Naval Strategy in the 1980s: Selected Documents*, Newport Paper 33 (Newport, R.I.: Naval War College Press, 2008), which elaborates on the 2004 monograph. Both available at [www.usnwc.edu/press/](http://www.usnwc.edu/press/).
2. National Intelligence Estimate 111582: The Soviet's Naval Strategy in Hattendorf,

- Evolution of the U.S. Navy's Maritime Strategy*, p. 109. (And see note 24.)
3. In Philip C. Saunders et al., eds., *The Chinese Navy: Expanding Capabilities, Evolving Roles* (Washington, D.C.: National Defense Univ. Press, 2011), the contributions provide extensive coverage of Chinese navy discussions regarding the first and second island chains.
  4. In 1982 I shared an office with Capts. ("frocked" at the time—i.e., selected for promotion and authorized to wear the insignia in anticipation of formal advancement) Bill Owens and Art Cebrowski. We were conducting the quantitative campaign analysis, with a focus on sea control and the antisubmarine campaign, and developing the strategic and operational concepts that underpinned the maritime strategy. Bill Owens went on to commands, including Sixth Fleet, ultimately serving as Vice Chairman of the Joint Chiefs of Staff. Art Cebrowski was to end his naval career as President of the Naval War College; he then went on to form in 2001 the Office of Force Transformation in the Department of Defense. For "network-centric warfare," Vice Adm. Arthur K. Cebrowski and John J. Garstka, "Network Centric Warfare: Its Origin and Future," U.S. Naval Institute *Proceedings* (January 1998), pp. 28–36. For "system of systems," Adm. Bill Owens, *Lifting the Fog of War* (New York: Farrar, Straus, Giroux, 2000).
  5. The maritime theaters were NATO's northern and southern regions and the Soviet Far East; there lines of communication were principally at sea, and naval forces could decisively affect the outcomes of battles ashore. Robert S. Wood and John T. Hanley, Jr., "The Maritime Role in the North Atlantic," *Naval War College Review* 38, no. 6 (November–December 1985), pp. 5–18.
  6. Elmo R. Zumwalt, Jr., *On Watch* (New York: New York Times, 1976), p. 59. Zumwalt states (p. 281) that "the mood of the Chiefs, though one of apprehension, was by no means one of self-pity or despair."
  7. *Ibid.*, pp. 59–71.
  8. *Ibid.*, p. 281.
  9. *Ibid.*, p. xiv.
  10. Presidential Review Memorandum / NSC10, available at [www.fas.org/](http://www.fas.org/).
  11. *Ibid.*, p. 17.
  12. *Ibid.*, p. 21.
  13. Hattendorf, *Evolution of the U.S. Navy's Maritime Strategy*, p. 12.
  14. John B. Hattendorf, ed., *U.S. Naval Strategy in the 1970s: Selected Documents*, Newport Paper 30 (Newport, R.I.: Naval War College Press, 2007), pp. xi–xii.
  15. Hattendorf, *Evolution of the U.S. Navy's Maritime Strategy*, p. 289.
  16. *Ibid.*, p. 17.
  17. *Ibid.*, p. 45.
  18. *Ibid.*, p. 44.
  19. Hayward's objectives in Sea Strike were twofold. First, he wanted to place the Pacific Fleet within a global U.S. naval strategy, as the most effective means of developing plans for use in the event of war with the USSR. Second, he was concerned at the condition of the Pacific Fleet and its state of preparation for war. At that time it had no offensive naval war plans, only defensive plans. Hayward believed that for the sake of flexibility, if for no other reason, a credible offensive plan should be available. *Ibid.*, p. 18.
  20. *Ibid.*, pp. 44–45. Indeed, the Navy did select three of the first six officers for flag rank: Rear Adm. Dan Wolkensdorfer, Vice Adm. Art Cebrowski, and Adm. Bill Owens. Over the first fourteen years of the SSG over 60 percent of the CNO Fellows were selected for flag rank, as many as a quarter of the unrestricted line flag officers at any one time. Eight naval officers and one Marine (Anthony Zinni) among them ultimately received four stars—including the current CNO, Jon Greenert.
  21. Robert J. Murray, "A Warfighting Perspective," U.S. Naval Institute *Proceedings* (October 1983), p. 66.
  22. For an account of the kinds of intelligence available, see Christopher A. Ford and David A. Rosenberg, "The Naval Intelligence Underpinnings of Reagan's Maritime Strategy," *Journal of Strategic Studies* 28, no. 2 (April 2005), pp. 379–409.
  23. The epigraph is from Hattendorf, *Evolution of the U.S. Navy's Maritime Strategy*, p. 67.
  24. Director of Central Intelligence, *Soviet Naval Strategy and Programs through the 1990s: National Intelligence Estimate*, NIE 11-15-82/D

- (Washington, D.C.: 15 November 1982). A declassified version appears in Hattendorf, *Evolution of the U.S. Navy's Maritime Strategy*, app. 1; the quoted passage appears on page 109.
25. Peter M. Swartz, *Understanding an Adversary's Strategic and Operational Calculus: A Case Study—U.S. Views on Soviet Navy Strategy and Operations toward the End of the Cold War*, DOP2013U003646Final (Alexandria, Va.: Center for Naval Analyses, January 2013); Robert W. Herrick, *Soviet Naval Strategy: Fifty Years of Theory and Practice* (Annapolis, Md.: Naval Institute Press, 1968).
  26. Former Soviet officers discuss the evolution of their war-fighting strategy and correlation-of-forces calculations in interviews, in John Hines, Ellis M. Mishulovich, and John F. Shulle, *Soviet Intentions 1965–1985*, vol. 1, *An Analytical Comparison of U.S.-Soviet Assessments during the Cold War* (Tysons Corner, Va.: BDM Federal, 22 September 1995), excised version available at [www.gwu.edu/](http://www.gwu.edu/).
  27. Before the Goldwater-Nichols legislation of 1986, the Navy developed its own war plans, supporting higher-level plans. This effort resulted in sets of theater, fleet, and submarine-force plans rather than one comprehensive plan for all forces assigned to a theater commander; further, each theater command had its own set.
  28. This was openly reported in Anthony H. Cordesman and Benjamin F. Schemmer, "AFJ Interview with General Bernard W. Rogers," *Armed Forces Journal International*, September 1983, p. 74.
  29. *Submarine Warfare and Tactical Development: A Look—Past, Present, and Future*, Proceedings of the Submarine Development Group Two & Submarine Development Squadron Twelve 50th Anniversary Symposium, U.S. Naval Submarine Base New London, Groton, Conn., 20–22 May 1999, available at [books.google.com/](http://books.google.com/). I served for over fifteen years as an officer in Submarine Development Squadron 12's reserve unit, beginning as a lieutenant analyst and ending as the reserve unit's commanding officer.
  30. The *Los Angeles* (SSN 688)—class nuclear submarine cost about twice as much as its predecessor for twice the shaft horsepower but did not have the electronic-surveillance or under-ice capabilities of the *Sturgeon* (SSN 637) class. Admiral Rickover justified the additional speed as needed for direct support to carrier battle groups. The Coordination in Direct Support program, run by a former Submarine Development Group 2 commander, adopted the practice of developing metrics for operational effectiveness and of exploring all forms of prototype and fielded means of communicating with submarines in fleet exercises. Ten fleet exercises over three years demonstrated that direct support would not work as envisioned, but in the process they generated detailed data on submarine communications with fleets using every method from extremely-low-frequency and acoustic communications to lasers. The analysis resulted in putting "submarine element coordinators" on battle group staffs and improving submarine tactics for communications and operations with other forces.
  31. "Approximate Soviet Theaters of Military Operations (TVDs)," November 1982, *Wikimedia Commons*, [commons.wikimedia.org/](http://commons.wikimedia.org/).
  32. James M. Patton, "Dawn of the Maritime Strategy," *U.S. Naval Institute Proceedings* (May 2009), pp. 56–60, provides a detailed account of Sea Strike by one of its authors; also see Hattendorf, *Evolution of the U.S. Navy's Maritime Strategy*, pp. 18–19. The SSG extended the arguments regarding the allies to the NATO theaters.
  33. Description available at *Joint Warfare Analysis Center*, [www.jwac.mil/](http://www.jwac.mil/).
  34. Hattendorf, *Evolution of the U.S. Navy's Maritime Strategy*, p. 48.
  35. Using Owens's and Cebrowski's notes of the briefing that we had prepared, I wrote the first classified "Newport Paper" (no relation to the unclassified Newport Paper series later produced by the Naval War College Press, such as those cited here), a monograph explaining SSG I's strategic, operational, and tactical concepts and recommending changes, such as networking and quiet torpedoes, that could be implemented in the near term. Owing to its classification and sensitivity, the Center for Naval Warfare Studies distributed copies only to the most senior two dozen naval leaders.
  36. Murray, "Warfighting Perspective," p. 66.

37. I served on the operational staffs for the combined-arms ASW exercises SUBASWEX 2-86 and 2-88 as a reserve officer.
38. Peter M. Swartz, e-mail, 17 July 2013.
39. SSG II developed a set of “pretty good rules.” One was that it is difficult to punch someone in the nose while you are wringing your hands.
40. The Navy Staff was also conducting staff talks to explain the maritime strategy to these countries. Hattendorf, *Evolution of the U.S. Navy’s Maritime Strategy*, p. 84.
41. Discussions with Rear Adm. Anatoliy P. Rudometkin, director of the Russian Naval Research Institute, Newport, R.I. (1993), and Saint Petersburg, Russia (1994).
42. See Peter Swartz’s extensive list of articles on the maritime strategy in Hattendorf, *Evolution of the U.S. Navy’s Maritime Strategy*, pp. 191–273.
43. *Ibid.*, p. 90.
44. William A. Owens, *High Seas: The Naval Passage to an Uncharted World* (Annapolis, Md.: Naval Institute Press, 1995); Owens, *Lifting the Fog of War*.
45. The most current unclassified defense strategic guidance is contained in U.S. Defense Dept., *Sustaining U.S. Global Leadership: Priorities for 21st Century Defense* (Washington, D.C.: January 2012), available at [www.defense.gov/](http://www.defense.gov/).
46. North Atlantic Treaty Organization, *Final Decision on MC 14/3: A Report by the Military Committee to the Defence Planning Committee on Overall Strategic Concept for the Defense of the North Atlantic Treaty Organization Area, MC 14/3 (Final)* (n.p. [Brussels]: North Atlantic Military Committee, 16 January 1968), available at [www.nato.int/](http://www.nato.int/).
47. I served in the Office of the Secretary of Defense coordinating some of the studies leading to the QDR and participating in the QDR analysis.
48. For a description of the QDR and high-end asymmetric threats, see Michèle Flournoy and Shawn Brimley, “The Contested Commons,” *U.S. Department of Defense: Quadrennial Defense Review*, n.d., [www.defense.gov/](http://www.defense.gov/).
49. For a description of the Air-Sea Battle effort, see Jason Kelly, “Overview of the Air-Sea Battle Concept,” *Navy Live: The Official Blog of the United States Navy*, 3 June 2013, [navylive.dodlive.mil/](http://navylive.dodlive.mil/).
50. *Ibid.*, p. i.
51. *Ibid.*, p. 7.
52. See Elbridge Colby, “Don’t Sweat Air-Sea Battle,” *National Interest*, 31 July 2013, and “War over the War with China,” *National Interest*, 13 August 2013; and T. X. Hammes, “Sorry, Air-Sea Battle Is No Strategy,” *National Interest*, 7 August 2013, and “Air-Sea Battle: Who Wins?,” *National Interest*, 21 August 2013.
53. T. X. Hammes, “Offshore Control Is the Answer,” *U.S. Naval Institute Proceedings* (December 2012).
54. Jeffrey E. Kline and Wayne P. Hughes, Jr., “Between Peace and the Air-Sea Battle: A War at Sea Strategy,” *Naval War College Review* 65, no. 4 (Autumn 2012), pp. 35–40.
55. David Gompert and Terrence Kelly, “Escalation Clause: How the Pentagon’s New Strategy Could Trigger War with China,” *FP National Security*, 2 August 2013, [www.foreignpolicy.com/](http://www.foreignpolicy.com/).
56. For a recent analysis of this type as justification for new weapon systems, see Thomas P. Ehrhard and Robert O. Work, *Range, Persistence, Stealth, and Networking: The Case for a Carrier-Based Unmanned Combat Air System* (Washington, D.C.: Center for Strategic and Budgetary Assessments, 2008), p. 63.



# STRATEGIC FEATURES OF THE SOUTH CHINA SEA

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## A Tough Neighborhood for Hegemons

*James R. Holmes*

**T**he South China Sea is a semienclosed sea at the intersection between East Asia and the Indian Ocean region. It exhibits characteristics similar to the Mediterranean Sea and the Caribbean Sea, as well as some revealing differences. Both the similarities and the differences commend sea-power theorist Alfred Thayer Mahan's analysis of the Gulf of Mexico and the Caribbean Sea to present-day students and practitioners of maritime strategy. Mahan classified strategic features—especially prospective sites for naval stations—by their positions, strengths, and resources. This article adds a metric to his analytical template, namely, the state of relations with countries that host naval bases. He applied much the same framework to narrow seas, such as international straits, while also sizing up these passages' widths, lengths, and difficulty of transit. Here too an element warrants adding, namely, the underwater terrain—its topography and hydrography.

This modified template allows for exhaustive analysis of geostrategic features. Mahanian methods retain their potency not just for evaluating enclosed seas and adjacent littorals but also for assessing the value of maritime strategic features

wherever they may be found. This article investigates Mahan's methodology; applies it to maritime Southeast Asia, examining the sea and its islands, the South China Sea rim, ingress and egress points, the capacity of local sea powers, the underwater dimension, and crucial differences separating the South China Sea from other marginal seas;

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and urges those who do business in great waters to embrace this instrument for general use.

### WHY THE SOUTH CHINA SEA?

What would Mahan think about the strategic geography of the South China Sea? One thing is certain—that he *would* think about it were he alive today. How could he not? Journalist Robert Kaplan calls the South China Sea “the 21st century’s defining battleground,” the “throat of global sea routes.”<sup>1</sup> China seemingly covets a hegemonic position there, having repeatedly asserted “indisputable sovereignty” over virtually the entire expanse while conducting itself as though it intends to create a closed sea.<sup>2</sup> And it is moving to match purpose with power, constructing a great navy, deploying its first unified coast guard, and providing fire support for the sea services through such shore-based sea-denial weaponry as antiship cruise and ballistic missiles and missile-armed tactical aircraft, submarines, and patrol craft.

Beijing’s claims to sovereignty over this vast realm are far from indisputable. But—backed up by this panoply of military hardware and the advantages that accrue to those defending their home turf—they might prove irresistible. China’s naval rise is a crucial factor prompting the United States to “pivot” or “rebalance” to the western Pacific and Indian Ocean. As early as 2007, U.S. sea-service chiefs pledged to stage “credible combat power” in the two oceans for the foreseeable future.<sup>3</sup>

Geopolitical thinkers explain why. The South China Sea belongs to what Yale professor Nicholas Spykman terms the “girdle of marginal seas” swaddling the Eurasian mainland. For Spykman, dominating such marginal seas is crucial to projecting power into the Eurasian rimlands and thence into the vast interior. As Kaplan notes, this potentially contested body of water is also an interface joining the two oceans constituting the “Indo-Pacific” region.<sup>4</sup> Seagoing forces routinely traverse it, alighting around the Asian perimeter as strategic circumstances warrant. Strategic mobility would be slower and clumsier absent free transit through Southeast Asian waters. Freedom of the seas constitutes a mainstay of U.S. foreign policy in any event, but it is increasingly a matter of operational expediency as well.

Maritime strategy is not all about great powers, however. Lesser Southeast Asian states seek to advance their interests, consonant with the meager physical strength they can muster. They can also reach out for support, aggregating their strength to counterbalance China. The United States is a balancer of first resort. Asian powers like Japan, India, and Australia, furthermore, have voiced interest in free passage through regional seaways, while consulting among themselves about maritime matters. The increasingly obvious intersection between Southeast Asian geography and politics would fix Mahan’s strategic eye on the

region—much as he peered southward toward the Caribbean and Gulf during his own lifetime.

### THROUGH A MAHANIAN LOOKING GLASS

By consulting Mahan's works on American geopolitics, observers can glean some idea of what he would say about strategic competition in Southeast Asia were he alive today. That naval historian compared the Caribbean Sea and Gulf of Mexico to the Mediterranean Sea in hopes of deriving insights into strategic effectiveness in semienclosed expanses. He saw "a very marked analogy in many respects" between the Mediterranean and Caribbean Seas—"an analogy which will be still closer if a Panama canal-route ever be completed," allowing east-west transit and shortening communications between the Atlantic and Pacific Oceans by thousands of miles.<sup>5</sup>

The logic Mahan articulated for America's Mediterranean holds for any aspiring sea power that possesses the economic vitality, military strength, and political resolve—the lineaments of great power—to make use of important strategic features in or adjoining the South China Sea.<sup>6</sup> Even small marine states can deploy artful strategy to deny geographic assets to stronger rivals or to exploit these assets themselves. Indeed, strategic guile is all the more important for the weak.

An expansive view of such matters came naturally to Mahan, a philosopher of sea power as well as a naval strategist.<sup>7</sup> Nowadays it is distressingly commonplace for strategists to reduce him to a propagandist, a Gilbert-and-Sullivan-esque figure touting Trafalgar-like battles between swarms of armored dreadnoughts.<sup>8</sup> Decisive sea battle was a part of his writings, to be sure, but not the whole—and arguably not even the most important part. For him, vouchsafes historian William Livezey, "sea power was the sum total of forces and factors, tools and geographical circumstances, which operated to gain command of the sea, to secure its use for oneself and to deny that use to the enemy."<sup>9</sup> Quite so. There is more to sea power than tactics or specific implements of sea combat.

Rather, Mahan conceived of sea power as a symbiosis among domestic industry and foreign trade and commerce, commercial and naval shipping, and forward bases to support the journeys of fuel-thirsty steamships.<sup>10</sup> "Commercial value," he wrote, "cannot be separated from military in sea strategy, for the greatest interest of the sea is commerce."<sup>11</sup> In today's parlance, gaining and enforcing commercial, political, and military "access" to regions like East Asia constituted his paramount goal. The "starting point and foundation" for comprehending sea power are "the necessity to secure commerce, by political measures conducive to military, or naval strength. This order is that of actual relative importance to the nation of the three elements—commercial, political, military."<sup>12</sup> Commercial access, then, held pride of place in his thinking. This is a vision of grand-strategic sweep.

Mahan was acutely conscious of geography. He examined specific theaters more attentively than did the other greats of strategic theory, except perhaps his “best military friend,” land-power scribe Antoine-Henri Jomini.<sup>13</sup> Indeed, some pundits pronounce Mahan a seafaring Baron Jomini.<sup>14</sup> Both Clausewitz and Sun Tzu, for instance, pay considerable attention to terrain only in a generic way. Neither goes into detail about the geographic characteristics of any particular battleground or theater.

For Mahan, studying the particular geographic surroundings is a prerequisite for competitive enterprises. He proclaims that “geography underlies strategy.”<sup>15</sup> Many principles of continental warfare map to the sea, moreover, applying there much as they do ashore. This renders the feats of land-power giants like Frederick the Great and Napoleon Bonaparte worthy objects of study, even for mariners. Mahan delights in quoting or paraphrasing Napoleon’s maxim that “war is a business of positions.” He does so four times in *Naval Strategy* (1911), his last major work—a work specifically meant to tease out the likenesses between land and sea warfare.

So geographic analysis comes first, at sea as on land. When pondering the opening of an oceanic theater, affirms Mahan, makers of strategy must begin by surveying its physical characteristics. To design and prosecute strategy, they must evaluate geographic features, determine which are critical and which secondary, and integrate important features into their plans along with maritime forces able to shape events. “In considering any theater of actual or possible war, or of a prospective battlefield,” he insists, “the first and most essential thing is to determine what position, or chain of positions, by their natural and inherent advantages affect control of the greatest part of it.”<sup>16</sup> Where to station forces to assert—or deny—control of key positions constitutes “a matter of prime importance” for any power that covets access to faraway expanses.<sup>17</sup>

Geography constitutes the fixed setting within which maritime strategy—a dynamic, intensely interactive human enterprise—unfolds. Yet Mahan went beyond general entreaties to afford geography its due. During his long publishing career, he constructed a framework for analyzing the worth of such strategic features as seaports, islands, and narrow waterways. His first book explored *The Gulf and Inland Waters* (1883).<sup>18</sup> He returned to this subject in “The Strategic Features of the Gulf of Mexico and the Caribbean Sea,” a *Harper’s* essay reprinted in *The Interest of America in Sea Power, Present and Future* (1897).<sup>19</sup> *Naval Strategy*, as suggested above, concentrates single-mindedly on unearthing points of similarity and difference between continental and maritime warfare.

Interestingly, his most influential work, *The Influence of Sea Power upon History, 1660–1783*, contains the *least* geographic content, beyond the general axiom that the extent and conformation of territory are two of the six inescapable

determinants of maritime might. That few readers venture beyond *The Influence of Sea Power upon History* may help explain strategists' habit of overlooking the geopolitical dimension of his writings.

Where do likely theaters of competition and conflict lie? Mahan casts this question in terms of purpose and power. He observes that certain regions, "rich by nature and important both commercially and politically, but politically insecure, compel the attention and excite the jealousies of more powerful nations."<sup>20</sup> Regions combining abundant natural resources and vibrant trade and commerce with frail governments unable to resist great-power encroachment beguile acquisitive foreign powers. Ambitious outsiders see great reward in obtaining military and economic beachheads in such regions, and they see the barriers to entry as low. Mahan was thinking of the great-power struggle over Manchuria and the Korean Peninsula. Northeast Asia was a crucible of conflict during the Sino-Japanese War (1894–95), the Russo-Japanese War (1904–1905), and Japan's annexation of Korea (1910), great events that transpired during his lifetime.

How did Mahan estimate the strategic value of geographic positions? As noted before, he considered overseas naval stations to be collectively one of three pillars of sea power. External powers, he held, must be choosy about the sites they select, lest they disperse forces too thinly and expose their navies to piecemeal defeat in wartime. Mahan proposed that "the strategic value of any position, be it body of land large or small, or a seaport, or a strait, depends, 1, upon situation (with reference chiefly to communications), 2, upon its strength (inherent or acquired), and, 3, upon its resources (natural or stored)."<sup>21</sup> As noted at the outset of this article, relations with prospective host governments constitute a de facto fourth determinant, or enabler, of a site's value. Absent decent working relations, a port will remain off-limits, along with its geostrategic leverage.

Suitably amended, Mahan's simple construct retains its analytical power today. Consider its elements in turn. First, in maritime strategy as in real estate, location ranks atop the priorities list. To be worth occupying, prospective bases must lie along "strategic lines." Otherwise, innate strength and resources matter little. Harbors near heavily trafficked sea lines of communication (SLOCs) are ideal, placing the fleet close to its sphere of action. Proximity to friendly seaports is another advantage. It allows fleet detachments to combine for defensive or offensive action in wartime, rendering mutual support. Proximity to hostile naval stations allows squadrons to watch or interdict enemy movements.

Isolation, on the other hand, detracts from a position's value. Even Gibraltar would be worthless as a naval station, despite its unsurpassed natural defenses, if situated alongside waters devoid of merchant and naval traffic.<sup>22</sup> A fleet based there would find little to do. Nor would anyone see any point in attacking the harbor. Stout defenses would be moot. Nor can a sea power do much about

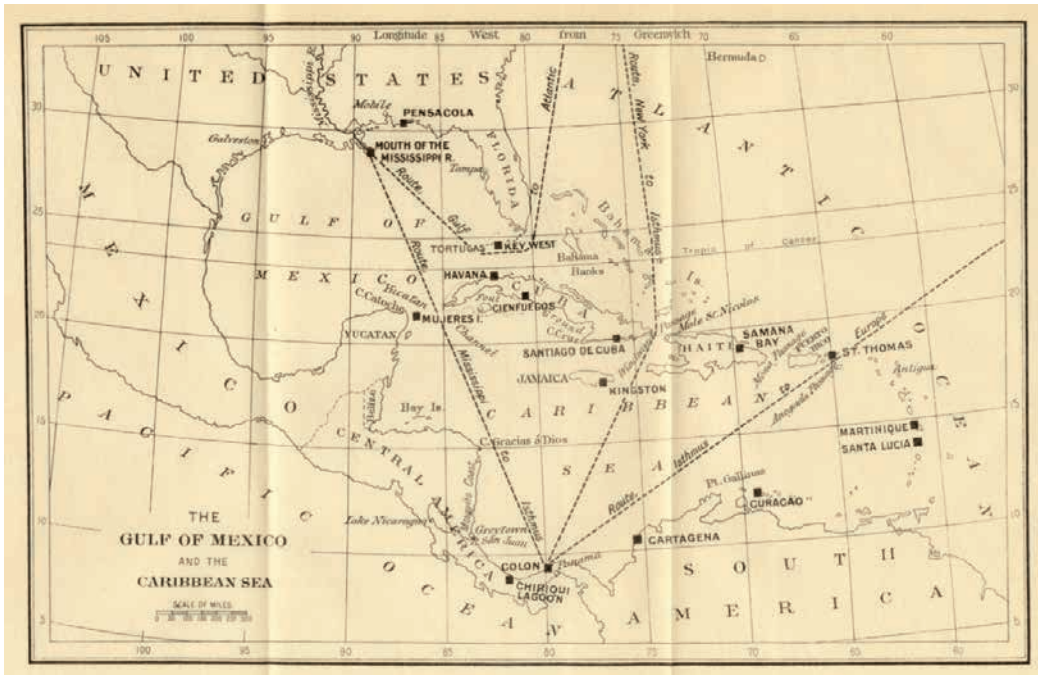
ill-positioned features. “Strength and resources,” observes Mahan, “may be artificially supplied or increased, but it passes the power of man to move a port which lies outside the limits of strategic effect.”<sup>23</sup> Natural defenses can be augmented to a degree, or resources can be shipped in overland or overseas. Position is eternal.

Second, a seaport needs military strength, or defensibility, to fend off maritime or landward assault while projecting naval force outward. A squadron stationed at a base capable of protecting itself can prowl the seas independently, executing its missions confident that its landward refuge will be there when it returns. Rugged natural defenses are desirable. Cliffs overlooking seaward approaches, for instance, render amphibious assault unpalatable while letting defenders rain gunfire on an enemy fleet. Defenders can emplace guns on both sides of a narrow harbor mouth, creating overlapping fields of fire. Hence Lord Nelson’s quip that a ship’s a fool to fight a fort. If a base lacks inherent protection against attack, naval engineers must fortify it—or look elsewhere for a more defensible site. Defensibility is especially complex in this age of missile warfare. Hardening infrastructure against missile strikes from the sea demands expensive, labor-intensive measures. The proliferation of inexpensive antiship weaponry, on the other hand, can augment the striking power of bases. Truck-launched antiship missiles, furthermore, can be positioned along the coast or well inland, converting the littoral zone into a *de facto* fortress.<sup>24</sup> How the offense-defense balance is likely to play out is a question worth asking when appraising a seaport’s defensibility.

Third, “resources” refers to shipyards to refit merchantmen and ships of war, provisions for visiting ships, and goods to supply the residents of the port. Foodstuffs, fuel, spare parts, and ammunition are only some of the items a base needs. Self-supporting ports are ideal. Large islands and coastal harbors boasting ample backcountry can provide for many of their needs. Sites without such endowments must ship in cargoes of critical goods. Dependence on external supplies exposes the port and fleet to a naval quarantine. Observes Mahan, resource-poor Gibraltar would wilt without seaborne supplies—its peerless strategic position and defenses notwithstanding.<sup>25</sup> Its relationship with the Royal Navy was symbiotic: warships based there could control access to the Mediterranean Sea, but ship crews and the inhabitants of the fortress would starve unless the fleet ruled the waves, assuring regular shipments.

Transpose this analysis to the Caribbean and Gulf. (Use map 1 as a reference during the following discussion.) Mahan warns against gauging a site’s potential in isolation from its surroundings. This is especially true within the cramped confines of “America’s Mediterranean.” Islands, he notes, constitute a nearly solid barrier between the Gulf and Caribbean. Cuba, Santo Domingo (i.e., Hispaniola), and Puerto Rico are the primary obstacles. Narrow seas separating the islands corral shipping bound to or from the Isthmus of Panama into three principal

## MAP 1 GULF OF MEXICO AND CARIBBEAN SEA



Source: Mahan, *Interest of America in Sea Power, Present and Future*, p. 270.

shipping lanes. One, through the Yucatán Channel, passes to Cuba's west. The second route, the Windward Passage, lies between the eastern tip of Cuba and Haiti. Because Cuba faces these two waterways (the third passes well to the south, skirting past Puerto Rico), concludes Mahan, it is "as surely the key to the Gulf of Mexico as Gibraltar is to the Mediterranean."<sup>26</sup>

But as he notes, Cuba commands manifold advantages over Gibraltar in terms of strength and resources. Its attributes include a long, distended shape, multiple harbors, and abundant indigenous resources. Defenders operating in the interior could resupply harbors like Havana and Santiago overland, defying even an overpowering blockade fleet. Best of all from a Mahanian standpoint, the United States had won basing rights at Guantánamo Bay, near Cuba's eastern tip, through its victory in the Spanish-American War (1898). U.S. Navy forces stationed there stood athwart sea communications with the British-held island of Jamaica to the south. This positional advantage over the Royal Navy was no small thing, since the Royal Navy had ruled American waters until around the turn of the century and Anglo-American war remained a hypothetical possibility.

Puerto Rico, another prize wrung from Spain, likewise occupied a strategic position. As noted before, the third of Mahan's major SLOCs, the Anegada Passage, lay to its east.<sup>27</sup> U.S. Navy warships operating from the island had the option



of interdicting adversary shipping along this route or safeguarding the island and adjacent waters for friendly use. In short, its post-1898 island holdings empowered the United States to mount a forward defense of its Gulf coast, entrenched U.S. naval forces in a central position astride important shipping lanes, and granted Washington the option of radiating power southward toward the isthmus.

Amassing the wherewithal to mold events on and around the isthmus obsessed navalists like Mahan, Theodore Roosevelt, and Henry Cabot Lodge. After all, an entirely new sea passage would connect Atlantic with Pacific once engineers finished digging the canal across Panama. Transoceanic passage would spare ships the long cruise around Cape Horn. In geospatial terms, observes Spykman, the “cut through Central America had the effect of turning the whole of the United States around on its axis and giving it direct access to the Pacific Ocean.” In effect, the artificial waterway teleported New York nearer to the Asia-Pacific, closer than Liverpool is to Shanghai, an invaluable edge for American merchantmen. New York was also thousands of sea miles closer to the west coast of North America.<sup>28</sup>

Controlling Central American waters, consequently, became a goal of surpassing importance for Washington during the age of Mahan. Where should the U.S. Navy position forces to command these waters? The interdependence among such sites as Pensacola, Key West, and Guantánamo Bay complicated geostrategic calculations. Some sites, writes Mahan, were “overshadowed by others so near and so strong as practically to embrace them.”<sup>29</sup>

When weighing the comparative merits of Jamaica and Cuba, for instance, he pointed out that Jamaica “flanks all lines of communications.” Judged purely by its geographic position, the British-held island commanded the greatest potential of any geostrategic asset in the Caribbean Sea. Yet it was deficient in resources and thus dependent on shipments brought in by sea from Canada or the British Isles. Cuba overshadowed Jamaica, controlling all sea communications between the Atlantic Ocean and the lesser island. Only a fleet stronger than any hostile fleet based in Cuba could prevent a distant blockade from isolating and slowly starving out Jamaica. Only a dominant navy could imbue Jamaica with the full value it commanded in abstract calculations, whereas Cuba was virtually self-sufficient.<sup>30</sup> By the turn of the century, the Royal Navy could outmatch the U.S. Navy in American waters only by pulling squadrons from other important theaters. Advantage: Washington.

Mahan expands in *Naval Strategy* on his position/strength/resources template, applying it to straits and other confined waterways as well as to islands and coastal sites. He also adds three metrics peculiar to narrow seas. “The military importance of such passages or defiles,” he says, “depends not only upon the geographical position, but also upon their width, length, and difficulty.” More specifically, a strait is a “strategic point” whose value depends on its “situation”

on the nautical chart; on its “strength, which may be defined to consist in the obstacles it puts in the way of an assailant and the consequent advantages to the holder”; and on “resources or advantages, such as the facility it gives the possessor for reaching a certain point.” A well-placed passage shortens the distance from place to place for the belligerent who holds it.<sup>31</sup> Denying an enemy fleet passage forces it to follow longer, more circuitous, and probably more debilitating and costly routes to its destination.

As in his analysis of bases, Mahan cautions against evaluating narrow seas without accounting for their larger geographic contexts. When “fixing the value of any passage,” it is crucial to calculate the number and availability of nearby alternatives. “If so situated that a long circuit is imposed upon the belligerent who is deprived of its use, its value is enhanced.” Scarcity magnifies a waterway’s importance. Its value rises if it constitutes “the only close link between two bodies of water, or two naval stations.” Finally, he urges strategists to consider the underwater topography of narrow seas. There is a vertical dimension to Mahan’s analysis, then, even though he was concerned mainly with surface shipping. The presence of convoluted channels, shallow water, or shoal water helps determine a passage’s offensive and defensive potentials.<sup>32</sup> A hard-to-navigate passage represents an asset to the defender, a bane to opponents unfamiliar with its intricacies and quirks.

Finally, Mahan notes in passing that “a certain regard must be had to political conditions, which may be said to a great extent to neutralize some positions.” Social or political upheaval in the surrounding country, for example, can work against or even negate a site’s value, undercutting its defensibility or impoverishing even a wealth of resources. Mahan dismissed Haiti as a base for just that reason. The country’s constant revolutionary upheaval, or sociopolitical “nothingness,” rendered it “an inert obstacle” to U.S. maritime strategy.<sup>33</sup>

Such comments about social, cultural, and political context have the feel of an afterthought for Mahan. Nevertheless, he does acknowledge that there are diplomatic indexes of geostrategic merit. Position, strength, and resources are not everything for a base. Learning the cultural terrain can be just as crucial. Alliance relations, then, belong in the Mahanian framework as an additional metric. Today, strong nations no longer wrest choice pieces of territory from their owners to use as bases. It is imperative, consequently, to take account of prospective host nations’ interests and views—lest their governments restrict or refuse access in stressful times.

The best-situated, most defensible, most lavishly supplied seaport in the world means little if it remains off-limits when needed most. Alliance management represents an enabler for any forward-leaning maritime strategy, letting a seagoing state tap bases’ physical potential.

## MAP 2 SOUTHEAST ASIA



Source: Central Intelligence Agency, *The World Factbook*, [www.cia.gov/](http://www.cia.gov/).

### OPEN RANGE

Now apply this framework—position, strength, resources, and alliance relations for land sites, while adding length, width, difficulty, and underwater topography for narrow seas—to the South China Sea. (Refer to map 2.) This is a body of water similar in crucial respects to the Caribbean and Gulf, just as those semienclosed seas bore enough resemblance to the Mediterranean Sea to make Mahan's comparative study worthwhile.

The South China Sea presents operational surroundings that appear more hospitable for navies than do other semienclosed expanses of comparable size, yet are less hospitable in other respects. It is wider and more vacant than the Mediterranean or the combined Gulf and Caribbean, facilitating free passage for commercial and naval shipping while allowing naval task forces ample maneuvering space. No obstacles comparable to the Italian Peninsula jut into it to constrict navigation. No island barrier comparable to the Cuba–Hispaniola–Puerto Rico line funnels shipping bound for the Malacca Strait—the main outlet to the Indian Ocean beyond—through a few focal points that can be guarded by watchful maritime forces (or bedeviled by pirates or other nonstate scourges).

For ships that are simply passing through the region in peacetime, then, the South China Sea is a readily navigable expanse. Only a handful of mostly tiny islands, atolls, and reefs—the Spratly Islands to the south, the Paracel Islands to the north—break up the largely featureless maritime plain that separates Vietnam from the Philippines along the east–west axis and Hong Kong from Borneo from north to south. The Spratlys and Paracels command enviable geographic positions, but they feature next to nothing in terms of the benchmarks of strength and resources. Many are uninhabited, habitable only if outside supplies are brought in. At most these small, resource-impooverished, hard-to-defend islets could play host to small units armed with antiship cruise missiles, providing the force that occupies them a sea-denial option vis-à-vis passing merchant or naval traffic. These are tenuous positions for military forces in search of forward bases.

In short, it will prove hard for any Southeast Asian naval power to ensconce itself in a central position comparable to the one the United States occupied after wresting away Spain's island empire. There is no Puerto Rico, let alone a Cuba. Two islands figure prominently in news dispatches from Southeast Asia. The first is Taiping Island, the largest of the Spratlys. This asset is held by Taiwan. The second is Woody Island, or Yongxing Island, a Chinese-held outpost in the Paracels. Beijing recently instituted the administrative center of Sansha, on Yongxing, to buttress its claim to sovereignty over most of the South China Sea. Both islands resemble Jamaica, as Mahan described it, but they lack Jamaica's resource base. Both hold good positions, then, but are short on strength and resources. Neither is a self-sufficient, readily defensible Cuba.

Consider. Taiping is the largest of the Spratly Islands, at 1.4 kilometers long and 0.4 wide. These are flyspeck proportions. It is the only one of the Spratlys with its own freshwater. It is big enough for an airfield. Accordingly, Taipei has equipped the island with an airstrip capable of handling military aircraft and is mulling extending the runway to permit larger aircraft to land.<sup>34</sup> In terms of position, Taiping is well situated along SLOCs connecting the Strait of Malacca with Northeast Asia. Beyond that, it makes a precarious base. Plentiful freshwater is a significant asset,

but ships or aircraft would have to ferry in foodstuffs, ammunition, and other supplies from Taiwan, through potentially contested sea or air routes, to support any serious expeditionary presence in the South China Sea.

Without sea control or air supremacy—operational conditions increasingly out of reach for Taiwan’s outmatched air force and navy—Taiping Island will fall in any serious conflict.<sup>35</sup> As in the case of Jamaica, only a dominant naval and air force can impart value to the island. Taiping would be an asset to *Chinese* sea power in Southeast Asia, since People’s Liberation Army (PLA) forces can hope to rule the seas and skies, but it does little for Taiwan in military terms. The same is even truer for the other, even weaker claimants to the Spratlys.<sup>36</sup> At most the island holds negative value for Taipei—that is, withholding it from China works in favor of China’s competitors, simply because it keeps the PLA from emplacing forces there in peacetime.

Woody Island, which anchors China’s presence in the Paracels, holds still less intrinsic military value. As noted before, Beijing founded the city of Sansha there in July 2012 while announcing plans to garrison the island.<sup>37</sup> Like Taiping, Woody Island occupies an excellent geographic position. Also like Taiping, it is woefully deficient in strength and resources. It is minuscule. It boasts no freshwater, meaning the very basics of life must be shipped in from the mainland. Sansha is little more than a village, populated by a thousand or so residents. The garrison will be a token force, with more symbolic power than combat potential.

Even so, Chinese military predominance in the northern reaches of the South China Sea bestows more potential on Woody Island than Taiping will ever enjoy under Taiwanese control. Its capacity to sustain air and sea communications lets the PLA unlock whatever potential the island holds. In Mahanian parlance, it equates to a Jamaica that is home to a preponderant fleet and depends on that fleet for defense and sustenance. Clearly, from a military standpoint, the South China Sea islands are an unpromising lot. Yet China is best positioned to take advantage of what little they offer.

### *The South China Sea Rim: Part Solid, Part Porous*

If not island strongholds, what about ports and airfields around the South China Sea rim? As detailed before, no sea power can easily mount a forward presence in the islands. There is no Cuba, Puerto Rico, or Saint Thomas from which to stage forward operations. Nor are there counterparts to Gibraltar, Malta, or other Mediterranean outposts where Royal Navy ships tarried during Britain’s imperial heyday. Hainan Island extends China’s seaward reach, but only by some 233 kilometers from the mainland coast. Converting Woody Island into a serious asset might be worth China’s while but promises to consume significant resources and policy energy.



Because of these shortcomings, sites around the periphery take on more importance than in Mahan's Gulf and Caribbean. Southeast Asian states are increasingly willing to open their facilities to outsiders. Manila, for instance, has welcomed U.S. ship visits in increasing numbers since China occupied Scarborough Shoal, an atoll deep within the Philippine exclusive economic zone, in 2012. Cam Ranh Bay, a U.S.-built seaport in southern Vietnam, offers an excellent harbor astride the eastern approaches to the Strait of Malacca. Hanoi has opened the port to shipping from all nations.<sup>38</sup> Changi, a port facility in Singapore, can berth U.S. nuclear-powered aircraft carriers, not to mention smaller craft. Singapore recently agreed to host a rotating four-ship squadron of U.S. Navy littoral combat ships, while making it known that all navies are welcome to call there.<sup>39</sup> The first littoral combat ship commenced its maiden deployment in early 2013.

Neither Vietnam nor Singapore is likely to permit full-fledged foreign bases on its territory, but both appear amenable to less formal arrangements. How governments size up the strategic setting represents the crucial determinant of their policies toward foreign navies. The more aggressively China pushes its maritime territorial claims in Southeast Asia, in other words, the more receptive regional governments are likely to be to hosting outside forces. Position, strength, and resources are meaningless without access. Access is a function of international politics and, in turn, of whether governments perceive menace in the geostrategic environment and seek outside support.

There being few permanent basing options in the southern reaches of the South China Sea, ships capable of at-sea replenishment—indispensable to sustained operations on the high seas—will be central to any maritime competition. This helps account for Beijing's determined pursuit of aircraft carriers, the best mobile substitute for forward airfields. One suspects the People's Liberation Army will also step up efforts to field tanker aircraft and combat-logistics vessels. Doing so will help combat platforms remain on scene in or over southern waters, rendering the Chinese presence there less sporadic than was once the case. The PLA Navy, moreover, has fielded Type 056 corvettes to help establish a standing presence in disputed expanses. Such platforms will supplement the white hulls of the China Coast Guard. In short, material capabilities must compensate for the dearth of forward positions in the region.

### *Ingress and Egress Points*

What about access to and from maritime Southeast Asia? The frontiers of the South China Sea bear closer resemblance to the frontiers of the Gulf and Caribbean than to those of the Mediterranean. The Mediterranean is a true middle sea, enclosed entirely by continental landmasses, apart from the Strait of Gibraltar, the Dardanelles and Bosphorus, and the Suez Canal, an artificial waterway. The



South China Sea, similarly, is ringed by continental Southeast Asia, a solid barrier to the north and west. Island states, however, form its eastern and southern periphery. This massive arc sweeps from the Taiwan Strait to the Strait of Malacca, passing through Taiwan, the Philippines, Borneo, and the Indonesian Archipelago along the way. The South China Sea's eastern borders, then, are far more permeable than any found in the Mediterranean, albeit less so than the Lesser Antilles, which make up the southeastern arc of the Caribbean Sea.

In contrast to the case with the Panama Canal, furthermore, mariners have alternatives to the Malacca Strait—in particular, the Lombok and Sunda Straits, navigable seaways that pierce the southern arc of the Indonesian Archipelago. A glance at the map suggests that with so many access points, shipping can enter and exit the South China Sea with little fear of interference. In his review of Caribbean geography, similarly, Mahan contends that the Antilles present few impediments to shipping despite their auspicious position on the map.<sup>40</sup> Indeed, the southeastern fringes of the Caribbean verge on being open sea.

But naval technology has come a long way since Mahan's day. Properly armed and fortified, local militaries could contest adversaries' use of nearby straits with relative ease. A mix of fast attack craft, land-based antiship missiles, and underwater mines—perhaps even submarines, for some navies—could give them the dominant say over wartime transit through these narrow seas. Archipelagoes can be made formidable barriers.

### *Local Sea Powers May Punch Above Their Weight*

Strategists today cannot simplify the geometry of South China Sea maritime strategy as neatly as Mahan simplified that of the Caribbean basin. Weak Southeast Asian countries are better positioned and equipped to influence their neighborhoods than were weak American states during the fin de siècle era. As map 1 shows, Mahan was able to inscribe a triangle on his map enclosing all important geostrategic features found in the inland seas. A line connecting New Orleans with Colón formed one side. A second side originated at Pensacola and runs through, and somewhat beyond, Saint Thomas. The final leg started at Colón and runs through Cartagena and Curaçao, intersecting with the Pensacola–Saint Thomas leg east of Martinique. Everything outside could be safely excluded from consideration.

Mahan cited two reasons why strategists could concentrate their analytical energies within this triangle. One, applying the position/strength/resources paradigm revealed that there was no seaport of consequence along the desolate coastline stretching westward from New Orleans, along the Texas and Mexican coasts, through the northern tip of the Yucatán Peninsula. Two, Mexico was politically stable and deployed no serious navy. It presented no threat, actual

or latent. Strategists could afford to disregard the shores west of the Mississippi delta, because it was inert from a sea-power standpoint. By default, all significant features lay within the Mahanian triangle.<sup>41</sup>

Geostrategists today cannot discount the potential of Southeast Asian states as blithely as Mahan discounted Mexico's a century ago. The entire South China Sea rim merits scrutiny. True, China boasts the most maritime potential of any littoral state in the region—by a wide margin. But unlike Latin American states of the Mahanian age, Southeast Asian states are not mere objects on which great powers work their will. They can influence their marine environs. Inexpensive shore-based weaponry can project force out to sea, harnessing the logic of sea denial even absent powerful fleets.

Not that the region is devoid of respectable fleets. Some states, like Singapore, sport small yet first-rate navies. Singaporean mariners are reputed for their skill and élan, and they operate quality platforms and weaponry. This translates into a measure of control over the approaches to Malacca, as well as the strait itself. Others, notably Vietnam, have set out to field viable maritime forces of their own. Hanoi is acquiring six top-flight, Kilo-class diesel submarines from Russia, furnishing its navy a sea-denial option even vis-à-vis the far stronger PLA Navy.<sup>42</sup> A Vietnamese Kilo squadron could contest Beijing's claims to sovereignty—control, in other words—over regional waters while complicating the PLA Navy's efforts to exploit the full potential of its submarine base on Hainan or its outpost on Woody Island. A stealthy Kilo lying off, say, Hainan could deter traffic from entering or leaving port, compelling Chinese mariners to undertake time-consuming antisubmarine measures simply to use their Sanya base.

Indonesia too has announced plans to beef up its maritime power.<sup>43</sup> Even the Philippines, despite a trivial defense budget, has options in the form of a long-standing mutual-defense pact with the United States and a history of playing host to powerful U.S. sea and air forces. Manila has sought American backing during recent encounters with Beijing, notably the spring 2012 imbroglio at Scarborough Shoal.<sup>44</sup> American ships have called at Philippine ports more and more often since. The analogy between the South China Sea, with its lopsided naval balance, and the Mediterranean Sea, for centuries an arena of strife among more or less evenly matched naval powers, is closer than that between the South China Sea and the Caribbean of Mahan's day. It could be a hazardous expanse indeed in times of trouble.

### *The Undersea Dimension*

The undersea dimension seems like an afterthought in Mahan's analysis of narrow seas, presumably because Mahan conducted his analysis before submarines had fulfilled their potential. For him the primary concern is that seamounts,

reefs, and other obstructions can narrow the choice of courses for ships cruising on the surface. Careless piloting could leave a surface vessel aground. Such perils persist. In 2013, for example, the mine countermeasures ship USS *Guardian* (MCM 5) foundered on a reef in the Sulu Sea and had to be broken up.<sup>45</sup>

Yet underwater topography is at least as crucial for submarines cruising the depths. A passage's underwater conformation may differ markedly from that on the surface, meaning that submarines may have to trace a somewhat different route to make their way through. They also might have to traverse channels in shallow water, exposing themselves to detection and tracking. This is an uncomfortable prospect for submarine crews, who thrive on concealment. In Mahanian parlance, then, a passage's width, length, and difficulty may be different for submarines than for surface craft. Submarines resemble ground forces in that the terrain beneath them matters—in shallow zones, at any rate.

Not just physical features, furthermore, but a host of variables relating to seawater itself—temperature and salinity, to name two—influence sound propagation, which is central to submarine and antisubmarine operations. Acoustics and kindred subjects are absent from Mahan's works yet shape undersea warfare to a striking degree. It would be worth undertaking a close study of South China Sea subsurface topography and hydrography, compiling an undersea counterpart to his analysis of features with which surface navies must contend. Navies increasingly crowd these waters with advanced submarines, rendering water-space management ever more difficult, while raising the prospect of accidents and incidents beneath the waves. This warrants study.

One sample question: How will Chinese ballistic-missile submarines (SSBNs) based at Sanya, on Hainan Island, reach patrol grounds in the western Pacific should Beijing choose to send them out? To maintain stealth, SSBNs would first have to evade any adversary picket submarines lying offshore. Once in deep water, they would cruise eastward toward the Philippines. In all likelihood Chinese boats would exit through the Luzon Strait, the narrow sea between Taiwan and the Philippine island of Luzon.

Or, more precisely, maritime geography will force them to exit through the narrow Bashi Channel, near the northern edge of the strait. The Luzon Strait is wide by Mahanian standards, but the Babuyan and Batan Islands complicate matters, jutting out into the strait off northern Luzon. Seamounts and reefs dot the waters separating the northern Batanes from Taiwan, compressing traffic into narrow, somewhat convoluted pathways. This subjects SSBNs and other craft to detection and, in wartime, attack by hostile submarines, antisubmarine aircraft, or surface vessels outfitted for antisubmarine warfare.<sup>46</sup>

Chinese skippers, then, will enjoy deepwater concealment for only part of their voyages, courting danger immediately upon leaving port and when leaving

the South China Sea. To compound the problem, they will be compelled to elude antisubmarine forces operating from Taiwan, Luzon, or more remote sites such as Japan to reach the Pacific high seas. That is a lot of hazardous underwater terrain to traverse. The interplay among topography, hydrography, and strategy promises to take on new salience as PLA Navy commanders confront emerging realities and their opponents mull how to turn strategic geography to their advantage.

### *Taiwan, the Northern Sentinel*

No appraisal of the South China Sea would be complete without a few words about the geostrategic characteristics of Taiwan, which abuts the South China Sea to the north. Comparison between Taiwan and the islands Mahan assessed is inexact but revealing. Taiwan resembles Cuba by certain Mahanian standards. In terms of position, it stands athwart north–south sea-lanes that convey raw materials and finished goods to and from Northeast Asian economies. The island also overlooks and could obstruct east–west routes. Its northern tip, for example, faces Yonaguni, the southernmost point in Japan’s Ryukyu island chain. As with the rest of the Ryukyu straits, land sites adjacent to this narrow sea could be fortified to erect an east–west barrier to Chinese shipping. Also, Taiwan’s southern tip adjoins the Luzon Strait, the best—though, as shown before, far from optimal—portal between the western Pacific and the South China Sea.

The island is sizable, albeit smaller and more compact than Cuba. Much as with Cuba, whoever rules Taiwan enjoys considerable freedom to move forces overland on interior lines, bypassing and offsetting the debilitating impact of a blockade. And numerous seaports of various sizes and shapes dot its long coastline. Minor fishing harbors and marinas, along with caverns and other natural features, could provide ample refuge for flocks of small patrol craft. Larger naval combatants could operate from such major seaports as Keelung and Kao-hsiung.<sup>47</sup> From the vantage point of natural resources, verdant Taiwan is reasonably well stocked with foodstuffs and other supplies. Its inhabitants, however, depend on imported oil and gas. This represents a critical shortfall. On the whole, however, the island would seem to justify qualified applause from geostrategists.

Yet certain drawbacks recall Mahan’s acerbic commentary on Jamaica, when juxtaposed to nearby Cuba. Taiwan may flank key SLOCs, but the long Chinese coastline envelops the island in turn. PLA naval and air forces face the island along many axes, much as ships based at Cuban ports could interdict shipping bound to or from Jamaica. Only Taiwanese forces stronger than nearby sea- and shore-based PLA assets could release the island’s full geostrategic potential in the face of Chinese enmity. The island’s armed forces, however, are unlikely to regain their qualitative advantage over the PLA, let alone overwhelm their antagonists with superior numbers. It would be politically unthinkable for Taipei to reopen

the island to U.S. or other outside forces—even if external powers declared themselves willing to return and thereby to ratchet up tensions across the Taiwan Strait.

Should the mainland impose its rule on Taiwan, however, the island will come to resemble Key West, an outpost adjoining important sea-lanes and carrying enormous offensive and defensive potentials for the great power that owns it.<sup>48</sup> This new, old asset would extend China's seaward reach eastward into the western Pacific, turn the southern flanks of Japan and South Korea, granting Beijing newfound geostrategic leverage over its rivals, and emplace PLA forces in a commanding position along the northern rim of the South China Sea. From there they could project power westward into the Taiwan Strait, eastward into the Pacific Ocean, northward along the "first island chain," or southward into the Luzon Strait or the South China Sea. Perhaps most importantly, the PLA would have burst through the island-chain barrier, which Beijing regards as a latter-day implement of containment and an impediment to east–west movement between the China seas and the western Pacific.

In operational terms, PLA forces stationed on Taiwan could shield the mainland from prospective adversaries, such as the United States and its allies, regulate Northeast Asian competitors' seaborne communications, and guarantee free access through the Luzon Strait for Chinese men-of-war—including the SSBNs discussed before—while threatening to interrupt opponents' access.

Thinking about Taiwan as a geostrategic asset is by no means new. Admiral Ernest King, the Chief of Naval Operations during World War II, affirmed that the power that controlled Formosa could "put the cork in the bottle" of the South China Sea for adversaries. The reciprocal advantage: that power could keep the bottle uncorked for its own use.<sup>49</sup> Analyses like King's help explain why the United States affixed such value to Taiwan during the Cold War and why China does today. This "unsinkable aircraft carrier and submarine tender," to quote General Douglas MacArthur, helped anchor American containment strategy vis-à-vis the Soviet Union and China, constraining communist movements up and down the Asian seaboard.<sup>50</sup>

Doubters might say that such metaphors represent an antiquarian way of looking at Taiwan. Chinese officialdom evidently disagrees. The important Chinese manual *Science of Military Strategy*, for example, constitutes an authoritative guide to how the PLA leadership views China's strategic surroundings. "The reunification of China's mainland and Taiwan," its framers declare, is "something that concerns China's national sovereignty and territorial sovereignty." Their appraisal is worth quoting at length. The island, they observe, lies "in the key area" of maritime communications for East Asia. Sea lines of communication "from the East China Sea to the South China Sea, from Northeast Asia to Southeast Asia, as well as the route from the West Pacific to the Middle East, Europe and Asia pass

here. [Taiwan] is a sea transportation hub connecting Shanghai and Hong Kong, Ryukyu and Manila, Yokosuka and Cam Ranh Bay and Strait of Malacca.”<sup>51</sup>

Gaining control of Taiwan is a matter of immense strategic import for Beijing, regardless of whether Western commentators concur with Chinese strategists about the island’s military potential. The *Science of Military Strategy* authors add:

And [Taiwan] *is where we can breach the chain of the islands surrounding us in the West Pacific* . . . as well as a strategic key area and sea barrier for defense and offense. If Taiwan should be alienated from the mainland, not only our natural maritime defense system would lose its depth, opening a sea gateway to the outside forces, but also a large area of water territory . . . will fall into the hands of others. . . . [O]ur line of foreign trade and transportation . . . will be exposed to the surveillance and threats of separatist and enemy forces, and *China will forever be locked to the west side of the first chain of islands in the West Pacific.*<sup>52</sup>

China, they conclude, has “no room for compromise” on this geostrategic asset. If peaceful methods of cross-strait unification prove ineffective, military means will be “the only alternative.”<sup>53</sup> Nor is this a peculiarly Chinese Communist prognosis. It conforms to long-standing views, including that of Chinese Nationalist leader Chiang Kai-shek, who insisted that losing any part of China’s geographic periphery compromises the integrity of the whole.<sup>54</sup> From Beijing’s perspective, preserving the defensive system warrants the utmost resolve and effort.

## A UNIQUE PERIPHERAL SEA

Finally, two critical differences separate the South China Sea from both the Caribbean Sea and the Mediterranean Sea. First, there are relatively convenient alternatives to traveling through maritime Southeast Asia. It is possible, that is, to detour around the South China Sea without undertaking voyages of epic scope like the ones around Tierra del Fuego or the Cape of Good Hope. The Pacific-based U.S. battleship *Oregon* was forced to circumnavigate South America in 1898 to get into the Caribbean fight against Spain.<sup>55</sup> The battlewagon’s arduous transit lent credence to Mahanian advocacy on behalf of an isthmian canal. A few short years later, in 1904–1905, the Russian Baltic Fleet, denied the use of the Suez Canal, had to steam around Africa, across the Indian Ocean, and through the South China Sea and waters adjoining Taiwan to engage the Imperial Japanese Navy.<sup>56</sup>

Distance was clearly a problem in these instances. There was no alternative to a protracted cruise in the former case, while Japan’s ally Great Britain closed the Suez to Russia in the latter. Neither geography nor enemy strategy, by contrast, compels anyone to traverse contemporary Southeast Asian waters. Circumventing this marginal sea imposes significant costs in terms of extra fuel, wear and



tear on equipment, and crew fatigue, but such challenges are manageable compared to rounding South America or Africa.

Second, there are potential naval stations outside the southern perimeter of the South China Sea. Many lie in Australia. Forces based there can swing from side to side between the Indian Ocean and western Pacific without ever venturing into Southeast Asia. This qualifies Robert Kaplan's analogy between the South China Sea and a throat. A throat is the only route from one place to another, whereas Australia-based forces enjoy the luxury of entering the South China Sea at points of their choosing—bypassing the throat.

Australia thus bestrides an invaluable position at the seam between the Pacific and Indian Oceans, external to Southeast Asia. The U.S.-Australian agreement to station a rotating contingent of U.S. Marines at Darwin, along the northern Australian coast, leverages this convenient geostrategic reality.<sup>57</sup> Also, while Canberra has demurred thus far, Washington may try to expand the basing arrangement to stage heavy U.S. Navy forces in Australia, perhaps at the western seaport of Perth. The merits of an external yet nearby geographic position are too obvious to ignore. Whether alliance politics will permit a realignment this bold remains to be seen.<sup>58</sup> Much depends on how aggressively China conducts itself in the region.

The South China Sea, then, represents a maritime crossroads that commands enormous worth for seafaring states while presenting few opportunities for permanent forward basing. Because of its dearth of island outposts, it will prove difficult for any would-be hegemon to command—even a coastal state like China that is replete with maritime potential. An oceangoing fleet able to project power throughout the region will be a must for any power with designs on sea command. China has achieved impressive progress toward a blue-water navy while fielding its first coast guard and an imposing array of land-based weaponry able to strike at sea. This portends well from its standpoint.

Nonetheless, Beijing has taken on an imposing slate of commitments along its nautical periphery, ranging from managing events on the Korean Peninsula, to the north, through recovering Taiwan, at the midpoint, to fostering maritime security at Malacca, to the extreme southwest. These commitments stretch finite assets thin. China's naval project remains a work in progress, meaning that any decision to concentrate assets in Southeast Asia places other, equally pressing interests at risk. Alfred Thayer Mahan would doubt China's capacity to enforce its will in Southeast Asia any time soon.<sup>59</sup>

Mahan might question America's longevity there as well—and beseech American decision makers to shore up its position, both by keeping the U.S. Navy strong and by courting close ties with regional allies and partners. Otherwise, the pillars of American sea power in a theater of vital interest may prove wobbly

indeed. Strategists could do worse than to use his framework to think through these challenges.

## NOTES

The views voiced here are the author's alone.

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# THE JAPAN MARITIME SELF-DEFENSE FORCE IN THE AGE OF MULTILATERAL COOPERATION

## Nontraditional Security

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I saiah Berlin's essay *The Hedgehog and the Fox*—made famous by the adage “The fox knows many things, but the hedgehog knows one big thing”—explores the pros and cons of a highly focused defense strategy.<sup>1</sup> The hedgehog curls up in a ball and defends itself. Hiroshi Doi, former professor at the National Defense Academy of Japan, advocates a “hedgehog-style defense” for Japan, claiming that the country's postwar security policies can still defeat any “sly fox” confronting the nation.<sup>2</sup> However, given the emergence of an increasingly complex global security environment, it may be argued that Japan's “defense-only defense policy” is no longer valid. Indeed, must Japan remain a hedgehog forever?

The security environment surrounding Japan grows ever more complex

and diversified, combining traditional and non-traditional security challenges as never before. China's robust and growing antiaccess/area-denial (A2/AD) capabilities and North Korea's burgeoning nuclear weapons arsenal are dire threats to Japan's economic survival and very existence. In addition, a wide array of nontraditional threats, including transnational terrorism, drug trafficking, and persistent attacks in the cyber domain, undermine the peace and stability of the Asia-Pacific region. Recently, natural disasters, including earthquakes, tsunamis, typhoons, and pandemics, have proved much more deadly and almost always require military responses in the

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form of humanitarian assistance / disaster relief (HA/DR) operations. If Japan is to meet these challenges as well as fulfill its duties as a “responsible stakeholder,” the roles, missions, and force structure of the Japan Self-Defense Forces (SDF) must be modernized.

On 1 May 2012 American and Japanese leaders issued “U.S.-Japan Joint Statement: A Shared Vision for the Future” declaring, “Japan and the United States pledge to fulfill our roles and responsibilities by utilizing the full range of capabilities to advance regional and global peace, prosperity and security.”<sup>3</sup> This reflects the growing expectation that Japan will help promote peace and stability in the Asia-Pacific region through its close alliance with the United States. To attain a responsible stature in international society, Japan needs to take actions to enable it to perform its responsibilities relating to security more comprehensively. Constantly changing domestic and international security paradigms make it necessary for the Ministry of Defense and the SDF to deepen the Japan-U.S. alliance and strengthen its effectiveness. Because Japan’s national interests are closely tied to the sea, the Japan Maritime Self-Defense Force (JMSDF), a flexible, responsive, and sustainable naval force, stands at the forefront of the defense of the nation and plays a central role in the Japan-U.S. relationship with regard to defense cooperation. It can be argued that the alliance could wither and collapse unless the JMSDF adapts to these changing times by revising its outmoded defensive strategy and adopting new roles and missions.

There are many new roles and missions that the JMSDF needs to perform in the future. Preparing to meet nontraditional challenges is of the utmost urgency, because such activities can be implemented immediately, do not violate constitutional restrictions, and help Japan fulfill its international obligations. The proposed concept of the “Noncombat Military Operation,” or NCMO (pronounced “Nocomo”), should be a minimum and realistic step for Japan to become a more responsible international power.<sup>4</sup>

In a prior study based on the *National Defense Program Guidelines for [Fiscal Year] FY 2011 and Beyond* and lessons learned from the Great East Japan Earthquake, recommendations were made for the rapid development of sea-based capabilities (i.e., amphibious lift and corresponding logistics support) as a defense requirement for Japan today.<sup>5</sup> Sea basing is a key capability if disaster-prone and insular Japan is to face nontraditional challenges. However, to date, there has been no systematic analysis of the extent to which the JMSDF can actually perform activities in the nontraditional security fields utilizing sea-based capabilities. It is therefore necessary to determine which roles should be played by the JMSDF in the nontraditional security fields.

This article describes the diverse capabilities required by the JMSDF under the rapidly evolving security environment and focuses on the requirements of

sea basing. It begins by analyzing America's amphibious capabilities, including its evolving roles and missions, and then examines Japan's duties in terms of the Japan-U.S. alliance. Lastly, it recommends a new role for the JMSDF utilizing sea basing.

### NEW CAPABILITIES REQUIRED FOR THE JMSDF

First, Japan must develop the will as well as the capability to cope with its security challenges unilaterally. That is the right of every nation and the primary responsibility of its military forces. Tackling the broad array of security challenges outlined previously is largely beyond the capability of any one military force, even that of the United States. That is why multilateral cooperation is so important, particularly for naval forces. Accordingly, it is necessary, in addition to deepening the strong Japan-U.S. alliance, to promote multilateral cooperation between the JMSDF and its neighbors during peacetime. Military forces today routinely gather at the sites of natural disasters around the globe to support disaster relief. Host nations lack the organic capacity to meet the emergency needs of their populations in the face of widespread destruction. Japan is obligated to join such efforts. Japan is simply unready to face alone the aftermath of a major earthquake centered in a large urban area like Tokyo. International support under such circumstances is necessary, and the JMSDF must be able to work with international forces sent to help. Therefore, to meet its responsibilities at home and abroad, Japan requires capable naval forces that are maintained in the highest state of material readiness and manned with crews prepared to perform a broad array of HA/DR missions, whether unilaterally or in concert with allies and partner nations.

Given Japan's pressing financial situation, the JMSDF will find it challenging in the near term to develop the requisite sea-base and amphibious capabilities. The most realistic approach would be to focus on existing defense capabilities and maximize their effectiveness through innovation, comprehensive planning, strenuous training, and close cooperation with the United States. Furthermore, a multilayered approach is necessary, taking advantage of the distinctive characteristics of the entire range of available forces, including military, civilian, governmental, and nongovernmental agencies. The most important thing for the advancement of multilateral cooperation is the establishment of trust. More concretely, to establish trust globally and specifically in the Asia-Pacific region, it is necessary for Japan to assist and cooperate seamlessly with other countries in times of difficulty, and diplomatically express its opinions and take actions from a responsible position.

The most common threat in the region is undeniably major natural disasters. That was made apparent following the Great East Japan Earthquake of 2011 and Super Typhoon Haiyan, which struck the Philippines in November 2013. In both



cases, military forces proved invaluable for rendering aid.<sup>6</sup> Thus, training for HA/DR activities in peacetime not only fosters friendship and trust among regional neighbors but enhances the operational proficiency of international forces working together for humanitarian purposes.

Moreover, training in preparation for such situations is an important expression of national will and commitment to protect one's homeland. Even with increased multilateral cooperation, a country needs to maintain the ability to protect its sovereignty through initiative.

In a widely known 1979 work, Ken Booth classified the capabilities of naval forces as military, diplomatic, and policing roles.<sup>7</sup> In the future, the JMSDF needs a fourth capability—civil roles. This means the JMSDF should begin focusing on the lives and welfare of the Japanese people in times of duress. For a country with limited national resources, not fully exploiting all military capabilities in peacetime equates to wasting resources. Any organization, either military or civilian, that fails to account for the welfare of the citizens is derelict in its duties in a democracy. If the JMSDF is to perform both its military and civil-defense roles successfully, it will need to acquire new capabilities while maintaining them in the highest state of readiness.

The centrality and force structure of U.S. amphibious forces offer an important lesson for the SDF. Japan's acquisition of organic naval amphibious forces will ensure improved multilateral cooperation with the United States and a rapid-response force that is capable in times of crisis. Congressman J. Randy Forbes has argued that the United States needs to renew its amphibious capability that has been neglected over the last decade while fighting two wars, in Iraq and Afghanistan.<sup>8</sup> Nevertheless, the U.S. Navy and Marine Corps, despite tight budgetary constraints, executed BOLD ALLIGATOR 2012, the largest amphibious training exercise in ten years. The exercise showed the importance of integrating military forces, civilian agencies, and nongovernmental organizations (NGOs). It also emphasized the synergy between the U.S. Navy and Marine Corps, and reaffirmed the importance of a robust amphibious capability in the U.S. national defense strategy. The rising importance of sea power in the Asia-Pacific region, particularly amphibious power, is a critical enabler of the U.S. strategic rebalance toward the region.<sup>9</sup> In other words, the utility of amphibious operations has been reaffirmed by the United States as well as Japan. The JMSDF should improve interoperability with the Japan Ground Self-Defense Force while developing a more capable amphibious force.

Joint-force documents of the United States divide amphibious operations into a number of categories: assaults, raids, demonstrations, withdrawals, and support to other operations (like HA/DR).<sup>10</sup> It would not be realistic for Japan to attempt to develop all these competencies to the same level as the United States.

Rather, it should prioritize the defense and safety of Japan, and facilitate the diffusion of responsibility for humanitarian responsibilities to the international community. Therefore, minimum requirements should consist of a limited amphibious assault capability for defending and regaining control of small islands and archipelagoes and providing amphibious support to other operations. The latter in particular may be helpful for deterring disputes and military threats, as well as addressing challenges in nontraditional security fields.<sup>11</sup> These capabilities should be pursued by the JMSDF in peacetime because these sea-based capabilities are also very effective in HA/DR operations.

### THE EFFECTIVENESS OF THE SEA BASE, AND CHALLENGES

With regard to sea basing, one of the most important defense capabilities Japan requires today, there are the lessons learned from the international HA/DR response to the 2004 Indian Ocean tsunami. The U.S. Naval War College monograph *Waves of Hope* summarizes the lessons of large-scale joint efforts involving organizations such as the United Nations, armed forces dispatched from a number of countries, and NGOs, and it analyzes the “hard power” assets involved and “soft power” effects. First, sea basing minimizes the friction between local indigenous populations (arising from religious, cultural, or ideological differences) and intervening military personnel deployed ashore. Second, transfer of personnel and supplies from a sea base to shore by helicopters and air-cushion landing craft (LCACs) facilitates effective relief operations in disaster areas where basic infrastructure is limited or the capabilities of local government to respond are greatly reduced. Third, HA/DR efforts directly or indirectly help to improve diplomatic efforts between countries strained by ideological differences, as demonstrated by Indonesia’s improved relationship with the United States following 9/11. Finally, the presence of the U.S. military helped to reassure regional allies that a rapidly rising China could not silently fill a geopolitical vacuum caused by the improved U.S. commitment to the Middle East.<sup>12</sup>

These lessons had a considerable impact on U.S. diplomatic and military strategies for the Asia-Pacific region. They also led the U.S. Navy to recommit itself to increased multilateral cooperation while recognizing the magnitude of the HA/DR impact on diplomatic relations, as well as the utility of power projection from a sea base.

On 17 January 2012, the U.S. Joint Chiefs of Staff issued the *Joint Operational Access Concept*—a major initiative to develop effective joint operational capabilities. This document showcased the importance of sea-based platforms for collection, maneuver, and logistical support to operations ashore.<sup>13</sup> In pursuit of this concept, the U.S. Navy is developing a new class of naval vessel, the mobile landing platform (MLP). The first ship of the class, USNS *Montford Point* (T-MLP 1),

is 785 feet long, and has a full-load displacement of 78,000 tons, a speed of fifteen knots, and a range of around nine thousand nautical miles. One of its principal features is a hull based on tanker designs and built to commercial rather than military standards. Although it lacks advanced damage-control systems, its cost is significantly lower than previous military-standard designs, and it can support three LCACs. Likewise, an MLP off the landing site can receive supplies from “connector” vessels and support operations ashore. When all its supplies have been offloaded by LCACs, an MLP can move to a safe area to be resupplied or stand by to backload forces from ashore.<sup>14</sup> Recent reports suggest the U.S. Navy plans to deploy three MLPs.<sup>15</sup>

In addition, the U.S. Naval Sea Systems Command is currently developing plans for a megafloat-type Intermediate Transfer Station (ITS). This sea platform can berth multiple vessels. When its components are connected, the ITS forms a large sea base capable of landing and recovering aircraft. It can also serve as a base for LCACs while serving as a landing pad for helicopters and flying boats.<sup>16</sup> Finally, the Office of Naval Research is developing a high-speed Transformable Craft, or “T-Craft,” with extended cruising range and carrying capacity, to utilize the concept of a sea base in a more practical way.<sup>17</sup>

With the U.S. Navy’s sea-base plan as a reference, what kind of sea base should be adopted by Japan? The core of such a plan could be a composite force termed the “Sea Stability Fleet.” It would be a cost-effective, sea-based collection of various existing military and civilian vessels that could be assembled into a task force that is scalable, rapidly deployable, and well suited to support interservice, interagency, and NGO efforts.<sup>18</sup>

One possible interim solution is the development of an MLP-like capability using megafloats. A megafloat was constructed in 2002 to demonstrate how nascent commercial technologies could be employed to extend Haneda Airport. This megafloat was later disassembled and transferred to Shimizu City in Shizuoka Prefecture, to Minami Awaji City in Hyōgo Prefecture, and to Minami Ise Town in Mie Prefecture.<sup>19</sup> The megafloat could be easily adapted as a sea base for HA/DR activities in and around the home islands. Another solution would be turning to the private sector, especially NGOs. By means of a “private finance initiative,” the diversity and flexibility of NGOs can be effectively exploited for the development and maintenance of public facilities. Under such an initiative, the government would contract with NGOs to operate private cargo carriers, ferries, and roll-on/roll-off ships. Synergy could then be achieved among military, civil, and private agencies, even with limited resources, personnel, facilities, and funds. In particular, cooperation with NGOs, which in the past have historically had limited partnerships with the JMSDF, could be a driving force in improved interoperability and positively reinforced civil-military relations.

## THE EFFECTIVENESS OF AMPHIBIOUS CAPABILITY, AND CHALLENGES

Successful amphibious lift from a sea base is also a capability that is necessary if Japan is to conduct a NCMO effectively from the sea. On 5 January 2012, President Barack Obama announced new strategic defense guidance emphasizing the importance of power projection.<sup>20</sup> This guidance included Navy power-projection capabilities in relation to the Air-Sea Battle concept. In addition to this, the U.S. Army and Marine Corps published jointly in March 2012 a concept document stressing the need for successful power projection in A2/AD environments.<sup>21</sup> The core of this concept is a cross-domain synergy between the U.S. Army and Marine Corps.

Entry operations by the Army and Marine Corps in an A2/AD environment would involve limited-objective strikes and raiding by sea-based forces, destruction of enemy A2/AD capabilities, delivery of a coup de main, seizure of ports and airfields, and establishment of expeditionary facilities to enable follow-on operations. The entry force would have two components: one for assault and one for follow-on operations. It would consist of Marine air-ground task forces (MAGTFs), Army airborne units, and Army air-assault forces. These amphibious operations would be characterized by vertical and horizontal approaches, combining the “Ship to Objective Maneuver” (STOM) and “Mounted Vertical Maneuver” (MVM), and would allow forces to operate by various means, such as assault landing or airborne approach.<sup>22</sup> It would confuse the enemy and reduce his geographical advantage. Success in the entry operation would contribute to effective dominance over the sea and air and help synergize forces.

The U.S. Marine Corps’s response to the challenge of amphibious operations in the twenty-first century started with the concept of “Operational Maneuver from the Sea” in 1996.<sup>23</sup> In May 2011 a document explaining STOM, the current, central operational concept, was completed.<sup>24</sup> In this concept paper, doctrines for amphibious operations characterized by STOM are summarized as follows:

- To treat the sea, air, and land as a unified littoral maneuvering space
- To continue to apply the single-battle concept even in the setting of a rapid operational tempo or changing operational domain
- To provide joint-force commanders with improved options among soft- and hard-power enablers
- To limit the type and number of forces ashore
- To focus equally on soft- and hard-power missions
- To emphasize maneuvering flexibility and avoid established defenses or obstacles

- To use a cross-domain approach
- To use dispersed forces
- To employ scalable landing forces
- To increase options for partnering organizations and groups
- To gain local area control for periods of time, as necessary.

In short, the effectiveness of this power-projection capability lies in its combination of MAGTFs with airborne and heliborne forces for mutual support and synergy. The Army and Marine Corps are able to contribute mutually to this joint operation by gaining and sustaining access. As summarized by Robert O. Work, then Under Secretary of the Navy, long-range arms and power-projection capabilities of the Navy and the Marine Corps would be central to U.S. military power in the future.<sup>25</sup>

Against that background, what kinds of power-projection capabilities should Japan develop? The U.S. power-projection capabilities, developed over the past hundred years and honed by nearly continuous practice, are undoubtedly the best in the world. It cannot be overstated that the United States is currently the most reliable ally of Japan. These facts underscore just how important it is for the SDF to emulate U.S. power-projection capabilities.

To achieve the best outcomes possible, the SDF must exploit its existing assets to support U.S. power-projection capabilities in a crisis. To accomplish this, it would be necessary for Japan to deploy helicopters and LCACs, combine them with airborne and heliborne units, and integrate the remaining forces, in methodologies similar to the U.S. MAGTF's, for STOM and MVM. Therefore, it is critically important to craft a robust plan to enhance the synergy between existing maritime and ground forces in times of peace rather than crisis.

The challenge, then, lies in discerning just how to combine components flexibly, and achieve operational synergy when the power required exceeds the aggregated strengths of each component now more than ever. The JMSDF is pushing the limits of its capabilities in many situations. Needed capabilities in the future, however, cannot be provided by the Ministry of Defense or the JMSDF alone. Emergent security situations call for a 360-degree response involving all facets of power a nation can bring to bear. Similarly, in an emergency, it becomes equally important for a nation to employ assets at the local level (e.g., province, state, city), in addition to national resources. In this vein, it is important for all national, state, and local entities to train and exercise together repeatedly in peacetime to accumulate knowledge and experience.

For the United States, a maritime nation with global responsibilities, the U.S. Navy and Marine Corps represent an essential component of the nation's security

force.<sup>26</sup> Operating from the sea with a multidomain force offers many advantages. The U.S. Navy and Marine Corps are designed to maintain forward presence and deliver decisive sea power on a global scale whenever and wherever needed.<sup>27</sup> The JMSDF, for its part, should fully utilize its newly acquired amphibious support capability to address common nonconventional threats in the Asia-Pacific region through multilateral cooperation. In addition, it is necessary that the JMSDF maintain its influence with forward presence, deterrence, sea control, power projection, and maritime security, which are the cores of sea power.<sup>28</sup>

### JAPAN'S RESPONSIBILITIES IN THE CONTEXT OF THE JAPAN-U.S. ALLIANCE

The significance of the Japan-U.S. alliance to developing Japan's new sea base and amphibious lift capabilities cannot be overplayed. The alliance has played a significant role in ensuring the peace, safety, and the continued independence of Japan. However, history has shown that the nature of this alliance changes from time to time. The power balance in the Asia-Pacific region is being destabilized now by the rise of China and the relative decline of the United States, indicating possibilities of both international cooperation and friction.<sup>29</sup>

In 2001, John J. Mearsheimer of the University of Chicago predicted a collision between the United States and China. He envisioned a growing role for alliances: "If a potential hegemon emerges among them, the other great powers in that region might be able to contain it by themselves, allowing the distant hegemon to remain safely on the sidelines."<sup>30</sup> Since the Cold War, an increased requirement has evolved to strengthen the Japan-U.S. cooperative relationship to cope with the rise of China, address the growing instability on the Korean Peninsula, and assuage concerns centered on the Taiwan Strait. The shared concerns of Japan and the United States resulted in the adoption of the "Japan-U.S. Joint Declaration on Security: Alliance for the 21st Century" of April 1996. In addition, a new document, "The Guidelines for Japan-U.S. Defense Cooperation," which was revised in 1997, announced enhanced collaboration with the United States in response to an armed attack against Japan both directly and in surrounding areas that could have important influence on Japan's peace and security. In 2002, the Japan–United States Security Consultative Committee was launched to accelerate mutual consultation. On 21 June 2011, twenty-four common strategic objectives were presented.<sup>31</sup> Efforts must now be made to refine and implement these objectives in addition to deepening the alliance.

In today's Japanese security environment, multiple international actors interact in a complex manner. As such, it is not easy to understand fully the current security situation, let alone make preparations against future contingencies. If



Japan is to address these difficult challenges, complicated by history, geography, and resources, how should it adapt and change for the future?

The first key is a perspective on nonstate actors. Tsutomu Kikuchi, a professor at Aoyama Gakuin University, sees the Asia-Pacific region as a place where the theories of realism and liberalism are combined and suggests that the priority among the core values of the state (i.e., national security, economic prosperity, and political autonomy) can change according to a complicated bargaining game.<sup>32</sup> The common factor that unifies these two approaches is the pursuit of creating and maintaining order in the international system in the absence of a central overarching government. While this concept does limit itself to the state, it also envisions loose collaboration with nonstate actors, implying the possibility of steady growth in the depth and width of collaborative relationships. Research has not borne out the extent to which regimes and government can provide solutions to the various challenges facing international society, which is built primarily on the basis of the state. However, the participation of nonstate actors, such as internationally recognized entities, companies, and NGOs, as well as the coordination and cooperation of states, may point to solutions for international security issues in the future. It is important to enhance such collaborative relationships in terms of their depth and scope, through multilayered cooperative agreements that recognize the strengths of each participative entity in the grand strategy.

The second key is the effective employment of nonmilitary instruments of power, or soft power. The security environment surrounding Japan poses new complex challenges where military power is not effective or appropriate. The maritime challenges faced by Japan include piracy, the proliferation of weapons of mass destruction, international organized crime, major natural disasters, environmental destruction, and the need to acquire resources. Japan must ensure it retains free access to the sea lines of communication for maritime commerce. In other words, global maritime security is in Japan's national interests. At the ASEAN (Association of Southeast Asian Nations) Regional Forum Ministerial Meeting of July 2010, then-Secretary of State Hillary Clinton emphasized that "the United States, like every nation, has a national interest in freedom of navigation, open access to Asia's maritime commons."<sup>33</sup> These tangible interests are increasingly threatened and it is not possible for one nation to deal with these threats alone. Preventing the emergence of these threats through soft power is preferable to the use of kinetic force. Nevertheless, direct challenges to peace and security should be responded to in a forthright manner.

Though nation-states are still the major actors in the current international system, nonstate actors cannot be neglected. Their interests and policy measures have diversified, and many options are available to them. Therefore, a realistic

response to the new security issues is to approach them from a global point of view where order is maintained by multiagency and multilateral cooperation.

To accomplish these goals, the ability to coordinate complicated international activities and assimilate an abundance of global intelligence is required. Acquiring this capability and knowledge would broaden Japan's capabilities and improve its response capabilities to emerging crises. Japan is capable of assuming proportionate responsibility for the safety and security of the seas in the Asia-Pacific region. While China continues to expand its presence in the South China Sea and the East China Sea, a realistic approach for Japan involves the promotion of multiagency and multilateral cooperation in the maritime domain. Japan will protect its national interests through military and nonmilitary means, while pursuing a position of regional leadership. In the interim, the best way to secure regional peace and stability in the Asia-Pacific region is to promote initiatives that encourage close coordination and collaboration between the Japanese military and civilian agencies in the context of the Japan-U.S. alliance. In this way Japan assumes critical new roles and responsibilities, and the Japan-U.S. alliance can be further deepened. This is an issue of the utmost urgency for Japan if it is to enhance its relationship with the United States.

#### NEW ROLES OF JMSDF: THE NCMO APPROACH

What must be done by the JMSDF to strengthen the Japan-U.S. alliance? It is critical that the JMSDF undertake concrete operational planning to implement the Air-Sea Battle concept in development by the United States. Considering the present environment, with its myriad nontraditional challenges, Japan's traditionally passive mind-set toward security will no longer be accepted by the international community. Japan will find itself increasingly isolated unless it assumes proportionate responsibility for meeting these new challenges. Given this sense of crisis, the question "What can be done now?" must be pursued in a more realistic way.

Recognizing an unfavorable legacy from World War II, Japan has resolved to address historical concerns with its neighbors and to remain committed to its stance as a peace-loving nation. Prime Minister Shinzo Abe strongly insists that Japan remain a "proactive contributor to peace."<sup>34</sup> Abe has worked tirelessly over the past few years to revitalize the Japanese nation, including its foreign and defense policies, to make it a more normal nation. At a meeting of ASEAN and Japan in Tokyo during the December 2013 "40th Year of ASEAN-Japan Friendship and Cooperation" commemoration, he stated, "We reaffirmed our enhanced commitment for the maintenance of peace, security, and stability, which is in the regional and global interests."<sup>35</sup> One of the ways in which the JMSDF can enhance

its commitment to strengthening cooperation is to pursue disaster management on an international scale.

*Joint Vision 2020* (JV 2020) is a conceptual template for full-spectrum dominance on the battlefield employed globally by U.S. joint forces.<sup>36</sup> In JV 2020, as shown in table 1, military operations are largely categorized as “war” and “military operations other than war” (MOOTW).<sup>37</sup> MOOTW include a range of both combat and noncombat operations. The areas where combat and noncombat operations overlap include peace enforcement, counterterrorism, shows of force (including raids), and noncombatant evacuation. The purely noncombat operations of MOOTW include freedom of navigation, humanitarian assistance, and protection of shipping. All these activities may be performed simultaneously or as distinct from one another.

The JMSDF must play a leading role in the purely noncombat operations of MOOTW to increase multilateral cooperation, protect its national interests, maintain freedom of navigation, and deepen its ties with the United States. A NCMO is defined as a military operation not involving combat. As stated earlier, MOOTW include combat actions, so Japanese participation in some MOOTW is prohibited by law. In contrast, a NCMO can be characterized as feasible within the framework of existing Japanese law, and the JMSDF can take more initiative in peacetime operations. Possible NCMO activities include rendering assistance to military forces employed in the pursuit of global peace, policing that contributes to the maintenance of international order, and offering humanitarian assistance in times of international disasters.

**TABLE 1**  
**THE VISION OF NCMO**

Field	Military Operations	Goals	Examples	Activities
Combat	War	Fight & win	Large-scale combat operations, attack, defend, blockade	
	Noncombat	Deter war & resolve conflict	Peace enforcement counterterrorism show of force raid/strike peacekeeping/noncombatant evacuation operation nation assistance counterinsurgency	
NCMO		Promote peace & support civil authorities	Freedom of navigation, counterdrug, humanitarian assistance, protection of shipping, civil support	International order maintenance, international logistics support, international humanitarian assistance

Source: Prepared by the author on the basis of JV 2020.

Taking the initiative in NCMOs is advantageous in five ways. First, Japan would gain a leading position in international society by fulfilling its international obligations. Second, it would be beneficial for both Japan and the United States in the context of the Japan-U.S. alliance to share security roles. Third, it would bring benefits to international society. It is relatively easy to join NCMO activities without restriction. Participation in NCMO activities enhances multilateral cooperation and builds common background to make trust among nations. Fourth, it could be beneficial to China as well, by enabling it to participate in NCMOs and take on new international obligations of its own. Fifth, even in difficult financial circumstances, a NCMO can be conducted by utilizing existing assets.

Two challenges exist. First, a change of awareness is necessary. In other words, Japan can no longer persist in the mind-set of “It is impossible” under traditional legal restrictions but rather must build a mind-set of “Yes, it is possible,” by finding activities that are lawful under the Constitution today. A stable security environment is absolutely necessary for the existence and continued development of Japan. Without the assurance of continued stability in the region, it is impossible to sustain free maritime trade. If Japan is to continue to reap the benefits of trade in the future, it must be a proactive contributor to ensure the environment can produce these benefits. This requires Japan to take on more responsibility for security previously undertaken by the international community.

To attain these goals it will be necessary for Japan to exploit its powers of defense fully and actively. If they are utilized and practiced for peacetime actions, capabilities must be developed to respond to unexpected events while utilizing national resources more effectively in peacetime. One need look no further than the employment of U.S. military forces in a HA/DR crisis. Yoshinobu Yamamoto, a professor emeritus of the University of Tokyo, has assessed that the current international system has led to the diversification of the duties of military forces, whereby they must take increasingly dynamic action in the wake of humanitarian crises and disaster relief operations.<sup>38</sup> Japan must change its attitude concerning security from a “passive” to an “active” view—in other words, from “security afforded from the outside” to “security achieved with the collaboration of others.” In addition, it cannot be overstated that in international society, a country not actively committed to such peaceful activities is not satisfactorily fulfilling its share of responsibilities and duties required to maintain international order.

Second, to establish a global security environment, especially in the Asia-Pacific region, a NCMO should be led by the JMSDF, which is at the forefront of the defense of Japan. This objective may be difficult in the near term, given regional tensions, but it needs to be undertaken soon. For this purpose, Japan and the United States need to reapportion their roles and response capabilities in

**TABLE 2**  
**MAJOR ACTIVITIES OF NCMO**

Type	Activities
International order maintenance	Security surveillance
	Cracking down on illegal cross-border activities
	Protection of shipping
	Securing safety of navigation routes
	Maritime interdiction operations
International logistics support	Provision of supplies
	Maintenance and repair
	Transportation
	Medical services
International humanitarian assistance	Disaster relief
	Protection of noncombatants
	Medical transportation
	Search and rescue

a more effective way, on the common understanding that the peace and stability of the Asia-Pacific benefit both countries.

More specifically, roles that could be allocated between Japan and the United States are specified in table 2. Such roles include maintenance of international order (e.g., security surveillance, crackdowns on illegal cross-border activities, protection of shipping, safety of navigation routes, and maritime interdiction), international logistics support (e.g., provision of supplies, maintenance and repair, transportation, and medical services), and international humanitarian assistance (e.g., disaster relief, protection of noncombatants, medical transportation, and search and rescue).

Voluntary JMSDF participation in NCMO activities encourages Japan to take more responsibilities as a stakeholder in regional and global security. NCMO is an action-oriented approach that can be implemented in peacetime. Recently, stabilizing operations have gained increased importance for the United States as well, and the topic most emphasized is “Phase Zero,” engagement during peacetime.<sup>39</sup> This suggests that there is an opportunity for Japan to utilize its self-defense capabilities to take an active part in international military operations. Japan should address and discuss such questions as “What can be done now?” and “What *should* be done?” while taking action on the basis of the NCMO approach.

The JMSDF needs to initiate concepts and take action. It is necessary that the JMSDF change its way of thinking to “Yes, it is possible.” Likewise, the JMSDF must actively offer the international community increased options for Japanese involvement that do not violate Japan’s Constitution but improve the regional security environment. Increased NCMO actions and initiatives would enable Japan to enhance its standing in international society while presenting an image of a responsible state.

Considering the growing importance of coalition operations, the JMSDF should add a renewed importance to the significance of the Japan-U.S. alliance, which is the foundation to security in the Asia-Pacific region. The alliance, which continues to build on “values and benefits,” blossoms into one that includes mutually beneficial “actions.”

E. H. Carr, an authoritative author in the field of international politics, once remarked, “It remains true that a new international order and a new international harmony can be built up only on the basis of an ascendancy that is generally accepted as tolerant and unoppressive or, at any rate, as preferable to any practicable alternative.”<sup>40</sup> Today, in an age of a diversifying multilateral framework, the JMSDF must play an increasingly significant role in the formation of that international order.

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# CYBER WAR, CYBERED CONFLICT, AND THE MARITIME DOMAIN

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*Peter Dombrowski and Chris C. Demchak*

It has been well over a decade since the first “prophets” of information warfare proclaimed a new age of conflict fought not just on air, sea, and land but with electrons in what came to be known as “cyberspace.”<sup>1</sup> Since these early predictions, many incidents have confirmed that criminals, random hackers, and government-sanctioned specialists can wreak havoc on governments, military communications systems, and corporations. The Stuxnet worm alone helped delay—by months, perhaps years—the long-standing efforts of Iran to acquire sufficient nuclear material to build nuclear weapons.<sup>2</sup> Recent revelations of hacking campaigns against such publications as the *Wall Street Journal* and *New York Times* have broadened concerns to include even the integrity of American democratic institutions.<sup>3</sup> Meanwhile, the commander of U.S. Cyber Command has characterized cyber attacks designed to gain access to the intellectual property of American corporations as the “greatest transfer of wealth in human history.”<sup>4</sup>

How cyber assaults and government responses have been interpreted is not uniform, however, especially with regard to whether the world will eventually engage in “cyber war.”<sup>5</sup> There is a community of scholars and analysts who argue that cyber war will not happen or that the impact of cyberspace on armed conflict will be limited.<sup>6</sup> Others in the broad field of security studies, traditional computer science, or corporate communities claim that while some form of conflict is happening, government officials, military officers, and legislators are suffering from “threat inflation.” They argue that hyperbolic projections are leading to bad policy decisions, especially with regard to specific adversaries, and that there has been overinvestment in offensive cyber weapons rather than prudent defensive measures.<sup>7</sup> A best-selling nonfiction book has been criticized for contributing

unnecessarily to public fears about the potential for cyber warfare.<sup>8</sup> Many of these critics argue that what are being called “cyber attacks” are really instances of espionage, allowed by international law, or simply crime, which is not the mission area of the nation’s military services.<sup>9</sup> Some analysts detect the influence of the military-industrial complex on policy debates. If hackers, official or not, from China and Russia, terrorists, and criminals use the Internet to penetrate U.S. government systems, contractors see opportunities for increased revenue. As two observers of cyberspace argue, “There’s an arms race in cyberspace, and a massively exploding new cyber-industrial complex that serves it.”<sup>10</sup>

Our position on this ongoing debate is that neither side has it right. Those who have hyped cyber war as a completely new phenomenon or insist that cyber threats are impossible to anticipate have missed key continuities with the past. Especially missing is an underlying understanding about how humans and technologies have evolved and how the ways in which we analyze the cyber arena will contribute to future conflicts. Despite the complexity of cyberspace, it is possible to understand the broad trends in conflict and institutional responses. Those who dismiss cyber war as mere hype or as driven by potential profits dismiss much too quickly growing evidence of the importance of cyber operations for the Navy and the nation.

Many participants in the debates on cyber conflict demonstrate insufficient understanding of cyberspace. In particular, they do not demonstrate sufficient command of the level of integration across public and private systems, across sectors from economic to defense, and across levels of criticality in key societal functions. For example, in earlier eras, one or even many bank heists could not have taken down significant portions of the American financial system. In contrast, what has been characterized as a single-digit mistake crashed the New York Stock Exchange for several hours in 2010.<sup>11</sup> In August 2013, the Amazon “cloud” suddenly stopped working for hours, with no public explanation; the best estimate is that during that period 40 percent of the Internet vanished in the United States—that is, there was simply 40 percent less activity.<sup>12</sup> What is labeled espionage by observers seeing only a few incidents at a time can have cumulative effects on deeply integrated national systems. Distinguishing between what is crime and what espionage is not easy, nor is determining what actually represents a long-term campaign of deceptive attacks. To make such distinctions clearly requires recognition, in the first place, of the implications of extreme integration for security in modern society. Critics often have considerable difficulty with this cognitive leap—which is particularly unfortunate, as many of these critics have considerable influence in national and international policy.

In this article we will attempt to explain the challenges and opportunities of cyberspace for U.S. national security, especially naval forces. First, we will



examine how cyberspace has affected conflict over the last decade and how it will do so in the coming decades. Next, we will review how the U.S. government has responded to the increasing number and variety of attacks on its own institutions and on the private sector at home and abroad. Third, we will focus on the institutional evolution of the U.S. Navy as it attempts to fulfill the responsibilities assigned to it by national-level strategies within the framework of its traditional missions, capabilities, and culture. Finally, we will examine the specific systemic operational challenges and opportunities posed by cyber operations. Our intent is to help naval scholars, analysts, and operators begin understanding the new world of cybered conflict in the maritime environment.<sup>13</sup>

## CONFLICT AND CYBERSPACE

Cyberspace has opened up new avenues of conflict, added layers of complexity to existing tactics and operations, and become increasingly influential in the strategic calculus of several major powers in the international system. Cyberspace is neither totally new nor totally out of control, but it is now a global socio-technical-economic system with major effects on the physical, economic, and societal security of nations. Cyberspace has made it much too easy for aggressive states and nonstate actors to reach remotely into other societies, threaten critical government systems, and affect essential operations of both public and private institutions.<sup>14</sup> The question is how to characterize this new reality.

Although “cyber war” has entered into the common lexicon, we generally avoid the term, because it misleads more than it illuminates. Instead, we prefer the term “cybered conflict.”<sup>15</sup> The phrase characterizes the essential nature of modern military operations, from peacetime to high-intensity warfare. Cyber activities by military forces (and often intelligence agencies, law-enforcement organizations, and associated departments) take place in all types of conflict, during all phases of military operations, and at all levels of war. From our perspective, cybered conflict characterizes the whole spectrum of old and new forms of conflict born of, enabled through, or dramatically altered by cyberspace.

### *All Phases of Military Operations Are Now Cybered*

U.S. joint doctrine posits a notional six-phase model of joint and combined military operations, ranging from Phase Zero (“Shaping”) through Phase III (“Dominate,” or “breaking the enemy’s will for organized resistance or, in non-combat situations, control of the operational environment”) to Phase V (“Enable Civil Authority”).<sup>16</sup> For our purposes here, the details of what occurs in each phase are less important than the fact that cyber tools, skills, units, and perceptions play roles in all of them. Whether shaping the future operating environment by preparing for long-running conflicts of varying tempos and effects or for cybered conflicts ranging from disruptions of critical systems to cyber-enabled

destruction of military forces, American military specialists (including naval officers and sailors) and their civilian counterparts from the intelligence agencies and the Departments of Justice and Homeland Security use a wide range of offensive and defensive tools to support actions in the physical world. At each stage they also have to defend against the efforts of adversaries—whether official state representatives, terrorists, or criminals—trying to thwart American or allied operations or to exploit them for their own ends.

### *All Levels of War Are Now Cybered*

Classic national-security scholarship as taught at institutions of professional military education in the United States divides thinking about war into three levels: tactics, operations, and strategy. According to joint doctrine, “strategy is a prudent idea or set of ideas for employing the instruments of national power in a synchronized and integrated fashion to achieve theater and multinational objectives.” By contrast, “tactics is the employment and ordered arrangement of forces in relation to each other.” For its part, “the operational level links strategy and tactics by establishing operational objectives needed to achieve the military end states and strategic objectives. It sequences tactical actions to achieve objectives.”<sup>17</sup>

Our position is again straightforward. Cybered conflict enters into play at all three levels and connects them iteratively and systemically. At the strategic level, national policies must provide commanders with the goals for cyberspace (and to which cyber operations must contribute) and guidance regarding how cyber instruments may be used consistent with national law, as well as means to acquire and operate those tools. At the tactical level, commanders must fight battles using not only kinetic means but also offensive and defensive cyber instruments. As joint doctrine observes, all three levels overlap during the execution of a military operation; therefore, “commanders and their staffs at all levels must anticipate how their plans, operations, and actions may impact the other levels (those above and those below).”<sup>18</sup>

### *All Types of Conflict Are Now Cybered*

Typologies of conflict are many. The Department of Defense defines nineteen types of warfare, ranging from acoustic to undersea.<sup>19</sup> These various definitions usually speak to the environment, factors, and conditions that must be understood to apply combat power successfully, protect the force, or complete the mission. These elements might include enemy and friendly armed forces, infrastructure, weather, terrain, and the electromagnetic spectrum within operational zones and areas of interest.<sup>20</sup>

U.S. military forces now prepare to fight in five domains:<sup>21</sup> land, sea, air, space, and cyber. In 2011 “cyber” was added—not without some modest resistance—as the fifth domain, a nonphysical arena of military conflict.<sup>22</sup>

We believe, however, that for security and military purposes cyberspace is not a domain but a substrate. In our usage, a “substrate” is an underlying layer on which modern society is built. Cyberspace uniquely underpins all four other war-fighting domains. This substrate has a topology that is largely and (surprisingly to some) territorial. Our argument that cyberspace is a substrate is thus contrary to official usage and to increasingly commonplace assertions that cyberspace is a domain.<sup>23</sup> One reason that cyberspace is in fact not strictly a domain is that it is a built environment—imagined, created, developed, sustained, and extended by human intentions and actions. One analyst has noted “the generative capacity for unrelated and unaccredited audiences to build and distribute code and content through the Internet.”<sup>24</sup> As Michael Hayden, a retired Air Force general and former director of the Central Intelligence Agency, once pointed out to an audience of technologists, “God made the other four [domains]. You made the last one. God did a better job.”<sup>25</sup>

One implication of cyberspace’s being a built environment is that it can be unbuilt, remodeled, and perhaps in an extreme case even destroyed (say, by electromagnetic pulse), at least temporarily and within spatial limits. This logic, then, allows for the notion that an Internet “kill switch” exists or can be created. No less an authority than the founder and chairman of Microsoft, Bill Gates, acknowledges that the Internet can be “switched off”: “It’s not that hard to shut the Internet down if you have military power where you can tell people that’s what’s going to happen,” Gates said. “Whenever you do something extraordinary like that you’re sort of showing people you’re afraid of the truth getting out, so it’s a very difficult tactic, but certainly it can be shut off.”<sup>26</sup> In several recent conflicts, governments, including those of Egypt and Syria, have in effect flipped the switch to turn off Internet access, however imperfectly, for their societies. The strategic, operational, and tactical objectives of these acts are unclear at this point. Moreover, the effects have been temporary, as experts inside and outside the countries work to make alternative connections.

Since World War II, the trajectory of U.S. military planning has favored joint operations, with the services fighting together from their respective domains. As we will discuss below, the services and a number of government agencies (for example, the National Security Agency, or NSA) share responsibility for operating in cyberspace, defending military and civilian systems and infrastructure, and, ultimately, conducting cyber operations as part of kinetic operations. But unlike the four other official war-fighting domains recognized by the government, cyberspace, as a substrate, as we have noted, intersects with all the others, and it is vulnerable to widespread disruption. This makes cyberspace all the more valuable; it is in effect the technological high ground, for not only the military and intelligence services but government, civilian, and commercial sectors as well.

Cyberspace is thus not a separate conflict space or host to a particular type of conflict. Cybered conflict occurs along a spectrum that includes conflicts from large to small—total war, small wars, wars of choice, and a host of others. In the next twenty years, the tools of cyberspace will become so ubiquitous that we prefer to use the adjective “cybered,” since “cyber” is likely to be taken for granted and abandoned. In the meantime, cyberspace is changing how governments and their militaries and nonstate actors fight wars and conflicts. Organizing and operating in joint, interagency, and combined (with friends, partners, and allies) terms for cybered conflicts are not only sensible but strategically and operationally essential for success.

### NATIONAL RESPONSES TO THE CHALLENGES OF CYBERSPACE

Given their decades-old and growing dependence on information and communications technologies for economic dominance and military power, the U.S. military and government agencies have slowly developed policies, strategies, and organizations to meet the challenges and possibilities of cyberspace. High-level recognition of threats emanating from “cyber” began as early as the 1990s. In 1996 President William Clinton’s Executive Order 13010 created the President’s Commission on Critical Infrastructure Protection, which included threats to the nation’s economic and national security from cyber attacks within the scope of its activities.<sup>27</sup> Two years later, on the basis of the commission’s recommendations, Presidential Decision Directive 63 established several cyber security–related organizations, largely focused on malicious hackers or criminals who could threaten critical national infrastructure.

The full extent of cyber threats became pressing after 9/11. That terrorists could use the web to organize themselves to attack the United States and other adversaries was becoming clear. In one high-profile example, documents found in abandoned Al Qaeda houses after the U.S. invasion of Afghanistan included guidance from Osama Bin Laden on how to use electronic means to continue the jihad and suggesting that 90 percent of Al Qaeda’s future efforts would involve cyberspace.<sup>28</sup>

Chinese strategists have begun to develop their own concepts of cyber conflict, focusing on major state adversaries, including the United States.<sup>29</sup> The Persian Gulf War of 1991 demonstrated to China (and other close observers) how high-technology militaries could defeat adversaries who had advantages in troop strength. The stunning results of U.S. operations against numerically superior forces presented a major challenge to China’s perception of its own advantages in future conflict—massed assets ranging from manpower to ships and missiles. According to some scholars, China’s search for a compensating strategy to match the United States led it to rediscover Sun Tzu’s understanding of “indirect warfare.”<sup>30</sup>

Several Chinese colonels even proposed a concept of “unconstrained warfare,” a campaign that begins long before any armed conflict is apparent. This “warfare” seeks to disrupt potential enemies using the vulnerabilities of their (real or potential) information systems, without regard for international norms or laws. As a Western analyst concludes, “China [now] has the most extensive and most practiced cyber-warfare capabilities in Asia, although the technical expertise is very uneven.”<sup>31</sup>

By 2003, President George W. Bush signed several strategy documents focusing specifically on cyberspace. Rather than subsuming specific issues under a general concern for critical infrastructure, as President Clinton had done, the *National Strategy to Secure Cyberspace* and the *Comprehensive National Cybersecurity Initiative* specifically addressed the need to secure cyberspace and presented that mission as a systemic challenge. These documents divided responsibility for national cyber security among the Department of Defense (DoD), the newly established Department of Homeland Security, and the White House itself. While the White House retained overall policy authority, Homeland Security was given the task of ensuring “critical infrastructure protection” of the homeland—but in terms of a “coordinating,” not regulating or operating, mission. DoD was charged with protecting its own global grid of computers and communications systems but received no authority to inform or protect anyone else’s network, even if their health determined whether the DoD’s own Global Information Grid could be protected. The Department of Defense and its subagencies rely heavily on commercial networks to transfer data across the globe;<sup>32</sup> nevertheless, individual federal agencies, states, and private corporations were left by and large to defend themselves.<sup>33</sup>

Even with the increased attention by the Bush administration to cyber security, the breadth of the nation’s vulnerability was not yet fully apparent. In 2003 only 60 percent of the American population owned computers, and only 50 percent had personal access to an Internet connection.<sup>34</sup> Pressure on officials and policy makers would increase as more citizens, businesses, and government activities came to depend on uninterrupted information and assured access to cyberspace, to include the Internet, the World Wide Web, and over time, peer-to-peer computer networks.

Toward the end of the first decade of the 2000s, the unsettling successes of the cyber penetrations, extractions, and remote “backdoor” operations mounted steadily across DoD and other agencies.<sup>35</sup> Existing (“legacy”) information-assurance policies, programs, and tools were failing to stem the tide of attacks. To make matters worse, a growing portion of publicly revealed data on cyber attacks pointed toward the existence of a small but global population of highly skilled, determined, and persistent “wicked actors.”<sup>36</sup> Their successes were often

discovered only months or years later, long after the damage had been done. In 2006, the Bush administration issued another series of documents to clarify top-level policies, procedures, and responsibilities. The *National Security Strategy* and *Quadrennial Defense Review* outlined the broad bases for U.S. government policies for dealing with cyber war and cyber threats more generally, within the wider context of conventional threats and the evolving international environment.<sup>37</sup>

Most notably, the Department of Defense published its *National Military Strategy for Cyberspace Operations*, which assigned U.S. Strategic Command (STRATCOM) and the Joint Staff to develop an implementation plan for the defense of cyberspace.<sup>38</sup> The concept of a joint command to deal with cyberspace gradually emerged from this planning effort. The timing of the decision to create a unified cyber command was influenced by the well-intentioned miscalculation of several senior Air Force leaders who in 2005–2006 unilaterally declared their service the lead agency for cyber security. Publicity associated with an Air Force effort to develop a national cyber command may have prompted Robert Gates, then Secretary of Defense, to become involved directly in laying the foundation for a DoD-wide command for cyberspace operations.<sup>39</sup> Meanwhile, the other services, including the Navy, had begun preparing to create cyber-security and -warfare units of their own.<sup>40</sup>

During roughly the same period, 2004–2007, General James E. Cartwright, as commander of STRATCOM, was struck by the magnitude of ongoing assaults on DoD networks. He became concerned by massive losses of classified internal data and by the constant flood of attacks experienced. General Cartwright's efforts to protect STRATCOM and DoD itself from cyber threats fueled the design of a major command devoted to cyberspace. In particular, he argued that the new organization should be a "subunified" command (that is, a subordinate unified command, reporting in this case to STRATCOM) so that it would be less likely to be marginalized. General Cartwright continued to sponsor the idea of a national cyber command when he became the vice chairman of the Joint Chiefs of Staff in 2007.<sup>41</sup> It would, however, take more than the interest of a vice chief to create such a command.

In late 2008 a computer "worm" infected unclassified and classified American networks, traveling via USB memory sticks from infected computers in Afghanistan to DoD systems across the globe. The worm opened so-called back doors that potentially allowed adversaries to control infected systems. Upon discovering the breach, DoD rapidly closed down networks and restricted the use of USB sticks and most removable media, to stop reinfection.<sup>42</sup> This infection was followed closely by the "Conficker" worm, which targeted the Microsoft Windows operating system used by the armed services of many NATO members, including the United States. Conficker spread quickly and opened new back



doors accessible to unknown attackers.<sup>43</sup> For a period, someone, somewhere, had remote access to computer networks on NATO warships in port and to systems used by combat units in the field.<sup>44</sup> These back-to-back infections changed the priority given cyber security by the White House and DoD.<sup>45</sup>

By the spring of 2009, experts generally accepted that protecting the government, and particularly DoD, against Conficker and a host of other cyber threats would require major new steps.<sup>46</sup> During the first year of President Barack Obama's administration, the urgency increased substantially; investigative reporting has revealed that the president and his closest national-security team were not only working on defensive measures but contemplating offensive actions using cyber weapons.<sup>47</sup> Upon taking office the Obama administration ordered a "60-Day Cyberspace Policy Review," spearheaded by Melissa Hathaway, a former Bush administration cyber-security expert, to shape the fundamentals for future cyber-security strategic and organizational changes.<sup>48</sup> In May 2009, with the review complete, President Obama declared cyberspace to be a first-tier priority for national security. The White House *Cyberspace Policy Review* stated that "America's failure to protect cyberspace is one of the most urgent national security problems facing the new administration."<sup>49</sup>

In June 2009, Secretary of Defense Gates announced the formation of a new U.S. Cyber Command (CYBERCOM) as a subunified command subordinate to STRATCOM and collocated it with the government's main source of computer and electronic expertise, the NSA. To ease the flow of information between the two organizations, the director of NSA was to be "dual-hatted" as the commander of CYBERCOM. The arrangement allowed at least one clear point where authorities granted by Title 10 and Title 50 of the *U.S. Code* could be balanced and decisive actions taken.<sup>50</sup> Furthermore, a single leader could review all operations, emerging trends, and long-range effects to develop and coordinate comprehensive tactics, operations, and strategies. In principle, then, the organizational structure allowed the new command to deal with the complexity of cybered conflict. "Cyber warriors" in Cyber Command and the intelligence and information experts of the National Security Agency would in this way more readily collaborate to detect, track, thwart, or stop adversaries crippling DoD's operational readiness.<sup>51</sup>

The individual military services had equally important roles in foreseeing threats, defending their mission areas and forces, and disrupting cyber attacks "forward." In a June 2009 DoD memorandum, Secretary Gates asked each of the service secretaries to establish a component to support Cyber Command, a component that "possesses the required technical capability [to secure freedom of action in cyberspace] and remains focused on the integration of cyberspace operations. Further, this command must be capable of synchronizing war-fighting

effects across the global security environment as well as providing support to civil authorities and international partners.”<sup>52</sup> Each service was to stand up an interim command by 1 October 2009 and to have it fully operational by 1 October 2010.

The services were allowed to design their own organizations and to incorporate skills, tools, and units as they saw fit, as long as all were able to contribute to the mission of U.S. Cyber Command. The Navy and Air Force in particular had already made considerable progress, in anticipation of the order. Meanwhile, the Department of Homeland Security was instructed to reinvigorate its efforts to persuade the critical infrastructure community—largely privately held—to improve its defenses against remote attacks. By midsummer of 2010, all the services had established rudimentary cyber commands. The process of reconciling differences in structure, guidance, and mission then began in earnest. This process continues unabated today, and we will later discuss its implications for the Navy.

In May 2011 the Obama administration outlined its publicly releasable, external policies in the *International Strategy for Cyberspace*;<sup>53</sup> the Secretary of Defense issued the *Department of Defense Strategy for Operating in Cyberspace* two months later.<sup>54</sup> Each statement aimed to inform the American public and the publics of allied states that the United States is taking cyber threats seriously. These documents also signaled to adversaries that preying on American targets would no longer be easy or risk-free. The U.S. government would defend itself and strike back as necessary.<sup>55</sup>

## THE NAVY AND CYBERSPACE

At the time of the July 2009 Gates memo, the Navy was already designing new organizations capable of meeting cyber challenges. The Navy had spent most of the 2000–2008 period trying to understand the threats posed by cyber attacks and intrusions.<sup>56</sup> It had established a task force to study how attacks through cyberspace were affecting Navy assets and operational readiness. The task force’s members understood early that the service needed to identify cyber-capable personnel with skill sets ranging from intelligence techniques to network systems and electronic warfare. In the fall of 2009, Admiral Gary Roughead, then Chief of Naval Operations, stood up Fleet Cyber Command and Tenth Fleet.<sup>57</sup>

The new cyber-focused command needed to provide the entire Navy with the specific missions, guidance, technical tools, and unit-level organizational structures necessary for cyber defense and offense. However, in doing so it had to work within the traditional fleet structure, to be compatible with the structures and missions of existing numbered fleets, and to serve as the Navy component supporting U.S. Cyber Command as a whole. The task force’s members had also known—drawing on the longtime, well-established relationship between the U.S. Navy intelligence community and the National Security Agency—that the

complexity of cyberspace as an operational environment would demand rapid, accurate responses at tempos commensurate with the scale and harm of the threats. These qualities would be exceptionally difficult to achieve if cyber was not mainstreamed across the service. These responses would be nearly impossible to execute rapidly if bureaucratic “silos” were left in place between the Navy and joint intelligence, electronic warfare, network administration, and cryptology, among other specialized organizations.<sup>58</sup>

In January 2010, when Fleet Cyber Command (known as FCC, or Fleet Cyber) was declared operational as the Navy’s component of CYBERCOM, its organization was unique among its service counterparts. Rather than splitting combat-support functions, such as intelligence, from operational combat missions as other services have done, its structure integrates them and thereby supports both U.S. Cyber Command and the Navy’s own requirements. A single flag officer leads not only FCC, an Echelon 2 command (i.e., reporting directly to the Chief of Naval Operations), but also the newly recommissioned Tenth Fleet, as a subordinate Echelon 3 command—an institutional design intended to allow the Navy to act quickly in a hostile and deeply cybered world.<sup>59</sup>

Nonetheless, and despite the best efforts of their designers, leaders, and champions, Fleet Cyber Command and Tenth Fleet have not found it easy to meet the challenges of cyberspace. First, both have themselves been assaulted from cyberspace even as they experience the normal growing pains of a new command structure. Second, long-standing internal divisions in the naval service have complicated their manning, training, equipment, employment, and assessment. Inside and outside the Navy numerous debates are ongoing about what constitutes the cybered conflict space and even whether it is truly a “domain,” as designated by DoD. Among its critics are some who fear change, some (a small number) who understand computer systems, and even optimists convinced that a fully integrated approach to cyberspace would achieve nearly everything that might be done in the physical world. In brief, like much of the U.S. government, CYBERCOM, and its counterparts in the other services, Fleet Cyber Command is still learning its own missions, strengths, weaknesses, and evolving opportunities.<sup>60</sup>

In late November 2012 the Navy took several other steps toward sustaining cyber capabilities. The Deputy Chief of Naval Operations for Information Dominance / Director of Naval Intelligence (Vice Admiral Kendall L. Card) and Commander, U.S. Fleet Cyber Command / Tenth Fleet (Vice Admiral Michael S. Rogers) signed three documents:

- *Navy Strategy for Achieving Information Dominance 2013–2017*<sup>61</sup>
- *Navy Cyber Power 2020*<sup>62</sup>
- *Navy Information Dominance Corps Human Capital Strategy 2012–2017*.<sup>63</sup>

Each demonstrates the evolution of Navy thinking about how to serve, survive, and excel in a cybered maritime environment. It is too soon to evaluate fully the Navy's progress in effective cybered conflict. It is time, however, to relate the Navy's thinking to what is coming in the dynamically evolving global cyberspace. Trends already evident across the digitized world will affect future military conflict, the cyber threat environment in the maritime domain, and the Navy's own efforts to establish organizational and operational frameworks for meeting cyber challenges in the near-to-medium term. Several of these trends will impact the Navy's ability to fulfill the "sailing direction" issued by the Chief of Naval Operations, Admiral Jonathan Greenert, that "cyberspace will be operationalized with capabilities that span the electromagnetic spectrum—providing superior awareness and control when and where we need it."<sup>64</sup>

## THE CHALLENGES OF CYBERED CONFLICT IN THE MARITIME DOMAIN

What is different about the challenges facing U.S. naval forces during cybered conflicts?<sup>65</sup> How can naval forces contribute to combined and joint operations that include cyber operations? The problem is not just that the cyberspace substrate connects most of the world and allows intrusions from a wide range of state and nonstate actors. Rather, we argue, it is that cyberspace favors the offensive military capabilities of adversaries and enhances their potentially destabilizing effects on the nature and level of interstate conflict in the coming years.<sup>66</sup>

The offense/defense balance in international affairs has long been considered critical to the prospects for the reduction of conflict and the promotion of international peace.<sup>67</sup> Recent scholarship concludes, at least preliminarily, that "innovations in Information and Communication Technology (ICT) allow states to take greater risks and adopt more vigilant or offensive positions toward adversaries. Cyber capabilities do not cause armed conflict, but make decisions to escalate easier and cheaper."<sup>68</sup> Scholars are only now developing a serious research program to understand the impact of offensive cyber instruments on the future of conflict.<sup>69</sup> There are still scholars who remain skeptical about the utility of offense/defense theory for understanding the impact of technological change on war and peace or, more important, the effects of cyber operations. One, for example, argues, "This is not to say that cyber attacks would have no effect, only that they are extremely unlikely to prove strategically decisive. A capability to address cyber threats is then useful, but planning for cyber warfare must be conducted within the larger framework of recognition that these capabilities are not in fact a game changer."<sup>70</sup>

In our view, the "game changing" aspects of cyberspace do not lie in cyber warfare at the high end of the spectrum of conflict. Rather, the strategically decisive

aspects of cyberspace concern the three significant advantages that its current globally unfettered structure offers attackers: relatively risk-free opportunities in the scale, proximity, and precision of cyber “weapons.” These advantages make attacks cheaper, easier, and more effective for both state and nonstate actors. While they may be temporary and transitional, they exist now, and in our judgment they will continue to exist for the next fifteen to twenty years.

First, like the superpowers of old, adversaries can readily use the web to scale attacking units from small to large, tightly organized or loosely linked. Further, attackers can use the web for communication, training, supply, and operations, even as they scale up and down and back again. For one example, they can cheaply scale up by buying, or even renting, “botnets” on the global black market. A botnet—a linked network of software hidden in millions of innocent computers—can be commanded to participate in attacks. Today there are hundreds of thousands of botnets in use, for sale, or lying dormant, on machines whose users do not know that they are infected.<sup>71</sup>

Second, to pose a threat, adversaries have no need to move into close physical proximity to collect critical information or to deploy long-range expensive weapons. Relatively high-quality “signals intelligence” is now available to anyone with time and an Internet connection.<sup>72</sup> Third, the precision in targeting is no longer constrained to line-of-sight, blue-water, or over-the-horizon military capabilities. Cyber-enabled attackers can vary the precision of their targeting from a single person to cities, regions, or entire nations.

However, these three factors, notwithstanding the offensive advantages they offer attackers, may also provide opportunities for the U.S. Navy’s offensive and defensive cyber operations.

### *Scale*

Given the reliance of global commerce; governments at all levels; and military, intelligence, and law-enforcement organizations on the communication systems and computers associated with cyberspace, the institutional scale required to cause real harm has dropped dramatically.<sup>73</sup> Small organizations—including criminal enterprises, terrorist groups, and subunits of national militaries—can now use the Internet to spy on, harass, and attack with relatively modest investments in personnel and equipment. States with modest cyber resources can achieve disproportionate effects with appropriate tools, skill, and organizational structures. Small states might also achieve asymmetric advantages by investing in cyber instruments or employing proxies with better capabilities.

Small, covert, and even part-time organizations scattered in large enough numbers across the globe can undercut traditional threat and warning indicators employed by U.S. intelligence agencies. The modern military’s standard set of such indicators identifies emerging cyber threats much less effectively than it

does conventional attackers. For the Navy, as for the other services and government agencies, it will be even harder to assess the cyber capabilities and intentions of potential adversaries than to evaluate their conventional and nuclear forces. One pressing question urged by such uncertainty is how resilient the Navy can become.

### *Proximity*

Until the modern era, most conflict was confined to visual range.<sup>74</sup> For most of history, the farther an attacker from physical view, the less one could know about whether a given weapon or unit was the right choice to use against it, at that time, in that place. Even during the Cold War only major powers could develop and deploy large numbers of over-the-horizon weapons; they were expensive to build, required considerable long-distance intelligence to be effective, and outstripped standard damage-assessment techniques.

Proximity thus mattered enormously for attackers.<sup>75</sup> Intelligence was (and is) crucial for fighting and winning. Getting up close to look, and in a timely manner, was throughout history the most straightforward way to collect usable information. Critical and timely knowledge—the “signals intelligence” of superpowers and close neighbors—has never, however, been cheap to acquire or easy to validate.<sup>76</sup>

With the global connectivity of cyberspace, however, no longer does an enemy need to move into physical proximity to pose and execute a threat. Now too, adversaries both actual and potential can obtain intelligence inexpensively. If hackers can access a system and gain control of key functions, they can hide successes, elude defenses, and leave behind back doors by which to reenter in the future. Hackers need not be on the same continent as, let alone physically touch, targeted computers.<sup>77</sup>

Often the information that cyber attackers need to target a system is already online, posted for legitimate reasons. Terrorist sites when raided are almost always found to contain caches of maps, specific data, and operationally relevant material on potential targets that had been harvested from publicly accessible Internet sites. Such information is often considered public information that must be provided to citizens, investors, and internal customers. Democratic norms and laws regarding transparency and accountability often encourage or even require government agencies and private enterprises to make available information that would be useful to cyber thieves, spies, and attackers. Public and private cyber-security experts have sought to discourage such “oversharing,” but most Western democracies have a long way to go. After the attacks on the United States in September 2001, for example, much public data about nuclear power plants and nation-spanning oil pipelines were removed from public websites



in the United States; such data had already been found in Al Qaeda computers seized in Afghanistan.<sup>78</sup>

While great powers and some sophisticated states, like Israel, still enjoy comparative advantages in signals and various other technical means of collection and assessment, intelligence gaps between these states and their adversaries may be closing. Strategists, planners, and policy makers will eventually need to adapt to this new geostrategic reality of cyberspace.<sup>79</sup> For maritime powers throughout history, forward-deployed fleets have been crucial for defeating land powers. Naval forces operating in theaters far from home could quickly and independently collect information and decide whether and how to act. Only peer maritime powers, and few land-based adversaries, could challenge that powerful capability. The U.S. Navy is still in the business of long-distance power projection. In a cybered world, however, the task is more problematic. The Navy must adapt to the loss of its own proximity advantage. No longer will its bases, battle groups, forward infrastructure, and allied navies be immune just because they are over the horizon or far from the battle space. We believe that a more diffused set of threats and adversaries will be able to fight at a distance against the Navy and the nation. Another major research question for the Navy, then, is how to make proximity matter again, how to regain its traditional operational advantages against cyber-capable foes.

### *Precision*

The history of warfare demonstrates the many physical constraints on precision in choosing how often, where, and when to attack, given the size of the target and its ability to frustrate or defeat its attackers. Historically, precision has been expensive; few polities aside from empires, superpowers, and perhaps close neighbors have had the means to target their enemies precisely, in order to achieve operational success or conserve resources. In a cyber attack or a conventional operation accompanied by cyber tactics, this constraint fades into merely a question of time, knowledge, and occasionally patience. Attackers can now choose very specific targets—for today, for this tool, for this duration, and for this or that end. They can focus on individuals—by bank account, name, citizenship, location, or entertainment preference. They can also target specific firms, cities, or nations with similarly individualized parameters, with fairly small investment in readily available computer applications.<sup>80</sup>

Correspondingly, adversaries can use *imprecision* strategically as well. Cyber attackers often intentionally build a certain amount of imprecision into their “weapons” to ensure they hit their intended targets. For example, to take down a particular subset of users of an innocent application, attackers can purchase destructive malicious software, such as a “Trojan,” on cyber crime’s global black

market;<sup>81</sup> with it they can attack the application anywhere it is installed in the world. Among the victims will be their true targets; for the attackers, the others represent either irrelevant collateral damage or extra benefit. Such wider harm is rarely a concern to cybered attackers, except perhaps when the attack is undertaken by state actors bound by international law.<sup>82</sup>

In fact, when precision in the form of restraint is displayed, that characteristic itself suggests that the attackers are state actors. Usually only states concerned with international legitimacy try to avoid the potential for collateral damage posed by cyber weapons (Trojans, malware, etc.) that escape “into the wild.” One of the key indicators that a government had been involved in attacks on Estonia in 2007 was the degree of constraint exhibited in the timing, choice of targets, and duration. Many analysts presume that proxy actors were paid by Russian officials to attack Estonian targets but not beyond certain redlines.<sup>83</sup> Precision, however, may also reflect organizational maturity and a wider view of the consequences of success, of failure, or of errors that send the attack spinning out of control.<sup>84</sup> If true, the Russian actors behind the attacks showed restraint not because they had to but for their own reasons.<sup>85</sup>

For the Navy and the U.S. military more generally, the development of precision weapons, both offensive and defensive, has long been a priority—at least since the development of the Norden bombsight in World War II.<sup>86</sup> Precision increases the effectiveness of weapons and reduces costs (although in direct terms this is contestable, given the per-unit cost of many precise weapons). Professional militaries have often increased accuracy to decrease the volume of munitions employed, limit the number of aircraft sorties required, reduce (at least in theory) logistical expenses, and, ultimately, minimize collateral risks. At the same time, cost-effectiveness is said to lower the barriers to using coercion and reduction in collateral damage to increase the legitimacy of some forms of warfare, by some domestic and international observers.<sup>87</sup> One of these has argued that “precision weaponry has revolutionized contemporary warfare by multiplying the effectiveness of using air and ground power together.”<sup>88</sup> In a similar fashion, cyber operations may, by changing the roles of scale, proximity, and precision in warfare, increase the effectiveness of air, sea, land, and space operations when employed to reduce collateral damage and avoid risk to forces undertaking legitimate action.

In the cybered world, precision targeting is not necessarily an expensive option open only to major powers. Precision can help achieve aims without crossing redlines that might provoke wider kinetic conflict. Cybered conflict can occur along a spectrum across all phases of war, and long before any kinetic exchange, adversaries can use precision cyber tools to tilt the conflict in their favor. In particular, adversaries may use precise cyber weapons to undermine the resilience of

the targeted state's military or infrastructure, or even its entire economic system, sometimes without declaring their intention or being identified as the attackers.

The critical research question here for the Navy is how to turn the offensive advantages of precision into a more costly liability for attackers. Standardization in software and hardware systems, for example, can make offensive action easy for adversaries. The now-standard obligation to reduce costs by acquiring commercial-off-the-shelf (COTS) equipment often makes systems cheaper but more vulnerable in cybered conflicts. The U.S. military, including the Navy, might avoid providing the COTS advantage to potential adversaries by revising its acquisition process, to include the design of information architectures and the procurement of system components. It will require considerable ingenuity, but increasing variation within otherwise standardized equipment; off-the-shelf software architectures; and routine-driven procedures, units, or deployment patterns may hold long-term benefits.

Twenty years ago, the proponents of a "revolution in military affairs" (RMA) led by the U.S. military made all manner of claims for the impact of precision weapons on the future of conflict. This is not the place to wade into arguments about the nature of the RMA, past or present. But the impact of cyberspace on the scale, proximity, and precision of warfare, combined with the utility of cyber instruments in all phases, levels, and types of war, suggests a far greater impact for cyber than the classic RMA. By confronting directly the advantages of scale, proximity, and precision in cyber conflict, the Navy and CYBERCOM may both increase the effectiveness of traditional air, sea, land, and space operations and prepare for the inevitable more dynamic and complex cybered threat environment. In short, the challenge to the Navy is to reduce all three systemic advantages for attackers: to make it harder for them to choose to be precise or not at their will, more difficult for their operations to be "close" though not physically close, and more expensive and personally risky for them to organize dispersed strangers or covertly to manipulate masses of distant innocent systems.

### THE CURRENT AND FUTURE CYBER "LITTORAL"

Cybered conflict is here to stay and must be taken seriously even if cyber war in the conventional sense—that is, resulting in combat deaths—is not likely. Cyber operations, both offensive and defensive, will play major roles in all levels of war (from terrorism and counterinsurgency to high-intensity conflict and all the gradations between). Conflict involving cyber will neither stay wholly within networks nor prove over time to have been a fad or simply a subset of existing tactical, operational, or technological categories. From both empirical and conceptual perspectives, cybered conflict is neither a "flash in the pan" or a "lesser

included case”; it has already proved to be an evolutionary force, slowly altering the likely future conditions for interstate competition and the potentials for kinetic forms of battle. Scholars, analysts, and, most important, operators need to think systematically about how cyber operations—offensive and defensive, to the extent that distinction still makes sense—affect tactics, operations, and strategies.

Future military and security analyses of “cyber” writ large by the U.S. government, or indeed that of any state, should adopt a systemic approach adapted from the logic of complex socio-technological systems and how new developments change what can be used by defenders and abused by adversaries. For example, since such systems are in reality “patterns of artifacts, institutions, rules and norms assembled and maintained to perform economic and social activities,” the Navy’s scholars and strategists need to think through what current and new technologies, from 3D printing and autonomous private vehicles to new materials, will do to change those patterns.<sup>89</sup> Many current arguments about cyber operations in the government and policy communities are characterized by hype, false analogy, and, worse, misunderstanding of the technical, engineering, and scientific underpinning of the terms. Instead, the conversation should be about what is today being systematically lost, threatened, and penetrated on a vast scale. Furthermore, emergent technologies labeled “disruptive technologies” will change the calculus, some reducing scale, proximity, and precision obstacles even further, others offering opportunities to enhance barriers if the defenders are wise enough to see the opportunities.<sup>90</sup>

Cybered conflicts occur only partly inside computer and communications networks; what the Navy has viewed as the “littoral” in bounding its area of concern (traditionally the intersection of the land and sea) is increasingly difficult to identify. Large sections of what matters to the maritime services now overlap with traditional military, intelligence, and even commercial operations across the nation and the globe. Furthermore, the internationally accepted rules of war are difficult to apply in cyber war. However, in the context of a broader notion of conflict (i.e., as cybered conflict), these rules would find resonance with much of what happens before and during a kinetic conflict.<sup>91</sup> Other well-known forms of conflict, such as hybrid warfare, asymmetric conflicts, and counterterrorism, are also cybered conflicts to the extent that key events depend on the cyberspace substrate.<sup>92</sup>

The U.S. government has struggled since the Clinton administration to adapt to the policy, legal, organizational, and operational demands of conflict in cyberspace. Progressing by fits and starts, key policy makers have reached a consensus that cyberspace is an important arena for conflict, one worthy of resources, specialized organizations, different interagency relationships, and eventually perhaps legislative action.<sup>93</sup> Much remains to be done, especially with

regard to domestic policies, organizational implementation, and resourcing, but since the establishment of CYBERCOM and its service equivalents the defense and intelligence communities have become better equipped to meet external cyber challenges and take advantage of American cyber technologies to protect national interests.

Two of the most likely and challenging scenarios for future crises, perhaps even shooting wars, will clearly involve cyber operations: Iran and North Korea.<sup>94</sup> In each case, Phase Zero operations involving both sides, as well as third parties, already appear to involve cyber attacks of various types. If kinetic operations eventually take place, we may see the results of several decades of cyber “preparation of the battlefield,” ranging from tainted supply chains to embedded malware. For the time being, serious assessments and many details are obscure and will likely remain so until leaks and eventual declassification reveal the full extent of cyber operations.<sup>95</sup> In the interim, a more systemic view will enable the United States, with its already-demonstrated considerable cyber capabilities in disruption work, to balance those capabilities with the resilience needed for robust “cyber power.”

The Navy will be an integral part of that cyber power. The Navy has led service-level efforts in developing, deploying, operating, and sustaining complex electronic systems in the past.<sup>96</sup> Thanks to innovative institutional changes, it may be the service best positioned to integrate cyber fully into its culture, organizational structure, and operations.<sup>97</sup> As a maritime force, it has a long-established cultural acceptance of the deception, masking, mobility, and improvised independent operations that deployed ships have needed for survival in peace as well as war. At present, however, an assumption of uninterrupted communications has diminished its institutional capacity to sail resiliently under the cyber “radar,” despite millions of opportunistic “hunters.” The newer forms of conflict enabled by cyberspace require a rediscovery of inclinations buried in the Navy’s history and culture and a repurposing of them for the new—much more complex, deceptive, and sensor-rich—environment. The “littoral” may be defined more in terms of what one keeps the enemy from easily knowing and how abruptly one can emerge in the enemy’s near proximity than of what beach needs to be crossed. The sociotechnical systems the service depends on today need to change, at the hands of officers and sailors who understand the basics of the cyber substrate as it is today and as it is evolving. We argue—though only time and trial by fire will confirm the proposition—that the Navy may be uniquely qualified to adapt to cybered conflict, if the research is done and the new sociotechnical lines of evolution are identified.

A systemic understanding of cyber and research along lines identified above are needed not only for the Navy but also for the nation as a whole, if the Navy

is to develop its portion of national cyber power. In the coming transitional cybered conflict age, cyber power will rest on a balance between the resilience of the system being attacked and that system's ability to reach forward and disrupt in advance the small numbers of very skilled wicked actors able to overcome that resilience. This balance of resilience and disruption will apply to the Navy as well as the nation as a whole. When it is achieved, the nation will have in effect pursued an overarching cyber "security resilience" strategy redressing the advantages that today cyberspace gives the offense. Effective and robust cyber power diminishes the value of any adversary's "counterresilience" strategies intended to wear down deceptively the resilience of the defender's whole socio-technical-economic system.

Today the United States has allies who are well intentioned but simply cannot find the economic resources to invest in the cyber security that they know their economic, critical infrastructure, and national-security systems require. When a service or nation becomes a cyber power, it will have greater freedom of choice in the coming transitional era and better chances of maintaining that power in the era that will follow. The more the Navy is able to answer the systemic cyber challenges and reduce the scale, proximity, and precision advantages attackers enjoy today, the better prepared it will be for the bordered, encrypted, and technologically diverse future international system. The more systemically the Navy contributes to its own cyber security, the more critical a player it will be in ensuring the cyber power and the well-being of the nation as a whole, as the cybered world gradually restructures itself in response to global economic, demographic, technological, and security challenges.

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#### NOTES

The authors thank Emily Goldman, Ron Deibert, John Mallery, Paul Cornish, Nigel Inkster, Sandro Gayken, Daniel Ventre, Sue Eckert, Catherine Lotrionte, Patrick James, Melissa Hathaway, Erik Gartske, Catherine Kelleher, and Joe Nye for providing comments, suggestions, and forums for discussing our ideas. Chris Demchak would also like to thank the officers and officials she interviewed in the course of her research in the United States and Europe.

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## PROMISING PRIVATEERS?

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### Understanding the Constraints of Contemporary Private Security at Sea

*Christopher Spearin*

For the secretary-general of the United Nations, Ban Ki-moon, contemporary piracy is nothing less than a “global menace.”<sup>1</sup> There are several piracy “hot spots” the world over, each with its own dynamics, but it is Somali piracy that in recent years has particularly caught the attention and raised the ire of states, shippers, and international organizations.<sup>2</sup> International Maritime Organization (IMO) statistics reflect the quantitative dominance of Somali piracy. In 2010 and 2011, the number of alleged attacks in international waters off East Africa and on the Indian Ocean (into which Somali pirates now venture) was 84 percent of the global totals in each year. In 2012, owing to developments both on land and at sea, the Somali weighting declined, but it was still a considerable 54 percent of global totals.<sup>3</sup>

Largely because of the private-security efforts against Somali pirates—one of the policy measures credited in reducing the incidence of pirate attacks—the

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word “privateer” is back in vogue.<sup>4</sup> In a 2012 report, Australia’s Lowy Institute casually equated private military and security companies (PMSCs) with privateers.<sup>5</sup> In 2013, *The Economist*, reporting on the PMSC Typhon, used the bold headline “Privateers.”<sup>6</sup> Even Rear Admiral Terence McKnight, U.S. Navy (Ret.), who was the first commander of Combined Task Force 151, the multinational flotilla specifically dedicated to combating Somali piracy, has acknowledged the limits of state naval forces and referred to “security teams–privateers”

as an option.<sup>7</sup> Others have argued that privateering would be an ideal vehicle for legal and operational coordination between public and private actors in dealing with piracy. On some occasions these proponents specifically identify the PMSC industry, and in others they refer to private initiative more generally.<sup>8</sup>

This article argues that usage of the word “privateer” is inappropriate for understanding what PMSCs are now doing at sea and what they might be capable of doing. Operationally, a sufficient understanding is important because the maritime environment, especially counterpiracy work, presents growth opportunities for PMSCs (both start-ups and firms looking to diversify following contracts in Iraq and Afghanistan). According to some estimates, between 40 and 70 percent of commercial shippers utilize private security to counter Somali piracy.<sup>9</sup> This raises a number of thought-worthy issues regarding efficacy and the management of violence. As well, appreciating how experiences on land have framed the industry and what PMSCs can realistically offer at sea will help in perceiving the dynamics of contemporary security governance in the maritime realm. At the strategic level, a sufficient understanding is necessary because many of these invocations of privateering specifically refer to the United States, a considerable consumer of PMSC services on land. This is important, on the one hand, because the United States is the only state with the “command of the commons,” and U.S. Navy commanders have long been given responsibility to ensure safe passage in sea-lanes.<sup>10</sup> On the other hand, the relevant national policy document on piracy, a 2007 presidential memorandum, is fairly flexible as to response options.<sup>11</sup>

This article offers four points to advance an accurate understanding of PMSCs. First, through a historical consideration, it contends that privateering conjures up images of vessels of capability and availability not prevalent in the PMSC industry. While seafaring has always been an expensive endeavor, most PMSCs today cannot incur the costs or offer the kinds of capabilities the privateers once did—because of technological changes, bifurcation between military and commercial vessels, and cost sustainment. Second, while their rationales changed over the centuries and their “warlikeness” was sometimes questioned, privateers were nevertheless fundamentally on the offensive. In contrast, PMSCs have been normatively structured to take a defensive or protective posture. Third, the conception of contemporary privateers pursuing the public good of security obscures both PMSCs’ pursuit of security as a *private* good and reasons shippers engage them. The repercussion may be that though the United States wishes to advance both a global maritime partnership and PMSC usage at sea, the latter works somewhat in opposition to the former, because shippers are now “responsibilized” for their own security. The article closes with a last argument: even if responsibilization brings to mind an earlier era of seafaring, that of “letter of

marque” vessels, it too is not an appropriate term to understand fully the activities of PMSCs.

## VESSEL CAPABILITY AND AVAILABILITY

Privateers—nonnaval ships and their crews, or private men-of-war, conducting authorized violence at sea—were at their height from the thirteenth century to the nineteenth century.<sup>12</sup> Initially, a merchant aggrieved by a citizen of another country (involving, e.g., debts, stolen goods) could apply for “letters of marque and reprisal” from his sovereign authorizing him to seek restitution. These letters, an attempt “to bring the anarchy of retaliation under the rule of law,” indicated both the amounts sought and expiration dates.<sup>13</sup> Though “letters of marque” and “letters of reprisal” differed—the former were for seeking restitution within the territory of a sovereign and the latter beyond it (for example, by capturing flagged ships of the offending state)—the term eventually collapsed into the all-embracing “letter of marque and reprisal.” Such commissions increasingly became part of public warfare; their use to pursue private reprisals was uncommon by the mid-1700s.<sup>14</sup> They were licenses allowing private actors using their own resources and ships to attack merchant shipping. More generally, while expiration dates were still in place, other limits were generally removed, and privateers could attack and capture enemy ships of whatever sort during wartime or seek out pirates (deemed the enemy of all humankind) on a commercial basis. Arguably, this is the common perception of the privateer.

Though sovereigns did not, per se, hire privateers, they did provide regulatory infrastructures to facilitate their voyages and payment. For instance, privateers had to bring captured vessels into friendly ports (those that recognized the privateering license, and not those of an enemy state) for adjudication and eventual remuneration. The rationale for these rules was fourfold: they ensured that commissions would be sought in the first instance; they punished privateers who did not act in accordance with their commissions (if privateers mistreated captured crews or injured neutral countries, bonds could be forfeited); they set a legal distinction between privateers and pirates; and they permitted official “condemnation” and extraction of taxes, when applicable, before financiers or privateer crews realized any profit from the sale of captured cargoes and vessels.<sup>15</sup> Thus, sovereigns developed prize courts—for instance, in France in 1373 and in England in 1426. In the late 1700s, the courts of the newly independent United States arose from the Admiralty courts of the British colonial system. Overall, while their efficacy was debatable, these rules did provide a measure of due process, in terms of both how violence was employed at sea by private actors and how those enacting violence were compensated.

Sovereigns, and then states, developed and maintained this elaborate infrastructure also in part to obtain access, however indirect, to a special form of an expensive technology—ships. While small vessels could become privateer ships, the ideal privateer was larger and possessed certain characteristics.<sup>16</sup> Such vessels required sufficient seaworthiness for open-ocean voyages and, at times, heavy armament to allow them to prey on transoceanic trade. They needed sufficient speed to capture fast merchant ships or to flee from adversity (see below). They also had to be large enough to carry sufficient manpower to dispatch prize crews capable of taking over captured ships and bringing them into friendly ports.

Constructing, maintaining, and operating vessels of this sort would have been a considerable expense to state treasuries already stretched by public navies. Indeed, over the eighteenth and nineteenth centuries Britain's Royal Navy in itself was possibly "the largest industrial unit . . . in the entire western world."<sup>17</sup> Whereas the Bank of England served as the source of credit to finance this public force, France, for a contrasting example, lacked a similar central bank and relied even more heavily on privateers.<sup>18</sup> American privateers for their part considerably outnumbered the fledgling Continental Navy during the War for Independence and the U.S. Navy, its successor, during the War of 1812.

In terms of physical maritime capabilities, some naval analysts contend that there were sharp distinctions between warships and privateering vessels, which were basically converted merchant ships.<sup>19</sup> The former, which took advantage of technological developments in naval architecture and weaponry, were slower, more heavily armed, and suited to a range of military tasks, especially confronting like vessels. The latter were faster and lighter in armament. One analyst offers a contemporary analogy: "In no case did [privateers] use the large ships of the line, comparable in power projection to 20th century battleships or today's aircraft carriers and ballistic missile submarines."<sup>20</sup>

Nevertheless, distinctions between state and nonstate capabilities should not be overdrawn. During the span of centuries in which privateers operated, there was only a slow specialization of vessels for military tasks. Privateers were not somehow backward or second-class. As has been argued by a scholar who has examined the record of the eighteenth and nineteenth centuries, privateers "were just as 'modern' as their state and state-sponsored naval counterparts, in terms of the weapons, ships, and maritime crew they used."<sup>21</sup> The reflections of military historian John Keegan on "men-of-war of the wooden world" underscore the broad commonality between naval and merchant types: "[Naval vessels] did not differ in construction, means of propulsion or essential configuration from their merchant sisters."<sup>22</sup> In fact, in some cases armed merchant ships held their own against naval vessels. English and Dutch merchantmen in the 1600s sometimes proved superior to Portuguese and Spanish warships, and French privateers

during the reign of Louis XIV could be a match for the English frigates of the day.<sup>23</sup>

Such distinctions as existed offered merchant ship owners flexibility. Both naval vessels and merchantmen were expensive to build and maintain, but the former had no commercial equivalence. Also, given that commerce raiding was a wartime task, especially designated and state-owned commerce raiders would represent a burdensome sunk cost during peacetime. As one scholar suggests, political and financial considerations combined to make privateering ideal:

[Commerce raiding] could be carried out using physical assets . . . that had a peacetime commercial use and therefore had received healthy investment from the private sector in the years . . . [prior to war]. Indeed, war increased the risk of commerce and thereby made it less attractive, inclining merchants to look for alternative employment.<sup>24</sup>

In short, merchant vessels were relatively easy to convert for privateering; their transaction costs were lower.<sup>25</sup>

Nineteenth-century technological and operational developments, however, made it difficult for private actors to bridge the gap and offer other naval services. Whereas privateering had for centuries been characterized by wood, sail, and cannon, the 1800s brought substantial advancements: power sources (steam, combustion), propulsion systems (the paddle wheel, the screw propeller), protective materials (iron, steel), and weaponry (gunnery, torpedoes, mines). These changes significantly increased unit cost and generated sharper distinctions between naval and merchant classes, which in turn reduced shipowners' transaction-cost advantages.<sup>26</sup>

When merchant vessels could be transformed easily into privateers, the privateering system meant that in wartime a ready stock of potential privateers could be drawn from at low cost. As military technology developed, however, substitution between private and military use became more difficult, and the cost-saving advantages of privateering declined. It was one thing to transform a merchant vessel into a privateer and quite another to build a nuclear submarine.<sup>27</sup>

With states, through their navies, now accepting the sunk costs of purchasing, operating, and maintaining sophisticated and specialized equipment and supporting logistical systems outside of wartime, the space in which private actors could operate was constrained.<sup>28</sup>

What is more, the demise of commerce raiding by private actors, alongside the decline of piracy (and likewise private pirate hunters), may have itself further segregated commercial actors. It has been argued that reductions of privateer activities in different parts of the world starting in the late 1700s allowed merchant-ship construction and operation to be optimized, in that armaments were no

longer needed, nor the sizable crews that had been required to use those weapons or to seize other vessels. This contributed to merchant productivity increases and higher tons-per-man ratios.<sup>29</sup>

In the contemporary era, PMSCs have gone a step farther. To avoid overhead, they mostly put guards on merchant ships rather than provide escort vessels. Though reports have suggested that as many as forty vessels might be ready for antipiracy work, the actual vessel-based presence in pirate-infested waters is considerably less.<sup>30</sup> In short, PMSCs are not platform-centric; they differ from privateers who offered what were for their time substantial and robust vessels.

To account for this difference, one should note the often-prohibitive initial capital outlays and the costs of redesign and refurbishment that would otherwise be incurred, outlays that even so can achieve only constrained levels of capability. Regarding nonmilitary vessels today, PMSCs confront the same limitations that merchant owners did in the nineteenth century. This is implied in an observation of the mid-1990s about contemporary maritime technologies:

Although . . . [naval technology and merchant marine technology] will have much in common and there are varying degrees of technological overlap, as, for example, in the manufacture and composition of naval fleet replenishment vessels, auxiliary craft, amphibious landing ships, hydrographic ships and patrol boats, the operational parameters and sub-systems of naval operational vessels are often radically different from merchant ships.<sup>31</sup>

PMSCs attempting to “bridge the delta” would face considerable expense. Certainly, they can dip into the limited pool of smaller and older state vessels, those not already traded between navies and coast guards. However, refurbishment is required, in part for updating, and in part because certain capabilities are likely to have been stripped prior to sale. PMSC vessels have been taken from the former stocks of, for instance, Scandinavian navies, the Japan Coast Guard, and the U.S. National Oceanic and Atmospheric Administration.<sup>32</sup> As a result, and unlike the privateer ships of old, they have rather limited tactical and strategic mobility, seaworthiness, and armament.

These capability limitations and the temporary nature of contract employment further limit the economic viability of PMSCs at sea. Not all shippers confronting Somali piracy risk using PMSCs, and for those that do it is often on a per-passage basis, for which the costs of using a special vessel are higher than onboard personnel. PMSC vessels would also have little opportunity for sustained state employment, because of their limited capabilities and constraints (which will be noted below) on integrating them in larger state naval endeavors. Indeed, analysis of state gunboat diplomacy finds that vessels that are up to date, versatile, advanced, and threatening are at a premium. These qualities are not



fortes of the PMSC industry currently.<sup>33</sup> The PMSC industry generally sees in operating its own vessels uncertain profit streams, sizable sunk costs, client-base uncertainty, and unknown environmental prospects (e.g., a decline in piracy in a theater would collapse opportunities there). Accordingly, it does not emphasize vessels, either qualitatively or quantitatively, as did the privateers of old.<sup>34</sup>

## OFFENSIVE AND DEFENSIVE DIFFERENCES

Privateering, because of its underlying commercial rationale and its emphasis on capture rather than destruction, was arguably not as “warlike” as state military activities (though some navies awarded prize money well into the twentieth century). The financial necessity for privateers of collecting prizes placed a premium on flexibility and independent action. As noted above, confrontations with enemy warships were not unknown, but the risk of being outgunned was evident. The costs of a privateer ship sunk, damaged, or captured were borne solely by the investors and (in more ways than one) its crew; they were not spread across a state’s treasury. Moreover, even if a privateer captured an enemy warship, such ships when condemned usually did not fetch as much money as merchantmen. During the War of 1812, one American privateer apologized to his employer for capturing a British naval vessel in the West Indies: “Having sought a contest with a king’s ship, knowing that is not our object.”<sup>35</sup>

In a similar vein, blockading and merchant convoying by privateers were relatively uncommon because of the coordination required and the frequent absence of catchable and lucrative prizes.<sup>36</sup> In any case, these tasks were problematic for privateers. Given that their crews did not receive wages but rather shared in the bounty after adjudications of prize courts, their financial imperative in the face of adversity was to flee.

What violence a privateer did commit, therefore, was usually calculated to minimize damage so as to preserve the prize’s value. One can look at the minimization of violence in two ways. In the micro sense, this desire extended to the point that some U.S. privateers during the War of 1812 mounted fake, wooden cannon in hopes of simply overawing their prey. In the macro sense, if privateering arguably lowered the costs for a state to engage in warfare, the means it employed, in a direct way, were not very destructive. Indeed, the destruction wrought by state forces in recent centuries dwarfs the contribution of commercial nonstate actors.<sup>37</sup>

Yet one can argue that the privateer, however “unwarlike,” was generally on the offensive—a characterization at odds with the contemporary PMSC industry. Privateers trolled the seas looking for targets to attack; destruction at sea, or the lack of it, was not central to intent and role. In contrast, for PMSCs, while

weaponry is sometimes used and destruction can result, the desire is to get the client “off the spot,” to repel an attacker. In policing terms, PMSCs, land or maritime, are not in the business of apprehending and delivering suspected pirates for incarceration. In military doctrinal terms, PMSC activities emphasize the defensive rather than the offensive—that is, “operations in which forces await for the approach of the enemy before attacking” over “operations in which forces seek out the enemy in order to attack him.”<sup>38</sup>

This is not to deny, again, that PMSCs use lethal force at sea. Indeed, once violence begins, a PMSC may act in very robust ways, knowing the unlikelihood of backup from public or other private forces. Neither is this to deny that such use of force is controversial.<sup>39</sup> Just as land-based PMSCs have been criticized for aggressiveness in protecting vehicle convoys, PMSC violence at sea can produce serious repercussions should a firm mistake other seafarers, such as fishermen, for pirates.<sup>40</sup> Concern also applies to the declaration of exclusion zones around client ships by firms that have incurred the expense of escort vessels.<sup>41</sup> But this is to say that for the PMSC industry, the “offensive” and “seeking out adversaries” are almost as pejorative as “mercenary.”

Three components inform the defensive nature of the PMSC industry. This identification is based on recognizing that a norm is “a standard of appropriate behavior for actors with a given identity” and thus has qualities both intersubjective (meaning shared understandings) and evaluative (meaning sense of “oughtness”).<sup>42</sup> First, on the part of the PMSC industry itself, there is an overwhelming focus on defensive qualities, a focus that advances self-definition and niche capabilities. Additionally, this defensive focus places PMSCs in contradistinction to mercenaries, which, as part of the norm-forming process, are increasingly cast as offensive-minded actors. For one analyst, defensive activities “minimize the effect of the charge that they are fighting (and therefore killing) in exchange for financial gain.”<sup>43</sup> Another provides support: “If a private security contractor were assigned the offensive duties of a regular soldier, that fine line between contractor and mercenary would be breached.”<sup>44</sup> Contractors on land have themselves made similar observations: “Our job in Iraq is not to fight, it is to run. We can only open fire to defend our clients or our own lives.”<sup>45</sup> The formative message offered by such industry groups as the British Association of Private Security Companies is similar: “Any military would argue that offence is often the best form of defense. The private security companies don’t have that luxury; they are defensive forces.”<sup>46</sup>

Intersubjectivity also implies consideration of the viewpoints of state actors. They similarly distinguish, for three reasons, between the offensive and the defensive, with the former acceptable only if performed by states. From one angle,

states wish to avoid association with the pejorative word “mercenary.” The U.S. Federal Acquisition Regulation, for instance, makes the point doubly: “Private security contractors are not mercenaries and are not authorized to engage in offensive operations.”<sup>47</sup> From another angle, one can view the distinction as a division of tasks, though not necessarily an exclusive one. General Peter Schoomaker, who served as the U.S. Army Chief of Staff from 2003 to 2007, believed that PMSCs allowed military units to conduct combat operations and “higher priority jobs.”<sup>48</sup> Nevertheless, public forces still conduct tactically defensive tasks, such as naval convoying, in countering Somali piracy.<sup>49</sup> Finally, one can view the offensive/defensive distinction as an exercise of self-definition. It helps hone and specialize state-armed forces in terms of their functions, a process that has arguably been under way since the end of the Cold War.<sup>50</sup> The “value added” or unique contributions of state militaries can thereby be expressed in terms of their particular and exclusive offensive character, and in so doing a professional distinction and a warrior ethos are emphasized.

This stance—that only a state’s military, because of its training, character, and authority structure, is to do certain things and have access to certain weapons—is reinforced in a variety of academic, military, and think-tank forums. Surveys of civilian and military officials indicate much greater acceptance of PMSCs working to protect property, personnel, or convoys than of PMSCs performing tasks like “combat” or “fighting counterinsurgency.”<sup>51</sup>

Lastly, there is the “framing” of the PMSC industry by the international community writ large. For the founder of the International Stability Operations Association, another PMSC industry association, international endeavor cannot be underplayed: “In the Geneva Conventions there is no difference between offensive and defensive combat, which is pretty interesting. The way it’s sort of come down and been sorted out by the international community is it really does make that differentiation.”<sup>52</sup> As a case in point, one sees the creation of Voluntary Principles on Security and Human Rights in 2000. Endorsing states, nongovernmental organizations (NGOs), and corporations agree that

consistent with their function, private security should provide only preventative and defensive services and should not engage in activities exclusively the responsibility of state military or law enforcement authorities. Companies should designate services, technology and equipment capable of offensive and defensive purposes as being for defensive use only.<sup>53</sup>

One can also look to the 2008 Montreux Document on Pertinent International Legal Obligations and Good Practices for States Related to Operations of Private Military and Security Companies during Armed Conflict—a state-based initiative designed, first, to uphold international humanitarian law and, second,

to offer states (and by extension other actors) good practices to consider when utilizing PMSCs. This document similarly affirms “using force and firearms only when necessary in self-defense or defense of third persons.”<sup>54</sup> Building on this, the 2010 International Code of Conduct for Private Security Service Providers lays down that “signatory Companies will require that their Personnel not use firearms against persons except in self-defence or defence of others against the imminent threat of death or serious injury, or to prevent the perpetration of a particularly serious crime involving grave threat to life.”<sup>55</sup> Finally, IMO guidance for shippers places PMSC usage in the context of Best Management Practices (BMP), which are preventative, reactive, and defensive in orientation. “Full BMP implementation” is the first resort for shippers; the use of PMSCs is the last. The IMO’s BMP document, like the others, states that firms “should only use firearms against persons in self-defence or in defence of others.”<sup>56</sup>

PMSCs arguably possess great offensive potential. A related irony is that despite their defensive posture, firms often employ and are managed by former special-operations forces (SOF) personnel, perhaps the most offensively oriented embodiments today of the warrior ethos. This SOF “flavor,” however, does not translate into offensive activities but into the following:

- These personnel work well in small, self-reliant groups—an important factor, given the aforementioned frequent lack of backup, either by private or public forces;
- They are generally people-centric, rather than platform-centric, in their approach;
- Their presence serves as a marketing tool as firms become linked to the heralded activities of contemporary SOF.<sup>57</sup>

Without a doubt, these distinctions between offensive and defensive and between state and nonstate actors are no small issues, given the arguments about what PMSCs are and what they might do at sea. There is in play a significant recasting of the roles of the public sector as traditionally understood. As has been suggested, PMSCs diverge from “the past trend towards an ever more restrictive understanding of what role private actors and markets should play in regulating the use of force.”<sup>58</sup> However, the contention here is that the private sector does not enjoy a tabula rasa. As identities and roles shift, the expectations of states and other international actors frame PMSC activity and impact how the firms view themselves. Changes in identity and expectation, therefore, would have to occur before the PMSC industry could become prominent in the application of offensive force like the privateers of old. The context and capabilities, and the resulting imagery, are different.

## PUBLIC GOOD, RESPONSIBILITY, AND COORDINATION

In the maritime context, the idea of pursuing security as a public good, one that is nonexcludable and nonrivalrous, is challenging, both legally and practically. Whereas varying degrees of sovereignty can be exercised in territorial seas and exclusive economic zones, no state is sovereign on the oceans. The United Nations Convention on the Law of the Sea (UNCLOS) reaffirms that the rights of states to enjoy freedom of navigation are not to be unduly restricted, a concept dating from the thought of Hugo Grotius in the seventeenth century. UNCLOS also makes plain the limits on the degree to which ships flying the flag of one state can interfere with the operations of ships flying that of another. Additionally, the utter vastness of the oceans makes it difficult for states to exercise control for long periods of time. This factor points to some of the difficulties the thirty or forty warships forming the various flotillas countering Somali piracy have faced as the pirates have become more resourceful and have traveled greater distances away from Somalia's shores.<sup>59</sup>

Nevertheless, one can still take the notion of contemporary pirate-hunting privateers as an exercise in outsourcing the pursuit of security as a public good for two reasons.<sup>60</sup> First, because privateers would be hunting pirates who prey on international shipping generally, all seafarers would potentially benefit from their offensive-oriented activities.<sup>61</sup> These modern privateers would be working to uphold freedom of navigation for all. Second, as mentioned at the outset, the understanding of PMSCs as privateers and calls for privateering are usually linked to the United States. To a degree, this reflects the significant interaction between PMSCs and U.S. forces in places like Iraq and Afghanistan. It also reflects the historical reality that navies of hegemonic sea powers, going back to the late nineteenth century, have traditionally—though not without significant legal and operational difficulty—backstopped this freedom of navigation for both altruistic and self-interested strategic and commercial reasons.<sup>62</sup> The rise of hypothetical pirate-hunting privateers, therefore, would see the transfer/sharing of the tasks of maintaining freedom of navigation to/with commercial nonstate actors, with states, particularly the United States, participating in terms of *de jure* management and direction through letters of marque.

In contrast, PMSC engagement, as advocated by U.S. Navy voices for the international shipping industry as a whole, has focused on employment by shippers rather than by states or on PMSC self-employment and remuneration through an adjudicated prize system. Indeed, history suggests that only the latter could receive the “privateer” label. Thus, for example, in 2008, when Vice Admiral Bill Gortney was in command of the U.S. Fifth Fleet, he contended that “companies don’t think twice about using security guards to protect their valuable facilities

ashore. Protecting valuable ships and their crews at sea is no different.”<sup>63</sup> Rear Admiral McKnight (Ret.), setting up a dichotomy of either hiring PMSCs or avoiding dangerous waters, likewise asserted that “the maritime community must take responsibility for their vessels and ensure safe passage of their cargo and crew through this [i.e., the Gulf of Aden] pirated region.”<sup>64</sup> In 2010, Admiral Mark Fitzgerald, commander of U.S. Naval Forces Europe, offered this open-ended recommendation: “There has got to be security on these ships in my opinion. . . . It is up to the commercial industry to figure out how to deal with this. But I do not think that we can give them a 100 percent guarantee that we can protect them, nor should we.”<sup>65</sup>

Though the U.S. Navy is the world’s only global navy and has a stated policy of keeping sea-lanes open, these calls put shippers on notice, given the limited naval capabilities of many European merchant-flag states and the fact that open-registry states generally lack naval-projection capabilities altogether. Subsequently, many states have developed authorization procedures and guidance on how shippers should use PMSC services (e.g., financial considerations and vetting procedures). In a similar way, the Montreux Document identifies considerations for states and other actors, like shippers, to contemplate.

The end result is that PMSC usage is currently based on individual shippers making security decisions. While pursuit of security as a public good is not inconceivable, at present the pursuit focuses on security as a private good—one that is excludable and rivalrous.<sup>66</sup>

One can place this in the context of what has been called the “great risk shift,” by which responsibility for security writ large is diffusing away from states as a collection, or from “the state” as an institution.<sup>67</sup> This is “responsibilization,” a reframing of accepted conceptions such that nonstate actors are seen “as a set of autonomous subjects both *responsible for* and *capable of* securing themselves” rather than as objects whose security is provided by the state.<sup>68</sup> On land, for instance, this is evident in how humanitarian and development NGOs increasingly, if uneasily, rely on PMSCs.<sup>69</sup> In some cases donor states even insist that NGOs employ private security.<sup>70</sup> At sea, utilization of PMSCs by shippers, therefore, is an extension of these trends, with the exception that the binary divide between state and nonstate is recast as one between a hegemonic navy and the shipper.

The concern is that responsibilization may hinder U.S. plans to develop cooperative relationships among maritime users—a collective plan to foster security as a public good. In the maritime environment, given its vastness and the much smaller likelihood that a merchantman in need would receive immediate naval response, newfound independence may marginalize cooperation between state and nonstate actors. On the one hand, the 2007 “Cooperative Strategy for 21st Century Seapower” looks beyond interstate cooperation to counter transnational



and irregular challenges: “Increasingly, governments, non-governmental organizations, international organizations, and the private sector will form partnerships of common interest to counter these emerging threats.”<sup>71</sup> PMSCs might value intelligence exchanges with state forces. On land, for instance, operations in Iraq and Afghanistan eventually featured offices designed to offer situational awareness, a common operating picture for contractors and the military, and coordination. On the other hand, even with these structures in place in Iraq and Afghanistan, participation was voluntary, and many PMSCs did not engage. At sea, some shippers eschew state-provided convoying because of the unavoidable time delays involved. As well, shippers likely decline to report instances of piracy and pirate contact, to avoid unwanted publicity, insurance hikes, and again, delays and associated financial impacts. Finally, the commercial demands of shippers and the cumbersome and slow vessels they mostly operate dovetail with the PMSC industry’s defensive posture; shippers are not in the pirate-apprehension business.<sup>72</sup> In sum, this responsabilization may lead to the increasing individualization of response rather than the fostering of collective action.

#### “17TH CENTURY CRIME . . . 21ST CENTURY SOLUTIONS”

If we reach back into history, can we find a phenomenon that better captures PMSC activism today than does privateering? Indeed, in some ways, responsabilization suggests a return to earlier times. There was in the age of sail an *expectation* that when shippers “bore the full costs of their actions, they tended freely to take responsibility for their lives. And thus those in the private sector provided the goods and services that were needed.”<sup>73</sup> During this time, shippers armed themselves, in part because of the relative weakness of naval forces, and in part because of the fear of predation by pirates and enemy privateers alike.

In this vein, several maritime analysts identify from the early 1600s onward a distinction—evident first in the British case and later in the American—between vessels termed “privateers” and others called “letters of marque.”<sup>74</sup> A captain of one of the latter held an actual letter of marque, authorizing him to arm his ship for security during long voyages. A letter-of-marque vessel was primarily a cargo carrier, not optimized as a privateer—which would have a larger (non-wage-earning) crew, greater speed, and heavier armament.<sup>75</sup> The armament of a “letter of marque” allowed some operational flexibility; the vessel could risk running blockades and avoid the inconvenience and expense of convoying.<sup>76</sup>

While some of these rationales are congruent with today’s considerations regarding PMSC usage, there are important differences. First, the *raison d’être* of PMSCs and privateers is the threat or application of violence, whereas this was only one among a host of elements for the letter-of-marque vessel. Second, in today’s environment, merchant crews, backed up by seafarer unions, are generally

unwilling to take up arms. Third—like privateers but unlike PMSCs—“letters of marque” were substantial ships for their day. Finally, in addition to capturing a vessel as the result of a successful defense (and thus benefiting financially), a letter-of-marque vessel might also seek out an enemy ship and capture it as a prize, as privateers did, should the opportunity arise. Put differently, the “letter of marque” had an offensive character lacking among PMSCs. This terminology, then, is no better than “privateer” for the contemporary context.

In that context, the material, regulatory, and ideational differences between contemporary PMSCs and privateers make plain how commercial nonstate violence is presently organized and enacted in the maritime realm. One can see the world as it arguably is, rather than as one presumes it is or would like it to be. One can see an industry that mostly eschews the usage of platforms. The PMSC industry is largely manpower-centric, and the few vessels it employs are limited when compared with either the privateers of the past or warships of today. One can see, whereas historical privateering was mostly offensive-minded, an industry that is today predominantly defensive in its orientation, given the efforts of (self-)definition undertaken by PMSCs (desiring specifically to avoid the pejorative word “mercenary”), states, and other actors. We can see an industry that, thanks to responsabilization, is focused largely on pursuing the private good of security in an independent manner on the behalf of its shipper clients. In sum, in 2009 the American secretary of state, Hillary Clinton, offered this judgment regarding piracy: “We may be dealing with a 17th century crime, but we need to bring 21st century solutions to bear.”<sup>77</sup> Understanding what contemporary commercial nonstate violence looks like, rather than harkening back to an earlier age, is similarly necessary.

Additionally, clear understanding of the nature of and constraints on the private security industry at sea, as currently constituted, is important to assess accurately its future implications. Indeed, there are several vexing questions for which an appropriate mind-set, for analysts and policy makers alike, is required. Concerns are already raised about duplication of effort, difficulties of multinational command, and limitations of intelligence sharing among state forces working to counter Somali piracy. In what ways and to what effect can PMSCs be injected into these considerations? PMSCs are increasingly being viewed as security experts in their own right. To what degree will techniques they introduce that promote their own industry be detrimental to or complementary with state initiatives? Answers to these sorts of questions are important: “While states seek to realize their programmes by mobilizing the knowledge, capacities and resources of others, other auspices [i.e., actors] are clearly acting in very similar ways to realize their agendas.”<sup>78</sup> This article, therefore, is one step in identifying the actual components of these agendas and how they may evolve in the future.

## NOTES

The views expressed in the article are those of the author alone and do not necessarily reflect those of the Canadian Department of National Defence or the government of Canada. The author would like to thank Donald Spearin and Noelle Morris for their assistance in the preparation of this article.

1. Ban Ki-moon, "Remarks at Launch of World Maritime Day Theme for 2011: 'Piracy: Orchestrating the Response,'" *UN News Centre*, 4 February 2011, available at [www.un.org/](http://www.un.org/).
2. One should recognize the varying interpretations of the rationale for Somali piracy. For some, such as Ken Menkhaus, "Somali piracy is a textbook case of a shift in the motives in an armed group from grievance to greed." The resulting notion of Somali pirates as criminals bent on upsetting international trade and causing harm to others is part of the dominant discourse, one that informs international militaristic responses. For others, Somali piracy is a response to the extreme poverty and chaos in Somalia and a justifiable reaction to global economic actors who have exploited Somalia's resources (e.g., fisheries), polluted its waters, and helped structure it as a have-not country. The author wishes to thank an anonymous reviewer for raising this distinction. Please see Ken Menkhaus, "Dangerous Waters," *Survival* 51, no. 1 (February/March 2009), p. 23; D. L. Rothe and V. E. Collins, "Got a Band-Aid? Political Discourse, Militarized Responses, and the Somalia Pirate," *Contemporary Justice Review* 14, no. 3 (September 2011), pp. 329–43; Axel Klein, "The Moral Economy of Somali Piracy: Organized Criminal Business or Subsistence Activity?," *Global Policy* 4, no. 1 (February 2013), pp. 94–100; and James Pattison, "Justa Piratica: The Ethics of Piracy," *Review of International Studies* (forthcoming).
3. International Maritime Organization [hereafter IMO], "Reports on Acts of Piracy and Armed Robbery against Ships: Annual Report—2010," annex 2, p. 2, available at [www.imo.org/](http://www.imo.org/); IMO, "Reports on Acts of Piracy and Armed Robbery against Ships: Annual Report—2011," annex 2, p. 1, available at [www.imo.org/](http://www.imo.org/); IMO, "Reports on Acts of Piracy and Armed Robbery against Ships: Annual Report—2012," annex 2, p. 1, available at [www.imo.org/](http://www.imo.org/).
4. "Analysis: EU NAVFOR Figures Confirm the Value of Armed Security Teams in Thwarting Pirate Attacks," *DefenceWeb*, 6 December 2011, [www.defenceweb.co.za/](http://www.defenceweb.co.za/); "No Somali Pirate Hijacking in Nearly a Year, Says UN," *Guardian*, 3 May 2013.
5. James Brown, *Pirates and Privateers: Managing the Indian Ocean's Private Security Boom* (Sydney, NSW, Austral.: Lowy Institute, 12 September 2012), p. 13, available at [www.lowyinstitute.org/](http://www.lowyinstitute.org/).
6. "Privateers," *Economist*, 12 January 2013.
7. Terence McKnight, foreword to *Maritime Private Security: Market Responses to Piracy, Terrorism and Waterborne Security Risks in the 21st Century*, ed. Claude Berube and Patrick Cullen (New York: Routledge, 2012), p. xix.
8. Todd Emerson Hutchins, "Structuring a Sustainable Letters of Marque Regime: How Commissioning Privateers Can Defeat the Somali Pirates," *California Law Review* 99 (2011), pp. 819–84; Theodore T. Richard, "Reconsidering the Letter of Marque: Utilizing Private Security Providers against Piracy," *Public Contract Law Journal* 39, no. 3 (Spring 2010); D. Joshua Staub, "Letters of Marque: A Short-Term Solution to an Age Old Problem," *Journal of Maritime Law and Commerce* 40, no. 2 (April 2009), pp. 261–69.
9. "Laws and Guns," *Economist*, 16 April 2012; Ben West, "The Expensive, Diminishing Threat of Somali Piracy," *Stratfor*, 8 November 2012, available at [www.stratfor.com/](http://www.stratfor.com/).
10. Barry R. Posen, "Command of the Commons: The Military Foundations of U.S. Hegemony," *International Security* 28, no. 1 (Summer 2003), pp. 5–46; U.S. Navy Dept., *Naval Power 21 . . . a Navy Vision* (Washington, D.C.: 2002), p. 1.
11. United States, White House, "Memorandum from the President: Maritime Security (Piracy) Policy," 14 June 2007, available at [georgewbush-whitehouse.archives.gov/](http://georgewbush-whitehouse.archives.gov/). In comparison, the Obama administration has focused on the financial mechanisms supporting piracy; United States, White House, "Executive Order 13536 concerning Somalia," 13 April 2010, available at [www.whitehouse.gov/](http://www.whitehouse.gov/).

12. This article, like other analyses, utilizes the word "privateer" in reference both to a vessel and to the people associated with it (captains, crew members, etc.). Regarding the timing, the 1856 Paris Declaration Respecting Maritime Law largely abolished commerce raiding by privateers, though the growing desire to protect the rights of neutral shipping helped to curtail the practice earlier. While the United States did not sign this declaration, President Theodore Roosevelt effectively accepted it as customary international law.
13. Alexander Tabarrok, "The Rise, Fall, and Rise Again of Privateers," *Independent Review* 11, no. 4 (Spring 2007), p. 566.
14. William Young, "A Check on Faint-Hearted Presidents: Letters of Marque and Reprisal," *Washington & Lee Law Review* 66 (Spring 2009), pp. 899–901; Kevin C. Marshall, "Putting Privateers in Their Place: The Applicability of the Marque and Reprisal Clause to Undeclared Wars," *University of Chicago Law Review* 64, no. 3 (Summer 1997), pp. 953–81; Donald A. Petrie, *The Prize Game: Lawful Looting on the High Seas in the Days of Fighting Sail* (Annapolis, Md.: Naval Institute Press, 1999), p. 3. Underscoring this shift, Alfred Rubin notes that reprisals themselves came to be seen as acts of belligerency between sovereigns. In short, private claims became public concerns; Alfred P. Rubin, *The Law of Piracy*, International Law Studies, no. 63 (Newport, R.I.: Naval War College Press, 1988), p. 22.
15. As described by Alexander Tabarrok, "To condemn a vessel, the privateer had to prove that the enemy owned it. To prove ownership, the privateers relied on the prize's own papers, including registers, cargo manifests, clearance certificates, and so forth. The prize's officers, crew, and passengers were also questioned. If the prize was found to be lawful, it was sold at a court-ordered auction." Tabarrok, "Rise, Fall, and Rise Again of Privateers," p. 568.
16. David Starkey, for instance, writes that some "English Channel" privateers of the 1700s, with crews as small as twelve, preyed on French fishermen. However, he also notes that much larger vessels worked as privateers in this relatively small area of water. Reuben Elmore Stivers, reflecting on U.S. privateers during the War of 1812, comments that some vessels were not ideal with respect to seaworthiness or armament, largely due to a lack of funds. David J. Starkey, *British Privateering Enterprise in the Eighteenth Century*, Exeter Maritime Studies, no. 4 (Exeter, U.K.: Univ. of Exeter Press, 1990), pp. 38–39; Reuben Elmore Stivers, *Privateers & Volunteers: The Men and Women of Our Reserve Naval Forces: 1766 to 1866* (Annapolis, Md.: Naval Institute Press, 1975), pp. 96–97.
17. H. M. Scott, "The Second 'Hundred Years War,' 1689–1815," *Historical Journal* 35, no. 2 (June 1992), p. 454.
18. William H. McNeill, *The Pursuit of Power: Technology, Armed Force, and Society since A.D. 1000* (Chicago: Univ. of Chicago Press, 1982), p. 180.
19. Gary M. Anderson and Adam Gifford, Jr., "Privateering and the Private Production of Naval Power," *Cato Journal* 11, no. 1 (Spring/Summer 1991), pp. 99–122; Jeremy Black, *Naval Power: A History of Warfare and the Sea from 1500 Onwards* (New York: Palgrave Macmillan, 2009), p. 42.
20. Claude Berube, "Blackwaters for the Blue Waters: The Promise of Private Naval Companies," *Orbis* 51, no. 4 (Fall 2007), p. 608.
21. Graham Gerard Ong-Webb, "Piracy in Maritime Asia: Current Trends," in *Violence at Sea: Piracy in the Age of Global Terrorism*, ed. Peter Lehr (New York: Routledge, 2007), p. 81.
22. John Keegan, *The Price of Admiralty: The Evolution of Naval Warfare* (London: Penguin, 1990), p. 136.
23. Black, *Naval Power*, p. 43; Lord Russell of Liverpool, *The French Corsairs* (London: Robert Hale, 1970), p. 81.
24. Nicholas Parillo, "The De-privatization of American Warfare: How the U.S. Government Used, Regulated, and Ultimately Abandoned Privateering in the Nineteenth Century," *Yale Journal of Law & the Humanities* 19, no. 1 (2007), p. 21.
25. See, in particular, Anderson and Gifford, "Privateering and the Private Production of Naval Power."
26. *Ibid.*, pp. 116–17; Keegan, *Price of Admiralty*, p. 111.
27. Tabarrok, "Rise, Fall, and Rise Again of Privateers," p. 575.

28. This is not to say that state navies were uninterested in using merchant-type vessels, but technological differences were evident. In 1887, for instance, the British Admiralty wished to purchase merchant steamers for cruising but found that considerable modifications were necessary regarding bulkheads, engines, and steering, among other requirements. Parillo, "De-privatization of American Warfare," pp. 77–78.
29. Douglass C. North, "Sources of Productivity Change in Ocean Shipping, 1600–1850," *Journal of Political Economy* 76, no. 5 (September/October 1968), pp. 959, 964. Lord Russell of Liverpool notes, for instance, that by 1814 French privateering had decreased considerably; Russell, *French Corsairs*, p. 82.
30. Brown, *Pirates and Privateers*, p. 8.
31. Martin Edmonds, "Naval Technology: What Can Developing Nations Afford?," in *Maritime Policy for Developing Nations*, ed. Greg Mills (Johannesburg: South African Institute of International Affairs, 1995), p. 111.
32. Patrick Cullen, "Private Security Companies in the Malacca Straits: Mapping New Patterns in Security Governance," in *Mercenaries, Pirates, Bandits, and Empires: Private Violence in Historical Context*, ed. Alejandro Colas and Bryan Mabee (New York: Columbia Univ. Press, 2010), p. 202; Bill Sizemore, "Blackwater Brings Latest Tool for Training to Town Nauticus," *Virginian-Pilot*, 19 September 2006, p. A1; *Naval Guards*, [www.navalguards.com](http://www.navalguards.com).
33. Christian Le Mièrre, "The Return of Gunboat Diplomacy," *Survival* 53, no. 5 (October/November 2011), p. 63. And see Christopher Spearin, "Private Gunboats on the Horizon? Private Security and Contemporary Naval Presence," in *Maritime Private Security*, ed. Berube and Cullen, pp. 38–48.
34. Eric Fredland and Adrian Kendry, "The Privatisation of Military Force: Economic Virtues, Vices and Government Responsibility," *Cambridge Review of International Affairs* 13, no. 1 (Autumn/Winter 1999), pp. 152, 164 note 23. More generally, see Avinash Dixit and Robert Pindyck, *Investment under Uncertainty* (Princeton, N.J.: Princeton Univ. Press, 1996).
35. Roger Fredland, *American Sea Power since 1775* (Chicago: Lippincott, 1947), p. 70.
36. Anderson and Gifford, "Privateering and the Private Production of Naval Power," pp. 104–105; Parillo, "De-privatization of American Warfare," pp. 8, 22, 66.
37. Stivers, *Privateers & Volunteers*, p. 97; Tony Lynch and A. J. Walsh, "The Good Mercenary?," *Journal of Political Philosophy* 8, no. 2 (2000), pp. 133–53.
38. United Kingdom, Ministry of Defence, *British Maritime Doctrine*, BR1806, 3rd ed. (London: 2004), pp. 252, 278.
39. The defensive use of force could still lead to the escalation of violence between PMSCs and pirates. Additionally, public navies, though at times exercising offensive postures, arguably limit the amount of harm they inflict on pirates in that their oft-practiced catch-and-release policies are informed by a number of differing rationales. Scott Fitzsimmons, "Privatizing the Struggle against Somali Piracy," *Small Wars & Insurgencies* 24, no. 1 (March 2013), pp. 91–93; Pattison, "Justa Piratica"; Gregory Viscusi, "Mercenary Guards Jump Ship as Somali Pirates Remain Undeterred," *Bloomberg*, 18 December 2008, [www.bloomberg.com/](http://www.bloomberg.com/). See also Christopher Spearin, "A Private Security Solution to Somali Piracy? The U.S. Call for Private Security Engagement and the Implications for Canada," *Naval War College Review* 63, no. 4 (Autumn 2010), p. 63.
40. This concern also applies to shipborne detachments of military personnel. Consider the fates of two Italian marines who accidentally shot Indian fishermen on 15 February 2012 while protecting the oil tanker *Enrica Lexie*. Annie Banerji and D. Jose, "Insight: Murder Trial of Italian Marines in India Navigates Murky Waters," Reuters, 9 June 2013, [www.reuters.com/](http://www.reuters.com/).
41. Mark Sloan and D. Griffiths, *Dalhousie Marine Piracy Project: Operational Responses for the Discouragement and Suppression of Marine Piracy*, Technical Report 3 (Halifax, N.S.: Dalhousie University, Marine Affairs Program, 2012), p. 93, available at [www.marineaffairsprogram.dal.ca/](http://www.marineaffairsprogram.dal.ca/).
42. Martha Finnemore and Kathryn Sikkink, "International Norm Dynamics and Political Change," *International Organization* 52, no. 4 (Autumn 1998), p. 891.



43. Sarah Percy, *Mercenaries: The History of a Norm in International Relations* (New York: Oxford Univ. Press, 2007), p. 231.
  44. Robert Young Pelton, *Licensed to Kill: Hired Guns in the War on Terror* (New York: Crown, 2006), p. 109. This does not mean that the distinction is not breached on occasion. Some commentators note the “training” tasks undertaken by Saracen in Somalia. However, one should recall that these actions have received considerable criticism and that the United Nations and the United States have persuaded potential clients not to use the firm, which now has the mercenary label. One should also recall the fact that when a norm is not universally respected, it does not necessarily undermine its overall strength; see Elke Krahmann, “The United States, PMSCs and the State Monopoly on Violence: Leading the Way towards Norm Change,” *Security Dialogue* 44, no. 1 (February 2013), pp. 53–71; and Diana Panke and Ulrich Petersohn, “Why International Norms Disappear Sometimes,” *European Journal of International Relations* 18, no. 4 (2011), pp. 719–42.
  45. Nick McKenzie, “Armed and Ready: Private Soldiers in Iraq,” *The Age*, 1 July 2006, available at [www.theage.com.au/](http://www.theage.com.au/).
  46. Toni Pfanner, “Interview with Andrew Bearpark,” *International Review of the Red Cross* 88, no. 863 (September 2006), p. 455.
  47. U.S. Senate, *Testimony of Mr. Jack Bell: Deputy Under Secretary of Defense (Logistics and Materiel Readiness)*, Readiness and Management Support Subcommittee, Committee on Armed Services, 2 April 2008, p. 5, available at [www.armed-services.senate.gov/](http://www.armed-services.senate.gov/).
  48. “US Guards Train in ‘Close Protection’ Work,” *Jane’s Defence Weekly*, 19 October 2006.
  49. The emphasis here on tactical is important because at different levels the orientation potentially changes. For instance, according to operational-level British naval doctrine, one can perceive conveying as offensive—“it obliges the enemy to fight in circumstances of our own choosing; the enemy submarines must close on the convoy where they can be more readily located and attacked, with the only alternative being to abandon his objective”; United Kingdom, Ministry of Defence, *British Maritime Doctrine*, Joint Doctrine Publication 0-10 (London: 2011), pp. 2–16.
- Similarly, one can place a tactical action in the larger context in which it is embedded. From this standpoint, Somali pirates might view the actions of public navies and PMSCs alike as offensive, in light of the country’s fate as characterized in note 2 of this article.
50. Anthony King, “The Post-Fordist Military,” *Journal of Political & Military Sociology* 34, no. 2 (Winter 2006), pp. 359–74; Christopher Dandeker, “A Farewell to Arms? The Military and the Nation-State in a Changing World,” in *The Adaptive Military: Armed Forces in a Turbulent World*, ed. James Burt, 2nd ed. (Piscataway, N.J.: Transaction, 2002), pp. 139–61.
  51. Sarah K. Cotton et al., *Hired Guns: Views about Armed Contractors in Operation Iraqi Freedom*, MG-987-SRF (Santa Monica, Calif.: RAND, 2010), p. 66. See also Gary Schaub, Jr., and Volker Franke, “Contractors as Military Professionals?,” *Parameters* 39, no. 4 (Winter 2009–10), pp. 88–104; and Volker Franke and Marc von Boemcken, “Guns for Hire: Motivations and Attitudes of Private Security Contractors,” *Armed Forces & Society* 37, no. 4 (October 2011), pp. 725–42.
  52. “Interview with Doug Brooks,” *International Affairs Forum*, 1 March 2009, [www.ia-forum.org/](http://www.ia-forum.org/).
  53. U.S. State Dept., “Voluntary Principles on Security and Human Rights,” fact sheet, Bureau of Democracy, Human Rights, and Labor, Washington, D.C., 20 December 2000, available at [www.state.gov/](http://www.state.gov/).
  54. Swiss Confederation and International Committee of the Red Cross [ICRC], *Montreux Document on Pertinent International Legal Obligations and Good Practices for States Related to Operations of Private Military and Security Companies during Armed Conflict* (Bern/Geneva, Switz.: Federal Department of Foreign Affairs and ICRC, 17 September 2008), pp. 9, 23, available at [www.icrc.org/](http://www.icrc.org/).
  55. *International Code of Conduct for Private Security Service Providers*, 9 November 2010, [www.icoc-psp.org](http://www.icoc-psp.org).
  56. IMO, *The Interim Guidance to Private Maritime Security Companies Providing Privately Contracted Armed Security Personnel on Board Ships in the High Risk Area*, MSC.1/Circ.1443, 25 May 2012, pp. 6, 9, available at [www.imo.org/](http://www.imo.org/).

57. See Christopher Spearin, "Special Operations Forces a Strategic Resource: Public and Private Divides," *Parameters* 36, no. 4 (Winter 2006–2007), pp. 58–70.
58. Anna Leander, *Eroding State Authority? Private Military Companies and the Legitimate Use of Force* (Rome: Centro Militare di Studi Strategici, 2006), p. 48.
59. The various naval forces deployed near and beyond the Gulf of Aden use different techniques. Some organize convoys; others patrol certain areas. In the cases when certain naval forces employ flag-specific convoying, this is more akin to securing the private good.
60. Commerce-raiding privateering did not pursue the public good, given its employment as a tool in interstate warfare and the problems that sometimes arose with neutral shipping. In contrast, privateering to counter piracy historically pursued the public good of security. However, for an argument regarding why one should not interpret historical privateering generally as "outsourcing," given the evolving boundaries of the "public" and the "private," see Halvard Leira and Benjamin Carvalho, "Privateers of the North Sea: At Worlds End—French Privateers in Norwegian Waters," in *Mercenaries, Pirates, Bandits, and Empires*, ed. Colas and Mabee, pp. 55–82.
61. In line with note 2 above, this notion of the "public good" reflects the dominant discourse vis-à-vis the nature of and justifications for Somali piracy.
62. James Cable, *Navies in a Violent Peace* (London: Macmillan, 1989), pp. 57–65.
63. U.S. Navy Dept., Combined Maritime Forces Public Affairs, "Super Tanker Attacked in Arabian Sea," story NNS081117-07, 17 November 2008, [www.navy.mil/](http://www.navy.mil/).
64. McKnight, foreword to *Maritime Private Security*, p. xix.
65. Meredith Buel, "US Admiral: Commercial Ships Need Armed Guards to Fight Pirates," *Voice of America*, 20 April 2010, [www.voanews.com](http://www.voanews.com).
66. While functionally this is the case, there may be cause to move away from limited security provision in light of the duty to render assistance provision found under UNCLOS Part VII, sec. 1, art. 98: "Every State shall require the master of a ship flying its flag, in so far as he can do so without serious danger to the ship, the crew or the passengers: . . . b) to proceed with all possible speed to the rescue of persons in distress, if informed of their need of assistance, in so far as such action may reasonably be expected of him."
67. Jacob Hacker, *The Great Risk Shift: The Assault on American Jobs, Families, Health Care, and Retirement: And How You Can Fight Back* (New York: Oxford Univ. Press, 2006).
68. Patrick Jerome Cullen, "Private Security in International Politics: Deconstructing the State's Monopoly of Security Governance" (unpublished PhD thesis, London School of Economics and Political Science, 2009), p. 118 [emphasis original]. Note that the term "responsibilization" has its roots in contemporary thinking about neoliberal governance. See, for instance, Garry C. Gray, "The Responsibilization Strategy of Health and Safety: Neo-liberalism and the Reconfiguration of Individual Responsibility for Risk," *British Journal of Criminology* 49, no. 3 (May 2009), pp. 326–42; Ronen Shamir, "The Age of Responsibilization: On Market-Embedded Morality," *Economy and Society* 37, no. 1 (2008), pp. 1–19.
69. Birthe Anders, "Tree-Huggers and Baby-Killers: The Relationship between NGOs and PMSCs and Its Impact on Coordinating Actors in Complex Operations," *Small Wars & Insurgencies* 24, no. 2 (May 2013), pp. 278–94.
70. Tony Vaux et al., *Humanitarian Action and Private Security Companies: Opening the Debate* (London: International Alert, 2002), p. 10; Cullen, "Private Security in International Politics," pp. 176–212.
71. J. T. Conway, G. Roughead, and T. W. Allen, "A Cooperative Strategy for 21st Century Seapower," October 2007, available at [www.navy.mil/](http://www.navy.mil/); repr. *Naval War College Review* 61, no. 1 (Winter 2008), p. 10.
72. What is more, without state service authorization, hot pursuit and apprehension might fall under UNCLOS art. 101's piracy definition: "Any illegal acts of violence or detention, or any act of depredation, committed for private ends by the crew or the passengers of a private ship or a private aircraft."
73. Larry J. Sechrest, "Public Goods and Private Solutions in Maritime History," *Quarterly Journal of Austrian Economics* 7, no.



- 2 (Summer 2004), p. 24. During the era of mercantilism, states did accept some costs. Navies, despite their limitations, attempted to provide protection to “their” merchant ships—which provided trade-generated revenues to the state that, in turn, funded navies. Over time, states, and especially hegemonic naval powers, became even more assertive at sea and accepted more and more security costs. Mind-sets, therefore, changed; the expectation of state protection became more prominent. See Geoffrey Till, *Seapower: A Guide for the Twenty-First Century*, 2nd ed. (London: Routledge, 2009), pp. 35, 100; Michael Lindberg and Daniel Todd, *Brown-, Green- and Blue-Water Fleets: The Influence of Geography on Naval Warfare, 1861 to the Present* (Westport, Conn.: Praeger, 2002), pp. 24–25; and J. R. Hill, *Maritime Strategy for Medium Powers* (Annapolis, Md.: Naval Institute Press, 1986), p. 31.
74. Petrie, *Prize Game*, pp. 4–5; Starkey, *British Privateering Enterprise in the Eighteenth Century*, pp. 51–52; David J. Starkey, “The Origins and Regulation of Eighteenth-Century British Privateering,” in *Bandits at Sea: A Pirates Reader*, ed. C. R. Pennell (New York: New York Univ. Press, 2001), pp. 71–72; Richard, “Reconsidering the Letter of Marque.”
75. Larry J. Sechrest, *Privateering and National Defense: Naval Warfare for Private Profit*, Working Paper 41 (Oakland, Calif.: Independent Institute, September 2001), p. 9.
76. Richard, “Reconsidering the Letter of Marque.”
77. U.S. State Dept., “Secretary Clinton Announces Counter-piracy Initiatives,” *Dipnote: U.S. Department of State Official Blog*, 15 April 2009, [blogs.state.gov](http://blogs.state.gov).
78. Jennifer Wood and Clifford Shearing, *Imagining Security* (Cullompton, U.K.: Willan, 2007), p. 27.

# INNOVATION FOR ITS OWN SAKE

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## The Type XXI U-boat

*Marcus O. Jones*

**T**he origins of this article lie in a new study of the Nazi German economy by Adam Tooze, a fragment of which argues that the need to overcome the technological deficit built by the Western Allies in antisubmarine warfare from 1939 triggered a major shift in U-boat design and production after 1943.<sup>1</sup> Tooze points out that an emphasis on technological solutions to strategic and operational problems had by that point become a hallmark of the Nazis', and especially Hitler's, thinking. (Other examples were the Tiger and Panther tanks at Kursk, both of which types proved dysfunctional as platforms, and neither of which proved decisive to the outcome.) So interpreted, the Nazi penchant for imputing to innovation the means to solve a whole class of operational and strategic problems seems to resemble "technological fixes" in other fields of innovation.<sup>2</sup> In so arguing Tooze writes off the findings of Richard Overly, who points to the failure of the regime to develop positive relationships between industry and the war effort as reflecting a "peculiar irrationality of the 'Nazi social system.'" Tooze highlights the research of Ralf Schabel on jet-engine development in the aircraft industry, research asserting that exaggerated technological expectations resulted

from Germany's hopeless strategic dilemma and that the systems themselves, while quite promising, were rushed into mass production and combat without adequate testing or development. Interestingly, he then characterizes Admiral Karl Dönitz's decision to embrace the Type XXI submarine in 1943, under the technocratic direction of Albert Speer's ministry, as reflecting both the increasing

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unreality of German armaments propaganda and a progressively more authoritarian cast of the German war economy.

While agreeing entirely with Tooze's identification of a strong relationship between Nazi Germany's broad strategic and economic problems and the technological innovations seen as panaceas for them, this paper argues that the U-boat Type XXI was nonetheless not nearly so unrealistic a solution as his account suggests, nor as reflective of a grossly dysfunctional culture of innovation as other commonly cited cases may be. If one assumes Nazi Germany's essentially flawed strategic decision to interdict the Allies' commerce traffic in the Atlantic, then the German navy, under the technological and operational constraints then prevailing, had no better option than to develop a platform that accomplished what the Type XXI promised. This revision of Tooze's case arises from the assumption that the culture of naval architecture and engineering before 1943, organized around largely traditional methods of design and construction, was wholly inadequate to Germany's strategic problems. In the absence of more promising alternatives, the decision to subordinate the shipbuilding industry ruthlessly to innovative technocratic priorities appears more rational than otherwise. It may also serve as a cautionary example of the extent to which social explanations of technological adaptation must include appreciation of the iron operational constraints on military effectiveness.

Naval warfare is arguably more revealing of the intimate connections between technological trends and broader political, economic, and military circumstances than is warfare of nearly any other kind. As Karl Lautenschläger has argued, "naval warfare in general is sensitive to changes in technology, because it is platforms as well as weapons that are necessary for combat at sea. Whereas armies have historically armed and supported the man, navies have essentially manned and supported the arm."<sup>3</sup> Determination of the reasons for the paths of innovation taken, as well as the pace and character of innovation itself, has bedeviled historians of technology for generations. Every military technological innovation is shaped by a complex of influences, but most notably by some conception, however well or poorly understood, of the operational scheme within which it is intended to fit.

The technologies that defined Germany's Atlantic campaigns had their roots in expectations about future conflict that seemed entirely reasonable in the 1930s but proved woefully misguided when the full implications of Hitler's strategic ambitions became apparent by 1942. In the decade before the war, the nascent Kriegsmarine envisioned a limited naval war primarily against France, and after 1938, England. The prevailing operational scheme, which found its strongest exponent in Admiral Erich Raeder, then commander in chief of the navy, emphasized a balanced fleet comprising heavy and light elements to threaten enemy

naval and commercial interests in a dispersed manner. The primary role of submarines in this concept was twofold: to serve in a fleet-support and screening capacity, for which a limited number of larger, longer-range, and faster submarines would be required; and to conduct a commerce war of limited range and intensity against French, and later English, maritime assets in the eastern Atlantic, for which a large number of smaller, cheaper, and easily produced boats was necessary. Although some elements within the German naval command in the mid-1930s, notably Admiral Dönitz, envisioned a strategy of commerce interdiction that emphasized an autonomous role for U-boats, the then-prevailing doctrine saw the U-boat as but one of a broad mix of assets in a balanced fleet. Most importantly, and to the extent that the anticommerce strategy of Dönitz could be said to have shaped procurement decisions in the late 1930s and early phases of the Second World War, the notion of wolf-pack tactics against convoys made the acquisition of as large a number as possible of comparatively simple, inexpensive, medium-sized submarines a priority in naval planning. However, at no point before 1942/43 could the German navy be said to have enjoyed a substantial priority in German armaments production. As a result, the German navy began the war with scarcely more than two dozen oceangoing submarines, and not before 1942, arguably past the critical point of balance in its commerce war against Britain, did it have a number sufficient to mount consistent group operations.

As those familiar with the course of the Atlantic war until May 1943 understand, initial German success was gradually eclipsed by superior Allied technology, code breaking, organization, and especially shipbuilding capacity—arguably the most decisive single element in determining the outcome of the naval war. On the tactical level, where the platforms themselves were decisive, the increasing number and effectiveness of Allied convoy escorts and countermeasures, especially electronic means of detection, led to unacceptably high losses of the Types VII and IX U-boats that made up the bulk of the German fleet. According to the commander of the U-boat force, Dönitz, losses to mid-1943 amounted at most to 13 percent of the deployed boats. The severe setbacks that the fleet suffered in early 1943 amounted to some 30 to 50 percent of the deployed force, with losses in May 1943 of forty-three boats, or more than a boat a day on average.<sup>4</sup> The limited utility of conventional diesel submarines had become irrefutably obvious. If defensive tactics could deny the submarine surface mobility and compel it to rely on its subsurface capability for survival, then it became nearly useless as an offensive weapon. Defensive platforms detected U-boats with radar, sonar, high-frequency direction finding (“Huff Duff”), and—most effectively—roving aircraft, which became increasingly common by late 1943. Aircraft or surface ships could then prosecute the contact, compelling the boat to dive and holding it down long enough for a convoy to lumber away. With its slow surface and even

slower submerged speed, a conventional Type VII or IX U-boat was hard pressed to develop a second attack angle, and then only if antisubmarine units were not hounding it.

In a draft assessment of the naval strategic situation in September 1942, the Kriegsmarine High Command starkly expressed its first noteworthy reservations about whether the U-boat campaign could have the desired decisive effect on the Allies' capacity to sustain their war effort, a finding based as much on the vulnerability of existing platforms to Allied countermeasures as on anything else.<sup>5</sup> Although the finding was stricken, the final report acknowledged that "not one war in history was won by the use of a single weapon," a caution reflecting the simple fact that Germany could not sink enough tonnage fast enough to overcome the enormous American shipbuilding capacity.<sup>6</sup> Although Hitler had declared on many occasions that he considered U-boat warfare crucial for the overall war effort, not until after the surrender of the Sixth Army at Stalingrad did he seize on it as the sole remaining offensive potential available to the Third Reich and accord it a meaningful priority in war production.

These circumstances lay behind the radical shift in platform design and production priorities after 1943. The essential question facing the strategic leadership after the midyear debacle was whether to abandon the Atlantic—which would amount to an almost inconceivable admission by professional officers of the strategic bankruptcy of their service—or to redouble the effort and shift the terms on which commerce warfare was waged through evolutionary advances in platform survivability and effectiveness.<sup>7</sup> Dönitz, commander in chief of the German navy as of January 1943, opted for the latter, with the full backing of Hitler. The platform that would bring about this transformation was the Type XXI submarine.

Historians have generally thought of the Type XXI—along with other systems like the Me 262, V-1 and V-2 rockets, and the Tiger tank—as an example of *Wunderwaffen*, wonder weapons. Since 1945 many have fixated on the revolutionary military technologies that the Third Reich developed in the last two years of the war.<sup>8</sup> The cultural impetus behind the concept, as implicitly or explicitly acknowledged by historians in the uneven and largely enthusiastic literature on the subject, was an irrational faith in technology to prevail in operationally or strategically complex and desperate situations—a conviction amounting to a disease, to which many in the Third Reich were prone in the latter years of the Second World War.<sup>9</sup> To the extent that it shaped decision making, faith in the *Wunderwaffen* was a special, superficial kind of technological determinism, a confidence in the power of technology to prevail over the country's strategic, operational, and doctrinal shortcomings. To the extent that leaders, officers, engineers, and scientists after 1943 believed innovation to be the answer to Germany's strategic dilemmas,

they displayed a naive ignorance of how technology interacts with cultural and other factors to influence the course of events. In particular, they reflected a willful ignorance of the extent to which even substantial technological superiority has proved indecisive in human conflict throughout history.<sup>10</sup>

The origins of the Type XXI program lay in a test platform built in 1939–40 by a brilliant propulsion engineer, Helmuth Walter, who intended it to serve as a prototype of a genuine submarine weapon.<sup>11</sup> Submarines to that point, their name notwithstanding, had actually been little more than extremely slow, vulnerable, largely helpless torpedo boats capable of brief submergence. The underwater speed and endurance of standard U-boat types were insufficient to stalk and close on typical convoys, though they traveled at speeds of only eight knots or less, and were barely adequate against slower formations; U-boats were forced to spend the bulk of their time on the surface, vulnerable to all manner of countermeasures. Walter's test bed, designated *V80*, achieved an impressive twenty-eight knots submerged and seemed to address the need for a genuine high-speed underwater platform. The boat suffered from a range of thorny technical problems, however, most notably the type and quantity of fuel required by the closed-cycle Walter engine—highly volatile Perhydrol, or hydrogen peroxide. To power the boat the Perhydrol was reduced by chemical processes, generating extremely high-pressure gases that spun a propeller-gearred turbine at nearly twenty thousand revolutions per minute. A submarine operating such a closed-cycle system could remain submerged as long as its fuel supply permitted. However, the Walter turbine required colossal amounts of fuel to meet even modest performance parameters, far outstripping the bunkering capacity of existing U-boat designs. Walter, ever inventive, therefore conceived of a U-boat with a pressure hull of a figure-eight form: the top half would house the machinery, weapons, and the crew, while the bottom would contain the large amount of fuel necessary to power the turbine. The design draft was designated the Type XVIII.

In a November 1942 meeting on U-boat design projects, the director of naval construction, Heinrich Ölfken, along with a pair of engineers, Friedrich Schürer and Klaus Bröking, happened on the idea of utilizing the Walter architecture to house a conventional electric propulsion system able to drive the boat at underwater speeds higher than those attained by existing designs.<sup>12</sup> The lower loop of the figure eight, where Perhydrol would have been stored, afforded space for an enormous increase in battery capacity, effectively triple that of a conventional Type IX U-boat.<sup>13</sup> The massive battery plant would run a powerful electric-drive system, necessitating diesel power to charge the batteries much less often than current boats required. Preliminary testing revealed that the performance of the hybrid design, although it fell far short of the prototype Walter boat, far exceeded



that of existing platforms, especially underwater. Admiral Dönitz, still commander of the submarine force, agreed that the concept merited further development and approved additional design work and testing. Theoretical calculations and modeling were complete by January 1943; five months later, the naval staff was provided with a preliminary design draft.

The resulting boat, designated Type XXI, displaced some 1,620 tons and was capable of a submerged sprint of eighteen knots sustained for an hour and a half, a moderate speed of from twelve to fourteen knots for ten hours, and silent running at five knots for sixty hours. Most importantly, it was designed from the outset to incorporate the sensors, countermeasures, and other devices understood by that point to be indispensable in the commerce war: water-pressure-controlled automatic depth-keeping equipment, an improved passive listening array, active sonar, a radar-search receiver, effective active radar, and a snorkel. Dönitz presented the Type XXI design to Hitler at a conference on 8 July 1943 to win his approval for the additional allocations of resources and labor required to realize a production program. Having persuaded Hitler, Dönitz issued an order on 13 August for the full-scale transition to building “*Elektroboots*.” Initially, he had intended the Type XXI to replace the outmoded Type IX, but after the catastrophic performance of his boats in May 1943 he determined that it should take the place of the Type VII convoy-attack boat as well.

One cannot exaggerate the importance of the experience of the U-boat service in May 1943 to Dönitz’s decision to shift production to an entirely new platform in wartime. As the officers and sailors who manned the U-boat fleet, and who had fought so doggedly, now found, no amount of willpower or doctrinal ingenuity on the basis of existing boat types could overcome the collective effects of the countermeasures the Allies employed so well by 1943. The obsolescence of the German navy’s U-boats, which in the early years of the war had been the scourge of the British war effort, had come about so quickly and completely that it was compelled in the circumstances of a failing war to attempt a leap in submarine capability simply to have any hope of affecting the Battle of the Atlantic. In other words, Dönitz argued, his submariners had no choice but to innovate further, on the basis of their disadvantage. Thus understood, the capabilities of conventional U-boats by 1943 represented a “reverse salient” in a technological system (in this case, the interlocking network of technologies and practices of a maritime commerce war as a whole)—that is, “components in the system that have fallen behind or are out of phase with the others.”<sup>14</sup> In technological terms, the reverse salient is the weak link that impedes progress. The concept has its origins in descriptions of warfare, where it refers to a section of an advancing military front that has fallen behind the rest, typically becoming the point of weakness in an attack and a zone, a sack, of vulnerability in defense, a lagging element that

prevents the rest of the force from fulfilling its objective. Until the reverse salient is corrected, an army's progress comes to a halt. "When a reverse salient cannot be corrected within the context of an existing system, the problem becomes a radical one, the solution of which may bring a new and competing system."<sup>15</sup>

Even had Germany produced a large number of Type XXI boats in time to field them during the war, or brought forth any at an earlier date, it is doubtful whether they could have corrected the salient and fulfilled the promise of the *Wunderwaffen*. Historians have spilled much ink to argue how revolutionary a technology the Type XXI was and how qualitatively different would have been the terms on which the Battle of the Atlantic was fought had Nazi Germany sent substantial numbers of these high-performance platforms to sea. But a sober consideration of the new boat's capabilities in the context of existing Allied counter-measures makes plain that it would not have shifted the terms as much as Dönitz and the rest of the German leadership hoped. The Type XXI offered no expansion of missions beyond the three basic ones performed by submarines between the outbreak of the First World War and the launch of nuclear-powered USS *Nautilus* in 1954: coastal defense, naval attrition, and commerce warfare.

To be sure, the class certainly stood to enhance the ability of the German submarine force to fulfill its missions more effectively. But it could not have enabled the force to perform the other three significant roles of submarines that arose later in the twentieth century: projection of power ashore, fleet engagement, and assured destruction. Only the nuclear submarine, with its ability to remain submerged as long as the crew could feed itself and remain sane, offered navies the means of fulfilling those tasks, and then only in conjunction with technologies as yet undeveloped during the war. Most importantly, the Type XXI would have done nothing to solve the target-acquisition problem, arguably the single greatest obstacle to success in the U-boat campaign against Allied shipping. Without long-range patrol aircraft to detect convoys and fix their positions, submarine commanders had to rely on what could be glimpsed from atop the conning towers of their tiny craft. Limiting the effective range of observation was not only the submarine's low freeboard but the generally miserable weather of the North Atlantic Ocean. Even patrol lines of U-boats strung out across large areas frequently missed sizable convoys, and the vast majority lumbered by anyway. Only the Luftwaffe, which Hermann Göring guarded with jealousy and bile, could address that deficiency. For these reasons, it is important to understand the Type XXI as an evolutionary technological development of existing undersea warfare technologies, as opposed to a platform of the kind that changes entirely the nature of naval power altogether.<sup>16</sup>

However, in the design and production of the Type XXI lay evidence of innovation greater than that represented by the platform itself. The two principal

shortcomings in the German navy's approach to commerce interdiction in the Atlantic lay, first, in its resource disadvantage in the war economy relative to the other services—an inferiority that was itself a function of the lesser strategic significance of the Atlantic war for the Nazi regime—and second, in the capacity constraints of the German shipbuilding industry. The former shortcoming was addressed to some extent on a political level in mid-1943, when Dönitz secured Hitler's acknowledgment of the importance of the U-boat war and approval for the Type XXI program, along with his promise, however nebulous, to resource it adequately. Dönitz dealt with the latter in a more radical manner. No amount of political capital could extract a higher unit productivity from the already-stretched shipbuilding industry, which was understood by that point to be essential to turning the tide of the Atlantic war. Certainly, one could not reasonably expect Type XXI submarines to be produced at the same rate as earlier types, or anything like it, as the new design was far larger, more complex, expensive, and resource and manpower intensive than its predecessors. A transformation of shipbuilding itself was essential.

In 1942, German U-boat construction, which by this point accounted for the bulk of total shipbuilding capacity, was organized around largely traditional methods of design, engineering, and production. The navy enjoyed a preeminent position in defining standards and regulating construction processes, as well as generally warm relations with the traditional shipyards, all of which guaranteed a high level of quality but did not meet the demands of mass production in a materiel-intensive war effort. That unsuitability was apparent as early as 1941, when the minister for munitions, Fritz Todt, broached the possibility of setting up a "Main Committee" for shipbuilding, based on the promise of industrial self-regulation, to centralize and make more efficient U-boat production. Rudolf Blohm, head of the enormous Blohm und Voss shipyards and an archreactionary capitalist, chaired the new organization, along with Ernst Cords of Krupp Germaniawerft. A key obstacle to higher rates of production at acceptable cost was the navy's custom of ordering boats on a quarterly basis; true mass production of the requisite components, large and small, required larger orders over lengthier periods of time, for which manufacturers could plan and invest on an appropriate scale.<sup>17</sup>

The committee quickly brought about a partial and largely successful reorientation of production of the conventional Type VIIC, the standard U-boat class of the war. Noteworthy in these early reforms were the establishment of long-series production and the subcontracting of major-component manufacture on a provisional basis to inland steel-construction firms—the latter being a critical, often-overlooked precedent of the Type XXI program. Moving production of major subcomponents to inland subcontractors permitted the specialization of

manufacturing processes and reduced the time a U-boat spent in the slips during assembly, important for increasing shipyard throughput and for reducing the yards' vulnerability to Allied strategic bombing.

As already described, with Dönitz's appointment as commander in chief of the German navy in January 1943, just prior to the disastrous convoy battles of May, came a major shift in the orientation of the U-boat fleet. Dönitz was persuaded that nothing short of an industrial miracle would supply enough Type XXI boats to tip the balance of the Atlantic war. In a devil's bargain, therefore, he relinquished the navy's traditional strict control over ship design, engineering, and construction to Albert Speer's armaments ministry, which at that point was expanding its control into every corner of the German war economy. Speer's price for the manpower and raw materials to mass-produce the new class of submarine was the subordination of the dockyards to his ministry. Even with the backing of his powerful organization, however, the best initial estimates for an accelerated development program foresaw the arrival of the first boats only in late 1944, with series production beginning in March 1945.<sup>18</sup> Conventional U-boats had generally required between two and two and a half years to mature from concept to serial production; assuming that a conventional development curve applied as well to the Type XXI—an optimistic assumption, since it was a far larger and more complex boat—the earliest the new class could join the fleet would be 1946. A breathing space for the Allies of more than two years would presumably mean the loss of the Atlantic entirely.

To close the time gap, Speer resolved to break the conservative engineering and construction culture of the established dockyards with a radical program of modular construction and dispersed, serialized component manufacturing. In July 1943 he appointed Otto Merker, an impetuous forty-year-old industrial engineer with extensive experience in automobile and fire-engine manufacturing, to head the Main Committee for Ship Construction. Merker proposed that the new class of U-boats be assembled from eight large, prefabricated sections weighing between seventy and 130 tons apiece, assembled inland by firms that had been to that point, in most cases, rolling and shaping plate steel for pressure hulls. The advanced design and engineering work for the new class and the detailed planning for its production were assigned to a new, centralized organization called the Ingenieurbüro Glückauf, established in Blankenburg/Halberstadt to take over tasks traditionally handled by the yards of individual shipbuilders. Intense Allied bombing and communication difficulties drove the decision both to centralize the Ingenieurbüro and to situate it far from the waterfront. Nearly 50 percent of all German steel firms were to be involved to varying extents in manufacturing and assembling the hull sections and machinery for the new boats; many of the vendors had never before performed high-precision finished work and

would require substantial technical direction to meet the exacting standards of pressure-hull construction. The prefabricated sections were to be transported by barge on inland waterways to three final assembly points: Blohm und Voss in Hamburg, Deschimag in Bremen, and Schicau in Elbing, east of Danzig. Utilizing such methods, Merker claimed, the first Type XXI could be launched by 1 April 1944, with production rising to thirty boats per month by autumn of that year. In fact, with the entire organization leaning ruthlessly toward the lofty production targets, the first copy was launched—amid great fanfare—less than three weeks late, on 19 April 1944, the day before Hitler's birthday.

Nonetheless, the Type XXI U-boats had almost no impact on the outcome of the Second World War, save perhaps to absorb large amounts of manpower and resources that might have been devoted more wisely to the manufacture of aircraft, armored vehicles, artillery, and munitions. Indeed, a senior engineer in the naval shipbuilding program estimated that a single Type XXI submarine consumed a volume of armaments-grade steel equivalent to some thirty tanks, a meaningful offset for the war in light of the much shorter production time for an armored vehicle.<sup>19</sup> By that logic, the program cost the war effort some five thousand tanks, a very consequential figure, and could be said to have hastened the defeat of Germany on the Eastern Front. The new class hardly seemed a formidable prospect at the outset, at any rate. The first copy, assembled hastily as a showpiece for the führer's birthday, leaked so badly upon launching that it required pontoons to remain afloat; following the ceremony, it was towed immediately to dry dock for extensive repair.

The extraordinary complexity of the new boats, the novelty of the tactical concepts they made possible, and the difficulties of training new crews to man them in the mine-infested waters of the Baltic—to say nothing of the vagaries of producing them as the Western Allies relentlessly bombed German production centers—ensured that none of the roughly eighty produced by the end of 1944 was fit for action on delivery. Only two sallied forth on war patrols before the end of hostilities; neither sank an enemy vessel. Early Type XXI hulls suffered from defective diesel-engine superchargers, faulty hydraulic torpedo-loading systems, trouble-prone steering systems, and countless other deficiencies, making them decidedly less of a threat than originally foreseen. The improvised character of the boats' production made addressing these early shortcomings daunting. Basic to modern naval shipbuilding—and among the greatest challenges to effective platform development throughout the history of modern military procurement—is the feedback loop from the fleet back to the design bureau and shipyard about the actual operation of a vessel on patrol and in combat. Almost no early iteration of a ship class emerges from the slipways in a form optimized for its mission, and countless changes, large and small, factor into subsequent iterations.<sup>20</sup>

The very processes that ensure the efficiency of serial production make such loops challenging, if not impossible, to establish. It had been this concern that lay at the core of navy objections to the abdication of authority over shipbuilding to the Speer organization, and it proved a major reason for the checkered early history of the program.

Certainly, the authors of the production concept had enormous obstacles to surmount to realize its potential.<sup>21</sup> As has been noted, few of the inland firms tasked with constructing the hull segments and machinery could initially meet the standards required, at least under the fraught circumstances of a failing war and the ruthless timetables established by Speer's organization. The tolerances involved in submarine construction were and remain extremely exacting. Type XXI hull sections were initially delivered to the shipyards with deviations of up to three centimeters in some cases and had to be torn apart and reconstructed properly—with massive outlays of time and effort—in the ways. Pressure testing revealed potentially lethal defects in the welding of the first boats, a result of poorly fitting components, new inspection standards, and construction methods unfamiliar to the facilities performing them. But the design agency, engineering staff, and shipyards addressed and overcame these problems by autumn 1944.

However, easily the greatest impediment to full realization of the serial production process, as postwar assessments make clear, was the intense and devastating Allied bombing campaign against its key components, especially the shipyards and installations at the waterfront.<sup>22</sup> The increasing vulnerability of the shipbuilding industry to bombing had made it necessary to scatter and move production away from launch sites. Enormous resources and labor were devoted to the construction of an elaborate inland system of barges and cranes to transship the boat segments to the finishing yards. The delivery system never really functioned smoothly, and in any case a sizable administrative apparatus was required to oversee the just-in-time process. The ingenuity of the Merker organization was never adequate to the challenge of Allied strategic bombing, the downstream effects of which were felt at every point.

As Tooze sensibly points out, “the disappointment of the XXI programme was due to the familiar problems of pushing a revolutionary new design straight from the drawing board into mass production, without extensive testing.”<sup>23</sup> He faults the Speer ministry in particular, for clinging stubbornly to the system of dispersed sectional construction, arguing that an evolutionary approach to production, instead of a revolutionary new one, would have likely yielded more favorable results. Indeed, the engineer Friedrich Schürer raised such concerns in late 1943, as the joint complications involved in both a radical new platform and novel methods of engineering and production became increasingly clear.



He suggested that the construction of the first boat proceed in a conventional, customized fashion, to develop experience with the platform itself. As Merker pointed out, however, to build the first Type XXI by conventional means would require no less than eight months, while the sectional method, however flawed, would require only four. The entire apparatus of dispersed sectional construction, moreover, was scheduled to commence operation in April 1944.<sup>24</sup> Merker's argument cuts to the entire point of the program—time was of the essence. The desperate operational and strategic circumstances of the German naval campaign in the Atlantic necessitated no less than an all-or-nothing approach to the production of the only platform that offered any prospect of success against an overwhelming Allied technological and materiel advantage.

As Dönitz well understood, a small number of even superlative boats would have produced little change in the Atlantic. The only hope for an effective naval interdiction strategy lay in building the Type XXI in numbers similar to, or greater than, those in which the Type VIIs had been constructed before 1943, thereby overcoming simultaneously the Allied superiorities in technology and in materiel. As we have seen, that goal was not achieved. But even so, it is astounding that a platform as complex and resource intensive—by the standards of any combatant nation—as the Type XXI could move from the drawing board to the water in a year, and by a radically new manufacturing process. The technology of the platform itself ultimately amounted to no more than an incremental or evolutionary improvement in the German ability to close the Atlantic; it most probably would not have realized the extraordinary effectiveness hoped for by its proponents then and admirers today. But the innovative method of constructing the new class represented a revolutionary transformation of economic practice in a war defined primarily by the mobilized productive potentials of the combatants.

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#### NOTES

An earlier version of this article was delivered to the U.S. Naval Academy's Seventeenth Naval History Symposium in September 2011 and will be appearing as chapter 9 of the selected proceedings of that symposium, *New Interpretations in Naval History*, forthcoming from the Naval War College Press.

1. Adam Tooze, *The Wages of Destruction: The Making and Breaking of the Nazi German Economy* (London: Allen Lane, 2006), pp. 611–18.
2. See the definition, building on the enthusiastic notions of Alvin Weinberg about nuclear

power and the guarded optimism of John G. Burke in his reflections on engineering education, in Lisa Rosner, ed., *The Technological Fix: How People Use Technology to Create and Solve Problems* (New York: Routledge, 2004), pp. 1–3. A technological fix is a useful innovation intended to solve a problem but that frequently distracts attention from other or better solutions or leads to worse problems. The record of such fixes in areas as wide-ranging as horticulture and computer networking demonstrates that initial assumptions are rarely, if ever, fulfilled, and

- that technological fixes generally wind up as partial solutions to complex problems.
3. Karl Lautenschläger, "Technology and the Evolution of Naval Warfare," *International Security* 8, no. 2 (Fall 1983), p. 5; Phillips Payson O'Brien, ed., *Technology and the Evolution of Naval Combat in the Twentieth Century and Beyond* (Portland, Ore.: Frank Cass, 2001).
  4. Bundesarchiv-Militärarchiv [hereafter BA-MA] RM6/374, Die deutsche Seekriegsführung, 6 August 1945. Dönitz's interim solution to the high losses—reallocation of assets to other theaters and truncated patrol patterns—amounted to a temporary strategic abandonment of the Atlantic war.
  5. Frigattenkapitän Heinz Assman, "Entwurf der Lagebeurteilung vom 20. September 1942," cited in Werner Rahn, "Der Seekrieg im Atlantik und Nordmeer," in *Das Deutsche Reich und der Zweite Weltkrieg*, vol. 6, *Der globale Krieg: Die Ausweitung zum Weltkrieg und der Wechsel der Initiative 1941 bis 1943*, ed. Militärgeschichtliches Forschungsamt (Stuttgart, Ger.: Deutsche Verlags-Anstalt, 1990), p. 304.
  6. "Lagebetrachtung vom 20. Oktober 1942: Stand und Aussichten der U-bootkriegs, Anlage 1," in *Die deutsche Seekriegsleitung*, vol. 3, *Denkschriften und Lagebetrachtungen*, ed. Michael Salewski (Frankfurt am Main, Ger.: Bernard & Graefe, 1973), p. 303.
  7. The author gladly concedes that there are grounds to argue that either a strategic abandonment of the Atlantic to the Western Allies or a less-intensive spoiling strategy of limited commerce interdiction and harassment would have been a more sensible alternative to the decision to redouble the effort. Such concerns belong in another venue; for strategic context, see Werner Rahn, "Strategische Optionen und Erfahrungen der deutschen Marineführung 1914 bis 1944: zu der Chancen und Grenzen einer mitteleuropäischen Kontinentalmacht gegen Seemacht," in *Deutsche Marinen im Wandel: vom Symbol nationaler Einheit zum Instrument internationaler Sicherheit*, ed. Rahn (Munich, Ger.: Oldenbourg, 2005), pp. 220–25.
  8. A good introduction is provided by Ulrich Albrecht, "Military Technology and National Socialist Ideology," in *Science, Technology and National Socialism*, ed. Monika Renneberg and Mark Walker (New York: Cambridge Univ. Press, 1994), pp. 88–125.
  9. Serious scholarship on the *Wunderwaffen* and the interconnections of technology, politics, military research and development, the armaments industry, and the administrative organization of the Third Reich remains limited to Ralf Schabel, *Die Illusion der Wunderwaffen: die Rolle der Düsenflugzeuge und Flugabwehrraketen in der Rüstungspolitik des Dritten Reiches* (Munich, Ger.: Oldenbourg, 1994), and Michael J. Neufeld, *The Rocket and the Reich: Peenemünde and the Coming of the Ballistic Missile Era* (New York: Free Press, 1995).
  10. George Raudzens, "War-Winning Weapons: The Measurement of Technological Determinism in Military History," *Journal of Military History* 54, no. 4 (1990), pp. 403–34. Raudzens's conceptual confusions and imprecisions notwithstanding, his argument underscores how strongly wedded many in the modern age of military conflict have become to technological panaceas.
  11. Emil Kruska and Eberhard Rössler, *Walter-U-Boote*, Wehrwissenschaftliche Berichte (Munich, Ger.: J. F. Lehmann, 1969), vol. 8. On Walter, see Karl Günther Strecker, *Vom Walter-U-Boot zum Waffelautomaten: die Geschichte eines großen deutschen Ingenieurs und der erfolgreichen Konversion seiner Rüstungsfirma* (Berlin: Köster, 2001).
  12. Ölfken, cover letter to a staff lecture, 30 November 1943, p. 123, BA-MA RM 7-98.
  13. Abschrift, Typ XXI Entstehungsgeschichte, 25 June 1943, 0143, BA-MA N379-146.
  14. Thomas Parke Hughes, "The Evolution of Large Technological Systems," in *The Social Construction of Technological Systems: New Directions in the Sociology and History of Technology*, ed. Wiebe E. Bijker, Thomas P. Hughes, and Trevor J. Pinch (Cambridge, Mass.: MIT Press, 1987), p. 73. Similarly, "as the system evolves toward a goal, some components fall behind or out of line. As a result of the reverse salient, growth of the entire enterprise is hampered, or thwarted, and thus remedial action is required"; Hughes, *Networks of Power: Electrification in Western Society, 1880–1930* (Baltimore, Md.: Johns Hopkins Univ. Press, 1983).

15. Hughes, "Evolution of Large Technological Systems," p. 75.
16. See Seekriegsleitung IIIa to I op, 24 June 1943, pp. 425–26, BA-MA RM 7-98, for a penetrating and refreshingly frank German "red team" analysis of the limitations of the Type XXI as a prospective undersea platform. Such dissenting assessments by senior naval staff personnel reveal a rejection of the basic operational and tactical suppositions of the new program. Of greater historical significance, however, is the argument that the doctrinal and technological prerequisites for defeating a Type XXI-like threat were by 1945 already securely in place; see Owen R. Cote, Jr., *The Third Battle: Innovation in the U.S. Navy's Silent Cold War Struggle with Soviet Submarines*, Newport Paper 16 (Newport, R.I.: Naval War College Press, 2003), pp. 13–18.
17. Ölfken and Arendt, "Die Baumethoden der deutschen U-Boote," 28 March 1948, p. 18, BA-MA N518-5.
18. Hauptamt Kriegsschiffbau, Aktenvermerk, 13 October 1943, pp. 18–19, BA-MA N379-146. As the note makes clear, a conventional construction path for the first boat was considered and rejected.
19. Heinrich Waas, "Eine Besprechung über den U-Boot-Krieg bei Hitler in der Reichskanzlei im Herbst 1942 und ihre Bedeutung für den Kriegsverlauf," *Geschichte in Wissenschaft und Unterricht* 38 (1987), p. 692.
20. Memorandum to Admiral Fuchs, re Organisation K-Amt, 19 June 1944, BA-MA N379-146.
21. The U.S. Navy began designing and constructing nuclear-powered attack submarines in large modular segments in the late 1980s and encountered problems nearly as debilitating as those to which the Type XXI production method gave rise. The construction yards at Electric Boat and Newport News required years to work the kinks out of what has since become a smooth process. See William J. Brougham, "Accuracy Control Risk Management for Modular Submarine Hull Construction" (master's thesis, MIT, Cambridge, Mass., 1999).
22. On the scale of the problem during the war, see "Über die Besprechung des Ob.d.M. mit dem Führer auf dem Berghof vom 4.–6. Mai 1944," 17 May 1944, pp. 242–45, BA-MA RM 7-189.
23. Tooze, *Wages of Destruction*, p. 616.
24. Hauptamt Kriegsschiffbau, Aktenvermerk, 13 October 1943. See also Dr. Heinrich Ölfken, Vortrag, pp. 126–27, BA-MA RM 7-98.

## BOOK REVIEWS

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### DO NO HARM

Levinger, Matthew. *Conflict Analysis: Understanding Causes, Unlocking Solutions*. Washington, D.C.: U.S. Institute of Peace Press, 2013. 265pp. \$20

Conflict resolution is often compared to medicine. Both fields pursue research not as an end in itself but to relieve suffering and promote healing. Both have as their first tenet “Do no harm.” Writers on conflict too must display academic rigor yet show sufficient clarity and force to engage a diverse readership. Most importantly, they must offer ideas that will be helpful in real-world situations.

Levinger’s book excels on all these counts. This work, focused on large-scale violence, is intended as a “practical reference and field guide” for diplomats, military officers, development specialists, nongovernment organizations, and corporations operating in conflict zones. Levinger is highly qualified for this task, having held positions in executive education on conflict management at the U.S. Holocaust Memorial Museum, the United States Institute of Peace, and George Washington University, where he is currently visiting professor of international affairs and director of the National Security Studies Program at the Elliott School.

A three-part structure addresses the nature and causes of conflict, analytical

tools, and a process for transforming analysis into action. Of particular value is the attention Levinger gives to the social dynamics of collaborative analysis, illuminating how interaction among individual and institutional participants can affect outcomes, both positively and negatively.

Levinger begins on a cautionary note, pointing out that while the level of conflict has declined since the Cold War, resource shortages and other factors could reverse that trend. He reviews leading theories on conflict’s causes, offering useful insights into the psychology of escalation and the role of women in reducing conflict as well as sustaining it. A chapter on risk assessment and early warning discusses monitoring systems, including the U.S. government’s Monitoring Progress in Conflict Environments program. Levinger stresses early detection of genocidal violence, which can be “more explosive and extreme than other conflicts.”

The section on analytical tools describes conflict assessment frameworks, narrative analysis, conflict mapping, and scenario analysis. All are

powerful instruments, but Levinger offers caveats. He recommends beginning with a self-assessment to clarify one's own interests, and he cautions that any analysis can only be a "snapshot." Moreover, "in many cases, the interpersonal relationships and the deliberative process established during the conflict assessment will be more valuable than any specific conclusions."

An illuminating chapter on "cognitive minefields" addresses three challenges familiar to many readers: groupthink, "black swans," and psychic numbing. Regarding the latter, Levinger argues that contrary to conventional thinking, emotional response is integral to sound decision making. In the words of psychologist Paul Slovic, the ideal process is "a dance of emotion and reason."

Levinger prescribes five steps for integrating analysis into program planning and implementation: framing the problem, defining objectives, conducting situational analysis, designing a program of action, and monitoring progress. More discussion would have been useful here on specific ways of integrating senior leaders' perspectives into working-level deliberations and on helping them in turn to grasp the dynamic complexity of volatile situations. As Levinger notes, "conflict analysts should not seek to become decision makers, but rather to help decision makers become better conflict analysts themselves."

Levinger offers illuminating case studies, tables, charts, and boxes highlighting key points. The comprehensive appendixes, glossary, and list of resources add further to the value of this book. It should be standard reading in every security-studies program.

LAWRENCE MODISSETT  
*Portsmouth, Rhode Island*



Harrison, Ross. *Strategic Thinking in 3D: A Guide for National Security, Foreign Policy, and Business Professionals*. Washington, D.C.: Potomac Books, 2013. 197 pp. \$29.95

Ross Harrison, a professor at Georgetown University and well-known strategic theorist, takes the novel approach that the basic tenets of strategy are applicable to nearly all human endeavors. Rather than accepting the traditional view that the strategic theory relevant to a national-security professional is inapplicable to a corporate executive, Harrison introduces a multistep approach to identifying and applying what he characterizes as universal strategic principles.

Harrison sees the aim of all strategies, regardless of the field in which they are utilized, as being to navigate a multidimensional external environment to the ultimate benefit of one's chosen endeavor. Whether you are a military officer confronting an asymmetric-warfare challenge or an entrepreneur seeking to expand your product's market share, the underlying principles of sound strategy remain constant. Harrison identifies three unchanging dimensions in any strategy: systems, opponents, and groups.

The author states that systems relate to the external environment confronting all strategies, a "web of relationships where a change in one part has an effect on the other parts." A "system" can be as defined as a formal alliance, like the North Atlantic Treaty Organization, or as diffuse as the entire Middle Eastern region and its political, economic, and cultural characteristics. Harrison's most subtle and nuanced proposition is that the formulation of strategy in the context of external

environments is directly impacted by the systems that shape that environment.

Harrison's discussion of the opponent—whether a transnational terrorist organization or a corporate competitor—as a universal dimension of strategy builds on his understanding of systems. While one can seek to change the external environment in one's favor by strategizing against a system—for example, U.S. efforts to promote democracy in the Middle East as a long-term strategy to prevent radicalization and extremism—there is a more direct approach available against individual opponents. Businessmen can assess their competitors' products and decide to invest in specific market areas where they perceive opponents to be weak. National-security strategists can recommend the implementation of counterinsurgency strategies focused on protecting local populations because they perceive opponents to be alienating the citizenry.

Finally, Harrison discusses the impact of groups on strategy, whether citizens organizing to protest a business's environmental record or mass public opinion impacting the strategies of governments. By enunciating his concept of groups, systems, and opponents, Harrison performs the service of providing broad categories encompassing virtually all the actors that confront strategists of either a commercial or security bent. In so doing he underlines the point that regardless of the area of endeavor, a strategist will face conceptual frameworks very similar to those facing colleagues in other fields. An important addition to the study of strategy, *Strategic Thinking in 3D* does much to expand the traditional understanding of strategic theory from a narrow subject lacking commonality between

multiple fields of activity to a universal framework for achieving one's goals.

ALEXANDER B. GRAY  
*Washington, D.C.*



Simpson, Emile. *War from the Ground Up: Twenty-First-Century Combat as Politics*. New York: Oxford Univ. Press, 2012. 256pp. \$32.50

Emile Simpson served in Afghanistan as an infantry officer in the Royal Gurkha Rifles. At first glance, the book might appear to be an account of his experiences there; in fact, however, it is a sophisticated examination of twenty-first-century warfare and of the employment of the military instrument of power. Its front cover is embellished with the endorsement "Deserves to be seen as a coda to [Prussian military theorist/philosopher Carl von] Clausewitz's *On War*." This is no small feat, and Simpson delivers an intellectually sophisticated account of the changed nature of warfare, examining war through two lenses. The first lens is the traditional use of armed force to seek to create military conditions within which a political settlement can be reached. Second, he examines armed force deployed for a distinctly political purpose. While these modes are by no means mutually exclusive and can be employed by the same actor at the same time against the same enemy, Simpson asserts that understanding the difference between these two is essential to achieving national-security objectives in the twenty-first century.

Simpson continually refers to two ideas from Clausewitz. The first is polarity—the simple idea that wars are usually contests fought between two sides. The second idea is that traditionally, strategic



audiences are contained within the nation-state structure. When war is a contest between two sides, the audiences are easy to identify, and traditionally these audiences understand the outcome of the war in terms of the contest between the armed forces of the sides. When multiple strategic audiences, some of them not contained within or associated with nation-states, do not understand or interpret the military outcome in the same way, “the military outcome does not provide a stable basis upon which to define a conflict’s outcome.” Simpson argues that “strategic confusion can result when conflicts characterized by competition between many actors in a fragmented political environment are shoehorned into a traditional concept of war, which is two polarized sides.” The information revolution and advances in communications and social media have exacerbated this problem, forcing overlap not only between the tactical and strategic levels of war but between the tactical and policy levels as well.

Simpson describes war as a competition between strategic narratives. Accordingly, planners at all levels should be targeting strategic audiences as centers of gravity. It is a matter not so much of the Clausewitzian dictum that war is designed to compel your enemy to do your will but of compelling your target audience to understand your message. *War from the Ground Up* provides case studies for this proposition ranging from the coalition effort in Afghanistan in 2006 to the British strategy in the Borneo conflict in the mid-1960s. The author also addresses other insurgencies throughout the narrative, including the conflict in Sri Lanka and Russian operations in Chechnya, and refers to the work of prominent authors who

have weighed in on the changed nature of warfare in the twenty-first century, such as David Kilcullen, Colonel Gian Gentile, and Antonio Giustozzi. A visiting defense fellow at Oxford in 2011, Simpson fuses a firm grasp of traditional humanities and philosophy with his experience in Afghanistan.

He has provided us with what may be one of the most important books on strategy in a long time. No short review can do justice to this remarkable book, which should be read by all military officers and policy makers, as well as anyone involved with the planning and execution of military operations.

JEFFREY SHAW  
*Naval War College*



Erickson, Andrew S. *Chinese Anti-Ship Ballistic Missile (ASBM) Development: Drivers, Trajectories, and Strategic Implications*. Washington, D.C.: Jamestown Foundation, 2013. 110pp. \$18

Andrew S. Erickson is a leading authority on Chinese naval developments. His research and linguistic abilities are matched by his careful, systematic analysis. In this work Erickson thoroughly surveys the existing literature in English and Chinese addressing Beijing’s efforts to deploy antiship ballistic missiles (ASBMs) able to strike large warships at ranges of more than a thousand miles.

The author credits China with developing ASBMs as part of its strategy of “using the land to control the sea.” However, this represents a misinterpretation of naval history. While it is true that “a ship’s a fool to fight a fort,” it is also true that no nation has successfully defeated a naval force with land power alone. Examples include President Thomas Jefferson’s

construction of coastal forts and of a fleet of inshore gunboats to fight Britain's global navy, and the successful U.S. amphibious campaign against Japan's island bastions in World War II.

Erickson's key question is, How successful is China's ASBM system? He concludes that a functioning ASBM has been developed by Beijing but that final operating capacity remains a work in progress. Erickson highlights a crucial weakness in China's efforts to deploy such a complex system of systems when he describes the "tremendously complex and difficult process" of ensuring "extremely close coordination" among several branches and agencies in a Chinese bureaucracy notable for lacking that attribute.

The ASBM-warhead issue is not satisfactorily addressed in the literature. Why would a U.S. commander assume that an incoming ballistic missile is armed with a conventional warhead and not a nuclear one? Employing ASBMs poses a possibly insuperable danger of escalation from conventional to nuclear warfare. As Erickson points out in his conclusion, "PLA sources reveal overconfidence in China's ability to control escalation, which is itself an extraordinary danger."

The author's conclusion that an aircraft carrier group "would have a large electromagnetic signature" ignores the progress made in the 1980s in operating under dramatically reduced electronic emissions conditions. Also, the author errs if he attributes to China a unique policy of "asymmetry" in the development of weapons designed to counter U.S. military strengths. Any intelligent military does that. I also question the author's conclusion that the United States is "on the 'wrong end of physics'" with respect to matching China

militarily, in view of his inability to describe countermeasures presently under development or in force.

However, these are minor criticisms of a thoughtful evaluation of current Chinese efforts to defend the homeland and exert control over the waters Beijing believes vital to national-security interests. Also impressive is Erickson's appreciation of the possibility of "deeply destabilizing" strategic effects of successful Chinese maritime control strategies on the Asian political situation—that is, a successful ASBM will not simply be a tactical weapon. This is a book that every naval officer and civilian analyst must read.

BERNARD D. COLE  
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Nordquist, Myron H., and John Norton Moore, eds. *Maritime Border Diplomacy*. Boston, Mass.: Martinus Nijhoff, 2012. 366pp. \$146.98

In 2011 the thirty-fifth annual conference on the law of the sea and oceans policy was held in Bali, Indonesia. The conference attracted (as it always does) an impressive array of presenters and attendees. The editors offer with this work a compilation of the papers presented. Perhaps because they made no concessions to make the presentations "accessible," the result is something of a rarity—a compilation that remains interesting and useful. Each of the seven sections has much to recommend it. All are potentially useful, and the "Dispute Settlement Mechanisms" section is especially well presented.

This collection is a fascinating spectrum of topics ranging from specific cases, such as the "2008 China-Japan Agreement on Cooperation for the

Development of East China Sea Resources” and “Law of the Sea Aspects of Indonesian National Legislation on Submarine Communication Cable,” to much broader tropics. These include at least one discussion on climate change.

The issue of maritime boundaries (as one hopes most readers of the *Naval War College Review* will know) is highly complex, and some of the more notable disputes of the present are so charged as to carry with them the potential to escalate into hostilities. Perhaps the contending claims over the Paracel and Spratly Islands are the best known of these disputes, but maritime disputes can be found in every ocean in the world. Set against a backdrop of continuing tensions in the South China Sea and the U.S. “pivot” to the Pacific, this work is especially timely. It is also varied. Not only is the Paracel-Spratly dispute addressed, but so are issues involving the United States and Mexico, and Canada and France.

The contributing authors are an impressive lot. They include senior government ministers, ambassadors, senior members of foreign ministries, and scholars of international maritime law. Unfortunately missing from the lineup are military or coast guard authorities, who would have brought yet another point of view to the discussion.

Not surprisingly, this work ranks high on rigorous scholarship, meticulousness of citation, and careful crafting of arguments. The tone, however, is legalistic, and in many cases the authors clearly expected from the audience familiarity with ongoing arguments and history that a lay reader might not possess.

One of the more surprising facets of this book is the optimism of the authors, taken together, about finding

peaceful solutions to the issues. As Ian Townsend Gault points out, such techniques as zones of cooperation, while by no means perfect, may be more effective than they seem at first glance. Also, Rodman R. Bundy’s discussion on potential approaches to dispute resolution utilizing the services of a third party is illuminating.

Those with more than passing interest in these issues should definitely read this book. It is well written, organized, and delivered. It deserves a place on the bookshelf of any maritime-related business, government office, or law firm. Unfortunately, it is not likely to become a household item, because of its technical and legal focus, not to mention its cost.

RICHARD NORTON  
*Naval War College*



Struett, Michael J., Jon D. Carlson, and Mark T. Nance, eds. *Maritime Piracy and the Construction of Global Governance*. New York: Routledge, 2013. 226pp. \$29

Piracy presents an extraordinary set of challenges to navies, law-enforcement agencies, jurists, shipowners, and seafarers, challenges that have generated a voluminous literature. Historical piracy has become a subject du jour, and there is even an evolving discipline of piracy studies.

Piracy also challenges international-relations theory. Most theoretical responses have been either neorealist or neoliberal, viewpoints that assume that both states are the central actors, acting rationally under unitary governments. Neorealism seeks to explain piracy (most studies have focused on Somali piracy without reference to the attacks

that have occurred in Southeast Asia or off Nigeria) in terms of state failure, and counterpiracy as the maximization by states of their competitive advantage over other states in an international system where material capabilities are changing. For its part, neoliberalism argues that states seek to create norms and shape them through international institutions. These facilitate cooperation and enable states to act through them under international law, albeit for self-interested reasons. Exponents of this theory see United Nations action and UN Security Council resolutions as reflecting the aims and objectives of their sponsoring powers. It also explains why so many developmental initiatives have foundered within Somalia—because they seek to aid the creation of a Western-style liberal democracy rather than political arrangements that may align more closely with Somali political and clan structures.

However, the book under review also collects a number of essays articulating a third approach, called constructivism. That theory departs from state-centric, rationalist approaches to suggest that social processes, including norms other than international ones, as well as issues of identity, inform security interests across a range of players and shape their actions accordingly.

This collection focuses particularly on the topic of global governance, a construct that places particular emphasis on institutions and regimes (in this case security regimes) and implies that international institutions are actors in their own right. In this view, these actors have objectives that are often different from those of their member states and that in turn shape the behavior of those states and of nonstate actors. Interestingly, and rightly, it takes the view that

because piracy occurs in a space outside territorially bounded state authority, maritime depredation asks profound questions about who exactly decides what is right and wrong, and why.

Several contributors make the point that differences between state responses to piracy reveal governance gaps in the interstate system, gaps that pirates have exploited—and states too, a point emphasizing the indissoluble connection between piracy and state action. The role of international law comes under particular scrutiny. Legal discourse has played a crucial role in framing the piracy problem in the modern era, arguably at the expense of political and economic approaches.

In the end, this important and useful book asks everyone with an interest or a role in piracy issues to confront questions that affect all users of the sea, military and civilian. Are we witnessing the end of an old regime, the reactivation of old legal mechanisms, or the development of a global governance regime based on international institutions? Moreover, where will this process end and will notions of universal jurisdiction, and perhaps global citizenship, spread out from their current enclaves and touch us all?

MARTIN MURPHY  
*Alexandria, Virginia*



Anderson, Scott. *Lawrence in Arabia: War, Deceit, Imperial Folly, and the Making of the Modern Middle East*. New York: Doubleday, 2013. 592pp. \$28.95

As the subtitle suggests, the First World War, with its unintended consequences, unbridled imperial ambitions, and a

complicated maze of duplicitous dealings among untrusting allies, underlies the making of the modern Middle East. One could easily add martial lunacy to this list of horrors, as this brief but highly relevant treatment of Britain's mismanagement of the Gallipoli, Mesopotamia, and Gaza campaigns will attest.

None of this is news, but the topic has garnered a great deal of attention in recent years. Anderson covers the familiar ground well, outlining the political, diplomatic, military, and economic drivers of imperial ambitions as the Western allies plotted the dismantling of the Ottoman Empire. In telling this tale Anderson discusses the usual suspects: Mark Sykes, Henry McMahon, King Husayn, Faisal ibn Husayn, Lord Kitchener, and a host of others. More interestingly, however, he ties in as well a number of important players who generally get short shrift. The German diplomats Max von Oppenheim and Curt Prufer are major players in the story. So too is Djemel Pasha, the Turkish governor of Syria. The role of the American William Yale, first as an officer of Standard Oil Company of New York and later as a special agent for the State Department, is also significant, if only for beginning a ninety-five-year tradition of fundamentally misreading the region. Finally, the importance of Aaron Aaronsohn and his Zionist spy ring that supported British operations in Palestine receives its due.

Anderson's T. E. Lawrence is a complicated and enigmatic man who "seemed intent on baffling" historians. Noting his many admirable and not-so-admirable qualities, Anderson neither praises nor condemns but rather tries to understand this hugely talented but ultimately unsuccessful man. Relying heavily but not uncritically on

Lawrence's writings, Anderson attributes his tactical, operational, and essentially political-military successes to brilliance, timing, and sheer luck—the latter largely owing to his managing to avoid the consequences of having infuriated any number of very senior officers. Anderson portrays well the tension caused for Lawrence by the duplicity of British and French diplomacy vis-à-vis the Arab uprising between his loyalty to Britain and his sense of personal honor.

Among the cast of dishonest brokers Anderson paints as the worst Mark Sykes, a brilliant but unprincipled diletante with no apparent compunction against lying to his own government or to Britain's allies. Working diligently to advance Britain's imperial interests by managing the flow of (and often inventing) information, Sykes accumulated a great deal of responsibility for the postwar mess that was and remains the Middle East. Others contributing to the mess are a whole bevy of senior British and French officials, and also Woodrow Wilson, whose profound ignorance, idealism, and arrogance opened a Pandora's box of ethnic and nationalist desires that still smolder throughout the region. As for the Arabs, often portrayed as victims, they seem here not to have been as gullible as it may appear. Citing Husayn's and Faisal's not-always-aboveboard diplomacy, aided by Lawrence's unauthorized revelation of the secret Sykes-Picot agreement, Anderson argues that the Arabs were not exactly "rubes" when it came to power politics.

A journalist by trade, Scott Anderson is a frequent contributor to a variety of periodicals and the author of two novels and several books of nonfiction. His bibliography is extensive, but the paucity in it of Arab and Turkish sources is notable.

In addition, his use of nonstandard notations can render specific citations a little fuzzy. This is a minor issue, however, as Anderson's synthesis is superb, his analysis is sharp, and his writing style is engaging. All in all, this is a very useful contribution to the body of work, one that helps foster a better understanding of the dynamics shaping today's Arab Spring and beyond. Given America's track record in the region, anything that helps broaden our understanding of the Middle East can only be a good thing.

THOMAS E. SEAL, COLONEL, U.S. MARINE CORPS,  
RETIRED  
*Stafford, Virginia*



Boscawen, Hugh. *The Capture of Louisbourg, 1758. Campaigns and Commanders*. Norman: Univ. of Oklahoma Press, 2011. 504pp. \$39.95

The British amphibious operation to capture the French fortress at Louisbourg in Canada during the Seven Years' War was the largest joint operation undertaken by British forces in that period. This major event in naval history has not been overlooked by historians, but no one until Colonel Hugh Boscawen, British Army (Ret.), has been able so effectively to combine the skills of an experienced army officer with those of an insightful modern historian in analyzing this campaign and its commanders.

A direct descendant of the British naval commander at the capture of Louisbourg, Admiral the Honorable Edward Boscawen, Colonel Hugh Boscawen brings his own experience of thirty years of active military service in the Coldstream Guards to bear on the subject, with his knowledge of modern-day campaign planning and execution. Such

credentials might have led an author in the wrong direction, resulting in an anachronistic and hagiographic tale full of modern military jargon. However, in Hugh Boscawen's hands they have led to a model of careful historical scholarship informed by professional military understanding, experience at sea as a yachtsman, and access to family papers. Starting out from the key conceptual point that campaigns and commanders should be seen in the context of the aims, ways, and means of their own day, Boscawen has carefully and judiciously examined the subject. Over many years, he made a thorough study of both the published English- and the published French-language scholarship. Going much farther and deeper, he examined in detail the extensive public and private records in four French and eight British archival depositories, as well as other primary-source materials in Canada, the United States, and private hands.

Colonel Boscawen opens his study with an overview of the strategic situation that the competing powers of Britain and France faced in the period immediately leading up to 1758, and of the contrasting organization of those governments and their leaders. Boscawen goes on to examine the background to the construction of the French fortification at Louisbourg, ranging from the reorganization of the defense of New France following the Peace of Utrecht in 1713 to the perception on both sides that Louisbourg had become an important trading point, the key bastion in the defense of the Saint Lawrence River and Quebec, as well as the French fisheries on the Grand Banks. When war broke out again between the two countries in 1755, neither was immediately prepared to react decisively.



Colonel Boscawen traces the initial planning for the Louisbourg campaign up to August and September 1757, when the Select Committee of the Privy Council in London began to look at priorities for the next campaigning season. By December a campaign plan had emerged and operational planning had begun; meanwhile, the French were taking their own action to strengthen their position in Canada. The British assault force began to gather at Halifax in April, while snow was still on the ground. By 2 May Admiral Boscawen had arrived, immediately selecting key land and sea officers to form a joint staff to plan the landing. Such a staff was a remarkable innovation, for which the need had already been made clear in earlier eighteenth-century British experience. Among several initiatives this group took were joint operational training and a system of operational control for the landing boats. In eighteen days in May 1758 at Halifax, fourteen British regiments, artillery, rangers, and the fleet were transformed into a cohesive expeditionary force.

Colonel Boscawen provides a detailed description of the initial assault landing, under the command of the newly arrived Major Jeffery Amherst.

Once ashore, Brigadier James Wolfe was able to gauge the range of the fortress's guns and to locate the initial position that Amherst would use for the first parallel in the siege that ensued. Turning to the French side, Boscawen follows the French as they defended their position. He then traces the action in two parts—the siege, between 1 and 15 July, and the bombardment, from 16 to 27 July.

As Colonel Boscawen points out, British success at Louisbourg marked the beginning of the end of New France, and it also began a series of British joint amphibious operations during the remainder of the war. It also showed early signs of the coming changes in military affairs, marked by increasingly organized industrial and agricultural support for larger armed forces. Boscawen's study is a model of historical analysis, judiciously dealing with both sides of this joint operation in military and naval dimensions. It is a major contribution to understanding an eighteenth-century amphibious operation.

JOHN B. HATTENDORF  
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## REFLECTIONS ON READING

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*Professor John E. Jackson is the Naval War College's program manager for the Chief of Naval Operations Professional Reading Program.*

**T**he Chief of Naval Operations (CNO), Admiral Jonathan Greenert, U.S. Navy, recently approved an update to his CNO Professional Reading Program (CNO-PRP) for the 2014 calendar year. He has declared, "I encourage you to read these relevant books—they are about our profession. The list is designed to help us learn more about our proud heritage and gain a greater understanding of what it means to be a 21st Century Sailor." The update added five new books:

- *Cybersecurity and Cyberwarfare*, by P. W. Singer and Allan Friedman, is the latest publication from two of the nation's most forward-thinking intellectuals in the field of advanced technology. Admiral James Stavridis, U.S. Navy (Ret.), describes this book as "the most approachable and readable book ever written on the cyber world. A must-read for practitioners and scholars alike." The book addresses many of the specific challenges the Department of Defense confronts in keeping pace with the latest technologies and methods for maintaining data security. In this emerging war-fighting area, where tools and tactics are constantly changing, this book will help keep the Navy's cyber warriors on the cutting edge.
- *Leading with the Heart: Coach K's Successful Strategies for Basketball, Business, and Life*, by Mike Krzyzewski and Donald T. Phillips, provides entertaining and informative lessons on how to build a culture of success. The story of Duke University basketball coach Mike "Coach K" Krzyzewski is a great example of living the American dream through hard work and dedication. The son of working-class Polish immigrants, he earned a scholarship to the U.S. Military Academy at West Point, where he first played and later coached basketball. His secrets to success are communication, trust, collective responsibility, caring, and pride. The parallels for a military leader—such as in team building, dealing with high turnover rates, and learning

to overcome defeat—are readily apparent. As the title advertises, there is something for every reader, in every walk of life, to take away from this inspirational book.

- *The Trident: The Forging and Reforging of a Navy SEAL Leader*, by Jason Redman and John Bruning, tells the story of Lieutenant Jason Redman's odyssey as a Navy SEAL and wounded warrior. His experiences as an enlisted man who rose through the ranks and earned a commission reflect the inspiring courage, dedication, and commitment he showed throughout his career. Redman was severely wounded in a firefight in Iraq and earned national attention when he posted a sign on his hospital door at Bethesda warning all who entered not to feel sorry for him because of his wounds. In his introduction to the book, Robert Gates, formerly Secretary of Defense, writes, "There already are many books on the wars in Iraq and Afghanistan. There will be more, including by those who experienced the fire of combat. This story, though, is not just about a SEAL on the Iraqi battlefield, but a SEAL at war with himself and his ultimate victory. I believe his story will inspire the reader, just as it did me."
- *Turn the Ship Around*, by Captain David Marquet, U.S. Navy (Ret.), recounts the true story of how the fast attack submarine USS *Santa Fe* (SSN 763) went from worst to first in the Pacific Fleet. Captain Marquet describes his experience as a new commanding officer of *Santa Fe* and the creative approach he used as the crew prepared for its scheduled deployment just six months after he took command. This book takes traditional, business-oriented management books one step farther by translating the valuable lessons of seasoned business leaders into a story to which Navy readers can relate—of a typical command overcoming challenges and getting ready to go to sea.
- *The Twilight War*, by David Crist, details the past three decades of U.S. military operations in the Persian Gulf region, including the formation of U.S. Central Command and the Fifth Fleet Naval Headquarters in Bahrain. Every chapter of *The Twilight War* pulls back the curtain from previously undisclosed and often underappreciated events that have shaped U.S.-Iranian relations. This masterfully researched historical account focuses on those relations since the fall of the shah of Iran and the beginning of the Iranian Revolution.

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JOHN E. JACKSON

*(Thanks to Commander Dan Dolan, U.S. Navy, for assistance with this article.)*