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Cover

Thirty-inch terrestrial library globe made by Sir William and Alexander Keith Johnston of Edinburgh, Scotland, ca. 1900. From the Naval War College Museum collection. In "Exporting Security: China, the United States, and the Innovator's Dilemma," Robert C. Rubel suggests that a different way of looking at the world, among other approaches, would help clarify U.S. and global understanding of China's developing international relationships and their implications.

NWC photo.

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Allied Navies

FROM THE EDITORS

The outcome of the American presidential election in November of last year is a seismic event for not only Americans but the world. It is an unmistakable sign of what can only be described as an ongoing crisis of globalization. In "Exporting Security: China, the United States, and the Innovator's Dilemma," Robert C. Rubel reflects on the significance of the challenge to the liberal global order—and the role of the United States as its principal sponsor—by the People's Republic of China (PRC). Using an analogy from the corporate world, he argues that, rather than attempting to compete with the United States directly in expanding its influence beyond its traditional sphere, China appears to be pursuing an alternative "business model" that offers it a competitive advantage in a world decreasingly committed to liberal values, especially with regard to trade, human rights, and democracy. Rubel draws no firm conclusions about possible U.S. responses to this challenge, but acknowledges there are few good options. It would be interesting to speculate on the implications of this analysis for the U.S. Navy, with its stated commitment to fostering international maritime cooperation in defense of the liberal global order. Robert Rubel is the former dean of the Center for Naval Warfare Studies at the Naval War College.

As John Hanley reminds us, war gaming has been a hallmark of the Naval War College since the late nineteenth century. During the interwar years it played a particularly important role in preparing senior officers of the U.S. Navy to prosecute the Pacific War to its successful conclusion. In "Planning for the Kamikazes: Toward a Theory and Practice of Repeated Operational Games," Hanley provides an authoritative account of recent developments in war gaming at the College, notably the iterative, highly classified, tactical/operational-level gaming of potential near-term maritime conflicts conducted by the so-called Halsey Groups—interdisciplinary cells made up of faculty, in collaboration with students with fresh operational experience. He situates this discussion within the larger context of the renewed and reinvigorated interest in war gaming manifested recently at the highest levels of the Department of Defense (DoD), resulting in the ongoing effort to create a "virtual community of practice" linking war-game practitioners throughout the department. This article builds on Hanley's "Changing DoD's Analysis Paradigm: The Science of War Gaming and Combat/Campaign Simulation," which appeared in our Winter 2017 issue. John T. Hanley Jr. is a

former U.S. naval officer who has served in a number of capacities in the U.S. government, most recently as director for strategy in the Office of the Director of National Intelligence.

One of the immediate challenges facing the incoming Trump administration has to do with North Korea's developing nuclear weapons capability. Sukjoon Yoon, in "Expanding the ROKN's Capabilities to Deal with the SLBM Threat from North Korea," focuses on a dimension of the Democratic People's Republic of Korea (DPRK) nuclear program that has received relatively little attention: nuclear-armed, submarine-launched ballistic missiles. He provides an authoritative account of what is known of DPRK efforts in this area, what their implications are for regional security, and what South Korea specifically needs to do to counter them or deter their use. Sukjoon Yoon is a former Republic of Korea naval officer and senior fellow of the Korea Institute for Maritime Strategy.

Much attention has been given over the last several years to the PRC's relentless drive to establish sovereignty over the South China Sea through the development and militarization of artificial islands there. Less often remarked is the place of China's coast guard and maritime militia in this maritime equivalent of so-called hybrid warfare. In "Blunt Defenders of Sovereignty: The Rise of Coast Guards in East and Southeast Asia," Lyle J. Morris examines this transformation in traditional coast guard roles and missions, by not only the Chinese but their regional rivals as well, and discusses its implications for security in the region. Lyle Morris is a policy analyst at the RAND Corporation.

Finally, Steven Paget's "Coming Full Circle: The Renaissance of Anzac Amphibiosity" offers a richly detailed discussion of the renewed, systematic attention that Australia and New Zealand are giving to amphibious operations and capabilities, in cooperation with the U.S. Marine Corps, the U.S. Navy, and other regional partners. Steven Paget is a senior fellow at the University of Portsmouth, United Kingdom.

IF YOU VISIT US

Our editorial offices are 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 (401-841-2236).

Rear Admiral Jeff Harley is the fifty-sixth President of the U.S. Naval War College. He attended the University of Minnesota, graduating with a bachelor of arts in political science, and received master of arts degrees from the Naval War College and the Fletcher School of Law and Diplomacy, Tufts University. Additionally, he served as a military fellow at the Council on Foreign Relations in New York and is a member of the council.

Admiral Harley is a career surface warfare officer whose sea-duty assignments have included command of USS Milius *(DDG 69), Destroyer Squadron 9, and Amphibious Force Seventh Fleet. Additionally, he has served as Director, White House Situation Room; Vice Director, Strategy, Plans, and Policy (J5) at U.S. Central Command; President, Board of Inspection and Survey; and, most recently, Assistant Deputy Chief of Naval Operations for Operations, Plans, and Strategy.*

PRESIDENT'S FORUM

On Navalization

I HAVE ALWAYS BELIEVED that a leader's primary responsibility to the people he or she leads is to articulate clearly his vision for the future of the organization. In my change of command speech and in subsequent fora I have identified four broad elements of my vision: that the institution should *Operationalize, Navalize, Futurize,* and *Internationalize* (a new element) our efforts toward an overall goal of contributing to the professionalism and capabilities of the nation's future leaders. I addressed aspects of this vision in the Autumn 2016 and Winter 2017 issues of the *Naval War College Review,* and in this issue I would like to expand on the concepts inherent in *navalization*.

To anticipate and respond to changes in our strategic environment and best fulfill our mission, the College will expand the navalization of its curriculum to optimize understanding of sea control. The strategic environment of today presents access challenges that make sea control more critical than ever before. The College will align its curricula to teach joint requirements through a sea power lens. Future war fighting no doubt will be conducted as joint and combined operations, but the legacy of the Naval War College (NWC) and the institution's recognized role as the Navy's intellectual center for considering issues related to maritime-focused warfare at and from the sea must be the sine qua non of our educational and research efforts.

Our Joint Military Operations Department at the College has embraced and implemented this vision both in the Nimitz course offered by the College of Naval Warfare at the most senior level and in the Spruance course taught by our College of Naval Command and Staff faculty. These courses are, first and foremost, about war fighting and gaining sea control in a contested environment. Both are designed to challenge students intellectually in the theory and practice of war

fighting and are geared toward war fighting that will prepare our future military leaders to fight the maritime force across all warfare domains.

The Nimitz course incorporates the College's vision by using case studies emphasizing the role of maritime forces and their relation to joint warfare. The capstone design event for the 2016–17 academic year will focus on U.S. Pacific Command and the U.S. Pacific Fleet. We also will incorporate the work being done by various other NWC activities, such as the Halsey Advanced Research Groups, the China Maritime Studies Institute, and the Russia Maritime Studies Institute, to provide students with the opportunity to deal with current capabilities and issues.

The Spruance course objectives focus on developing future leaders able to cope with the ambiguity of warfare in the maritime domain, and the course enhances their skills in exercising critical and creative thought in the application of operational art and naval warfare theory. Sessions on naval tactics have been added to allow the students to participate in multiple active-learning events. The use of maritime-focused historical cases is designed to enable students to understand the evolution of naval warfare, to deduce major concepts of naval war fighting, and to apply them to a future war at sea. Not since the interwar years (1919–38) has such emphasis been placed on naval warfare, and with these changes we are introducing our students to a more-focused approach to theory, planning, and—importantly—execution.

At the macro level, both courses focus on operational art, critical thinking, operational leadership, and naval war fighting. These concepts are carried throughout each session and are designed to develop students who are skilled at employing naval power across the spectrum of conflict to achieve the maritime force of the future in support of the joint force.

We also are increasing the influence that a large dose of "salt water" has on our research and gaming activities. In the past year, the Navy Strategic Enterprise, through the vehicle of the Strategic Executive Group, has worked to provide more fleet input into the selection and prioritization of war games. This effort ensures that naval issues identified by the Chief of Naval Operations and the fleet commanders are addressed specifically in games and exercises, and the broad lessons learned from all these activities are captured and shared throughout the naval force. A new vehicle for this sharing is the Wargaming Virtual Community of Practice (known as a VCoP), which is currently in development, with an initial operational capability occurring in fiscal year 2017 on both the unclassified and classified networks.

Our Center for Naval Warfare Studies (CNWS) has strengthened its faculty in areas of navalization, specifically to address issues such as future fleet design, a reinvigorated Russian navy, and the emergence of "gray-zone" warfare at sea. The

research approach the faculty is pursuing fully recognizes and incorporates elements of the entire joint force, in collaboration with allies and partners, throughout the full spectrum of security operations and warfare.

CNWS also is providing expanded support to the academic mission of the College by strengthening the naval aspect of the core courses through increased incorporation of wargaming into the curriculum. This includes an evolving and growing Joint Maritime Operations war game in the Spruance course curriculum that specifically addresses the unique issues attendant to naval warfare and to contested war at sea in conjunction with joint and combined forces. In addition, the center's Wargaming Department has teamed with the National Security Affairs Department to develop and launch the first National Security Affairs Decision-Making Simulation game. Exposing more students to the processes and methodologies of wargaming provides them a deeper appreciation for this analytical tool and an experiential learning process centered on naval and maritime issues.

As you can see, we are making strides to be more "naval" at your U.S. Naval War College. The imperative of sea control demands that we make it so. The great John Paul Jones once said, "Without a Respectable Navy, alas America." Our efforts will help keep our Navy and joint force focused and relevant in the years ahead.

JEFFREY A. HARLEY
Rear Admiral, U.S. Navy
President, U.S. Naval War College

Professor Rubel is retired but continues to consult for the Chief of Naval Operations. He was dean of the Center for Naval Warfare Studies at the Naval War College from 2006 to 2014. Previously, before retiring from the U.S. Navy in the grade of captain, he was an aviator, participating in operations connected with the 1973 Yom Kippur War, the 1980 Iranian hostage crisis, the TWA Flight 847 crisis, and Operation DESERT SHIELD. *He commanded Strike Fighter Squadron 131 and served as the inspector general of U.S. Southern Command. He attended the Spanish Naval War College and the U.S. Naval War College, in Newport, Rhode Island, where he served on the faculty and as chairman of the War Gaming Department, in the Center for Naval Warfare Studies, before his last appointment. He has a bachelor's degree from the University of Illinois; a master's in management from Salve Regina University, in Newport, Rhode Island; and a master's in national security and strategic studies from the Naval War College (1986).*

EXPORTING SECURITY

China, the United States, and the Innovator's Dilemma

Robert C. Rubel

China's emergence as an economic and military power has absorbed considerable energy on the part of U.S. policy and strategy makers and pundits. One of the big questions is whether China will be content as a regional hegemon with global interests or will seek to displace the United States as the primary global power. A direct answer to this question is not possible, of course, because even Chinese leaders may not have settled on an explicit strategy. More likely, they will react to events as they occur and seek to take advantage of perceived opportunities.

On the other hand, a new perspective on geopolitics might help us develop insights that could underpin an explicit grand strategy for the United States that would serve its long-term interests regardless of what Chinese intentions are or might become. To be clear, this article will not espouse a particular grand strategy; it simply will offer an insight into how Chinese policies might trend, possible U.S. strategies to counter such policies, and the implications of such strategies.

The insight offered is that China is developing a web of commercial and political relationships with countries with which the United States has conflicts or that are not a focus of American policy, and that in the long run this might upset the existing global power structure.[1] This is good grist for alarmist and perhaps realist mills, but it is not offered in that spirit. Rather, the issue is as much about the intrinsic character of the United States as it is about any scheme by China. The argument required to get to this understanding is a bit intricate, but in the end the visualization of the problem is pretty straightforward. In the process, we will need to rearrange the map of the world and to draw in some innovation theory from the business world.

EMBRACING THE EDGE: MERCATOR GEOPOLITICS

Anyone who has read Halford Mackinder's seminal work *Democratic Ideals and Reality* has seen his schematic depiction of the world as a group of circles of different sizes that depict the continents in terms of either land area or population.[2] Eurasia—or, in Mackinder's parlance, the World Island—is like the sun, with the lesser continents and islands its satellites.

There are a couple of interesting subliminal messages embedded in such a depiction. The continents are blobs: self-contained, with smooth exterior surfaces. North America is pushed off to one side, and Africa does not even make the cut to be shown. The implications of this made sense in 1942; nations were sovereign entities, and it was state power that governed their interactions. Moreover, as would be natural from a British geographer's perspective, Eurasia lay to the east and America to the west. The world was composed of smooth-surfaced globules of sovereign power, with the Eurasian colossus in the middle. By 1992, of course, whatever the globular nature of Eurasia might have been previously, real or potential, it had burst into a bunch of smaller bubbles.

If we now consult Mercator charts of the world, we see that they tend to be published in one of three ways: with the Americas in the center and Eurasia split in half; with the Americas on the left and Eurasia on the right, with the Pacific Ocean split in half; or, less often, with the Americas on the right and Eurasia on the left, with the Atlantic split in half. The three depictions reflect both cartographic convenience and cultural bias. None of these depictions contain any inherent geopolitical meaning. However, there is a fourth way to lay out the map that does have such meaning. In the spring of 2012, the Naval War College created a massive twenty-four-by-forty-four-foot world map that was used as the basis for a fleet synchronization conference attended by almost all the U.S. Navy's top admirals. On this map were arrayed hundreds of ship models and unit markers representing where USN forces would be on a particular date in the future. The most revealing and interesting aspect of the whole thing was not where the ship models were placed, but how the map was configured. The war-gaming faculty, as a matter of mechanical convenience, had laid out four constituent strips, of ninety degrees of longitude each, with North America split in half and Eurasia in the center. The West Coast of the United States was positioned on the right side of the map and the East Coast on the left.

The first compelling impression to arise from this arrangement was that the U.S. Navy does not deploy out from the United States; rather, it converges on Eurasia. While perhaps a new insight, the actual practice of convergence has been the norm since 1944; Samuel P. Huntington codified it brilliantly in his 1954 U.S. Naval Institute *Proceedings* article "National Policy and the Transoceanic Navy."[3] However, on deeper reflection, we see that convergence is simply a physical

manifestation of a more fundamental geopolitical reality: the United States is simultaneously a Pacific and an Atlantic power. But even this relatively obvious truism floats on a yet deeper reality. The fact that the United States could be split in half and consigned to the edges of the map implies that there is nothing of geopolitical importance happening between New York and Los Angeles. This reflects the unified political control on a continental scale that so spooked Mackinder. Another way to put it is that the United States is a continent-sized island; but this also is too confining a perspective. Rather, the United States is viewed best as an "edge" power; an externality; the New World grown up and powerful, extending its economic and ideological tentacles into Eurasia from the edges of the map.

But that is not the end of it. Because the United States must reach out across the seas, it is inherently a maritime power. An authoritarian continental power worries about the internal security of the regime first, but what happens on its borders runs a close second. The United States, as a democratic maritime power, looks at the world in a fundamentally different way. As far back as when Hamilton was writing (many of) the essays in the *Federalist Papers,* the following logic was operative, at least in the mercantile New England and Mid-Atlantic states: if what happens overseas affects what happens here (and of course it always has), then the United States must have a voice in and influence on what happens over there. This outlook informed Hamilton's reasoning that a strong federal navy operating in the Western Hemisphere could exert influence on European powers to extract favorable economic and security policies.[4] The maritime perspective focuses on movement and communications, not borders and positions. Maritime powers, by means of securing command of the sea, maintain sanctuary for their economies during war, maintain credible contact with allies, and retain various strategic maneuver options. Webs of allies, trading partners, and friends are essential elements of a successful maritime approach to grand strategy.

For all these reasons, the bisected view of the United States on a Mercator world map produces useful insight. Whether the United States is categorized as a global hegemon, an economic empire, or simply a global leader, this perspective illustrates to us that a convergent engagement with Eurasia is almost a geopolitical inevitability; true isolationism never was, nor ever will be, a viable policy. As an edge power, the United States always is looking inward on the rest of the world, not outward from its coasts. Amplifying this effect is the national sense of mission created by the American philosophy of governance as embodied in the Declaration of Independence and the Constitution. The values of liberty and human rights are assumed to be universal, and they are protected best by means of a democratic form of government. This is an affirmative ideology that must be proselytized to confirm legitimacy.

Owing to geographic and historical circumstances, the United States is the only nation that could be an edge power. Other nations have made and will make bids for global dominance, but none are situated so perfectly, imbued so liberally with key resources (e.g., arable land, water, energy, minerals), and politically cohesive. While not claiming that the ascendance of the United States is an inevitable and permanent feature of the world, the edge view indicates that the geopolitical deck is stacked in its favor.

However, reading between the lines, as it were, we can see that American policies and strategies matter greatly in Eurasia because the United States cannot leave well enough alone. Influence and intervention have been the norm, not the exception. For Eurasian continental powers, this makes the United States, in effect, a nosy and pushy great power on their borders.

COPING WITH THE CENTER: MACKINDER'S GEOPOLITICS

Life is tough in Eurasia, especially for those who wish to govern. Its history is a sweeping panorama of invasions and counterinvasions, of empires created and destroyed. The latest grand redrawing of national borders occurred when the Soviet Union collapsed in 1991, and Russia's recent annexation of Crimea and fomenting of rebellion in Ukraine are still boiling. It is hard to regard frontiers as settled matters in Eurasia; a number of active boundary disputes still exist.

The complex geography of Eurasia has spawned multiple, highly distinct cultures that, while mutually enriching in various ways, are frequently hostile to each other. Repeated invasions and migrations over the millennia have created an ethnic patchwork that virtually guarantees that any geographically expansive great power that emerges is bound to be some form of polyglot empire within its so-called national boundaries. Most often, this results in an authoritarian regime. Strongpoints—garrisons—must populate the national territory to prevent pieces from breaking away.

Eurasian continental powers thus look from the center outward in terms of national security. Security starts with the capital and radiates outward. Borders, for a continental power, are frequently problematic. In the best case, they are formed by mountain ranges or great rivers that represent an obstacle to invasion or migration—in or out. When the border is an artificial line drawn across flat terrain, it is seen, necessarily, as a potential avenue for invasion. The continental power therefore prefers to have weak, dependent states as neighbors. Even better, if possible, the continental power's army garrisons these buffer states. However, the outer frontier of a buffer state is still a frontier, and eventually the logic of continental security requires a buffer for the buffer, and so on. There is no logical end point to buffering, perhaps best illustrated by the organic growth of the Roman Empire; but sooner or later it is halted by collision with another power.

The continental geopolitical situation has produced two strategic rules that the principal Eurasian powers generally have followed or tried to follow: (1) do not engage in two-front wars, and (2) do not allow a great power to develop on your frontiers.[5] Germany violated the first rule and suffered destruction; Russia and China have been more careful. The second rule is more problematic. Recent scholarship has revealed that Russia had a hand in fomenting revolution in China in 1905 and continuously supported multiple opposing parties over the years to keep the turbulence going and prevent the formation of a strong, unified Chinese state. Eventually Mao Zedong and the Communists won out, and now, after many vicissitudes for both countries, Eurasia is populated by a strong, economically vibrant China abutting a weakened Russia. Complicating matters, Russia faces an expanded NATO to the west, China a rising India to its south. These geopolitical circumstances are difficult enough; but the real problem is the United States.

[T]he United States is viewed best as . . . the New World grown up and powerful, extending its economic and ideological tentacles into Eurasia from the edges of the map.

For the reasons previously mentioned, the United States, as an edge power looking into Eurasia with a maritime outlook and missionary zeal, threatens both strategic rules for a continental power. First, because its interests, and thus its power, are forward, it constitutes a virtual great power on the continental power's borders. At various times, American military bases have been established in central Europe, the Middle East, the "stans," Korea, Japan, and the Philippines. The United States has conducted major military operations all around the Eurasian periphery. Second, because of its command of the seas and the inherent mobility of naval forces, and its web of alliances, economic arrangements, and friendships, the United States can pose or create a multifront challenge for any Eurasian power. For these reasons, regardless of whether the specific interests of the United States and a Eurasian power converge or diverge at any particular moment, the inherent logic of the edge versus the center makes the United States a strategic headache for the continental power. Détente and economic interdependency are good mitigating factors, but in the final analysis, it is U.S. ideology, combined with its economic and military power and its uniquely advantageous geopolitical situation, that makes the country corrosive to the strategic comfort level of Eurasian continental powers.

Another way to describe the Eurasian strategic headache is to take another look at our global Mercator chart. Again we see the United States on the edges of the chart, but a second look reveals the United States as enclosing the Eurasian world. As an enclosing power, the United States imposes limits on what Eurasian powers can do. This is true because of the U.S. propensity for and success in

cobbling together alliances, economic rule sets, and dependencies of one sort or another. The broad rubric to describe this array of arrangements is the export of security. Whereas the United States sees all these arrangements as wholesome measures meant to avert another world war and to advance human rights, a Eurasian power is bound to see pernicious meddling and impediments to the kind of security (buffer states and neutralized nascent powers) it instinctively desires.[6]

For these reasons, Eurasian powers struggle against two kinds or layers of enclosure. The first kind, geographic enclosure, consists of bordering nations, one or more of which may be competitive, and obstructed access to the world ocean. This latter issue is a consistent theme in strategic writings from Germany to China. They view the world in terms of positions and strongpoints, and cannot help but view straits and offshore islands as prison bars, regardless of who owns them or is adjacent. Even China, with an extensive coastline, sees its maritime flank enclosed, and therefore threatened, by the "first and second island chains."[7] Breaking jail necessarily means either politically neutralizing the ownership of these geographic features or outright seizure.

Even if these geographic obstacles are overcome—and they never have been, completely or permanently—there remains the suffocating web of U.S. sea power and all the alliances and arrangements it makes possible. Here again, the United States sees a "global system" of voluntary members whose growing economic interdependency is a natural and positive trend that enhances prosperity.[8] It is the United States that possesses bases and leased facilities around the periphery of Eurasia; no Eurasian power has anything remotely similar near the United States, partly because of the advantageous American geography—the coasts are clear of islands (other than in the Caribbean) that could be used. When the Soviet Union made a clumsy attempt to use Cuba, it precipitated a nuclear showdown. What is out beyond the geographic prison yard of Eurasia is the network of U.S. security relationships, ranging from formal to tacit—a strategic field of barbed wire.

Conversely, from the American perspective, the world is a wide-open, inviting place. Only this kind of outlook would permit the adoption of a Clintonian policy of "engagement and enlargement" in the 1990s and the adoption of an equally expansive maritime strategy in 2007 based on defense of the global system and a universal invitation to all navies of the world to cooperate in securing the seas.[9] Strategically, life is good for the United States; it is just a matter of keeping the inmates of the Eurasian prison calm.

THE EMPIRE STRIKES BACK: WORKING THE INTERSTICES

To shift metaphors, the United States is a strategic itch for Eurasian powers that is hard to scratch. Attacking it militarily has proved suicidal. Its political system, despite being fractious—or maybe because it is so—has produced a cohesive

polity; it is not feasible for an outsider to break it. And the United States enjoys relative (and increasing) resource autarky. What purchase might be found to gain some type and degree of neutralization?

The answer might lie in the very maritime nature of the United States. A maritime approach to grand strategy, as previously mentioned, features webs of alliances, economic pacts, and numerous other forms of interdependencies. If these links could be broken, the United States would be less able to act as an edge or enclosing power. Such is an easy concept to describe, but much harder to accomplish. Eurasian powers, from Rome to the Soviet Union, have not been very attractive to peoples outside their cultural metropoles. With the temporary exception of republican Rome, Eurasian powers have been and still are authoritarian states. Such a form of governance might be necessary and even accepted by the regime's own people, but extension of this form to others, even if their own country is anything but democratic, is not received well.

More or less understanding this (although the Tibetans and Uighurs might disagree), China has adopted a different approach. After Deng Xiaoping overturned Mao Zedong's dogmatic and sequestered approach to economic development, China began its remarkable ascent. Seeking to head off any reflexive action toward containment on the part of the United States, China adopted the mantra of "peaceful rise" and proceeded to join, at least partway, in the process of globalization that was in full swing after the fall of the Soviet Union.[10] China actually had some political credibility because of its loudly announced policy of nonintervention. If China was the "Brazil" of Asia, then perhaps here was a nation with which others could deal with confidence—not like a meddling United States that was always harping about human rights, while its Central Intelligence Agency (CIA) perhaps messed around in one's internal affairs. When China eventually got its economy booming, it brought real money to the table, and it was agnostic on how one ruled one's own country. Moreover, it knew how to do corruption right.

Thus, China began working the interstices of the American global network. Initially, the going was tentative and slow, with mistakes made and lessons learned. However, as China's wealth grew and its manufacturing expanded, it became more dependent on foreign sources of energy and materials. Rather than accept the risk and dependency that reliance on the global market involves, China adopted a form of mercantilism in which it attempted to create exclusive arrangements with foreign companies and nations.

As Chinese global initiatives gather steam, it is interesting to note a certain pattern. While certainly not ignoring the major economic and political players, China seems to be trying to establish various kinds of relationships with a variety of smaller countries that are not much on the radarscope of U.S. interests. These

include a number of Latin American and African nations as well as countries such as Greece, whose economy is in shambles and whose attachment to NATO is not as strong as it once was.[11] This pattern of engagement may or may not be the result of an explicit strategy of breaking enclosure, but the net effect might be the same regardless. To understand the potential significance of this pattern, we must shift our focus from geopolitics to the world of business.

THE INNOVATOR'S DILEMMA: HAZARDS OF BEING A FRONT-RUNNER

In 1997, Harvard Business School professor Clayton M. Christensen published a book entitled *The Innovator's Dilemma* that explained the demise of several high-profile companies. Christensen showed how embryonic technologies or business methods, while not competitive initially with highly refined and successful ones, through progressive improvements eventually supplanted them, and drove their producing companies out of business. He termed these embryonic technologies and practices "disruptive"—as indeed they turned out to be for the companies that were their victims.

Christensen's model of disruptive innovation involves the relative performance of companies in a particular market, but one that is characterized by multiple "value networks": groups of customers that have differing needs that produce different sets of values they place on various product criteria. Christensen cites the computer disk drive industry of the 1990s. Mainframe producers (as customers for disk drives) placed much value on capacity and response times. Desktop producers (and emerging technology) valued small size and cost. Companies that focused on building drives for mainframe producers focused on improving their relatively large drives in the realm of those criteria their customers valued. Companies producing small disk drives did the same. However, over time, the general improvement of small disk drives gave them the capacity to satisfy the criteria of the mainframe customer value network, but at a lower cost. The mainframe value network thus adopted the smaller drives, but, more significantly, the desktops improved to the point where they could displace mainframes. Thus the mainframe value network was eliminated, and with it the producers of large disk drives (which, for various reasons, would not enter the small-drive market).[12]

Using Christensen's analysis as an analogy, we might regard the market to be security. It would seem that all great powers must export security if they are to achieve the key national imperatives of defense of the homeland, economic well-being, and a favorable world (or at least regional) order. Security comes in different flavors, and its character especially differs when seen from the continental standpoint as opposed to the maritime perspective. Security for a continental power consists of such things as buffer states; economic autarky, at least in the

form of a mercantilist empire; and, of course, having no great powers on the border. A maritime power sees security differently, with free markets and collective defense being key elements. Thus a continental power exports security by building buffer states (you may be tributary to us, but we will protect you) and mercantilist arrangements (you will have a secure market *if* you sell exclusively to us). Maritime powers seek to achieve collective security through the establishment of free-market regimes (a rising economy floats all boats) and webs of alliances (all of us against the big, bad continental powers).

Thus the United States is an exporter of security of the maritime sort. Because of the nature of its political philosophy and its experience in World War II and the Cold War, it exports security on the basis of (1) its massive military superiority and (2) its commitment to a liberal, international, free-market world order. Those nations that become allies or are willing to abide by the rules of the order enjoy the security umbrella the United States provides, under U.S. proprietorship. In the post–Cold War world, the United States had a near monopoly on the market, a bit like IBM's lock on the mainframe world in the 1960s. Its value network was nearly universal.

Chin[ese] . . . security comes at a much lower cost than American security: no commitments to refrain from subsidizing domestic industries . . . , no necessity to respect human rights, and no pressure to democratize.

However, in the wake of September 11th, the invasion of Iraq by the United States started to unravel its value network. Additionally, some nations were finding the price of system membership to be onerous. "Structural reforms" demanded by the International Monetary Fund (IMF) imposed hardships such as rising food prices on countries such as Egypt, which had a role in spawning the Arab Spring revolution there.[13] The global financial meltdown of 2008 further damaged the value network. Add in the alienation of Russia from the West, Arab hostility toward Israel, neo-populism in Latin America, instability in Africa, and financial crisis along the southern European rim, and a potential customer base is growing for an alternative type of exported security. This emerging value network sets more value on regime security than on human rights, free-market access, or democracy.

Enter China. Desiring to break enclosure, China seeks to establish a mercantile system of exclusive commercial rights and contracts for resources it needs to power its economic growth. In doing so, it has a lot of money to throw at the problem, and the strings it attaches to its purchases and investments are different from and less onerous than those attached to American-system money (IMF loans, for example). Money of this sort represents security for regimes that are generally more authoritarian and more socialist. The rather less rigorous quid pro

quo is an agreement to grant exclusive rights to China for various things, generally the right to buy the country's resources. Also, it means allowing Chinese workers into the country; again, in many cases, at least in the early going, this is a nonthreatening arrangement. Finally, of course, a certain support for Chinese interests, perhaps in the UN, would be expected.

To date, the pattern of such Chinese initiatives is such that it excites little concern by the United States. After all, countries such as Nicaragua (where Chinese companies are proposing to dig an interocean canal), Venezuela, and Rwanda are not of particular security interest and have governments that do not comport with U.S. values. However, Greece, while it is capitalist and democratic and even in NATO, is in economic crisis. It is now the recipient of attention from China—and it may be receptive to its overtures, since Germany and the wealthier European Union (EU) countries are balking at bailing it out. This appears to represent the expansion of a disruptive technology (Chinese-style security export) into the American value network. What if Italy remains mired in financial crisis, and it is China that makes an offer? The potential danger is that, if this process continues, there will come a point at which the American value network will be displaced, just as the mainframe computer value network was.

One of Christensen's tenets is that large, successful companies failed precisely because they attempted to serve their value network via product improvement. In so doing they were unable or unwilling to offer a different product that originally had served a different value network but improved sufficiently to serve a high-end value network. The result was that the high-end value network collapsed and the companies, if they could not adapt, went out of business. America's product is security, but it comes with the cost of abiding by IMF rules, respecting human rights, and adopting democracy (generally, although there are exceptions, such as Saudi Arabia). The benefit has been a call on the military might of the United States when salvation is needed, such as with the Republic of Korea in 1950, Kuwait in 1990–91, or Kosovo in 1999. China has a new, disruptive product. Regimes in its emerging value network generally gain security (internal vice external) by having money to buy off the opposition or to pay internal security forces. China can provide such money, and this security comes at a much lower cost than American security: no commitments to refrain from subsidizing domestic industries such as agriculture, no necessity to respect human rights, and no pressure to democratize.

Christensen reports that the disruptive technology initially can satisfy only the demands of the "low-end" value network. However, continuous incremental improvement of the product eventually results in it being able to satisfy the demands of the high-end value network. Of course, security is not the same thing as disk drive capacity, but still we must consider the incipient receptivity of Greece

to Chinese investment initiatives in, among other things, ports and railways.[14] Greece is not a third-world country; it is a member of the EU and NATO, thus—heretofore—a member in good standing of the American security-export value network. We may regard this as an indicator of a Christensen-like trend in the security-export business.

THE WORLD AT CHRISTENSEN'S CRISIS POINT

Christensen's study was precipitated by the observed failure of several leading companies across a range of diverse industries. His narrative diagnosis of these failures reveals that once a disruptive technology is embraced by a start-up company there follows a period during which the start-up establishes a value network for the new technology and proceeds to improve it to the point that it starts to meet the needs of the value network of the established high-end company. More time elapses, during which the disruptive technology progressively takes over the high-end value network. At a certain point, the established high-end company finds it no longer can stay in business; this is what we will term Christensen's crisis point.

If this analogy is valid for modern global geopolitics—more specifically, in the great-power security-export market—what would the world look like if the Chinese disrupted the market for U.S.-exported security?

First, we must remind ourselves that the global system, while dependent on U.S. military dominance, is not simply a function of it. Rather, it consists of a set of rules, institutions, and mechanisms that regulate commerce, especially financial flows; provide for some elemental security and justice; and facilitate travel and communication. Almost every U.S. administration avers that it desires to see established a rules-based international order. While the U.S. military is clearly the strongest by far in the world, and while the massive U.S. economy exerts profound influence around the world, the global system is nevertheless not only a voluntary club; it is dependent on the willing participation of its constituent members, both large and small. It is, to put it in Christensen-speak, a value network that generally, since the end of the Cold War, has expressed demand for the kind of security the United States exports.

But what if China is able to concoct a "disruptive technology," a new style of exported security that is parasitic on the existing global system? Providing value-free regime security, as previously described, while taking advantage of existing international mechanisms, China's product spreads not only among small states but, because of the persistent global financial crisis and structural issues, into medium-sized or even large countries. Thus is formed a new value network that eventually might reach such size that it commands a majority in the UN General Assembly. At this point, perhaps, the U.S.-led global outer enclosure of Eurasia

would come apart. We already may be seeing the start of this process in the Philippines, with recently elected President Rodrigo Duterte making a very public tilt toward China, followed closely by Malaysia.[15]

Given the repeated failures of the Doha Round of global economic talks to reach consensus on a number of trade reforms aimed at lowering barriers, not to mention the massive and violent demonstrations that greet the major meetings, it is not outside the scope of the plausible that structures such as the World Trade Organization and the IMF either would be neutralized or disestablished. We then might see the imposition of defensive economic policies around the world, and coincidentally the establishment of hostile trade blocs. Given the uneven distribution of resources around the globe, competition, perhaps armed, would occur over access to them. The United States, being powerless to arrest this slide, likely would establish its own economic and security bloc, basing it on the North American Free Trade Agreement (i.e., NAFTA) and what is left of NATO. Plausibly, we would see the proliferation of nuclear weapons. All this would occur because the market for U.S.-style security was taken over in large part by China, or at least the U.S. near monopoly was broken.

[I]f the United States persists in its approach to exporting security, . . . it risks finding out one day that its value network has collapsed.

Having broken the external global enclosure, China could work more safely on breaking the local enclosure. By virtue of its global client list, China could induce Taiwan, the Philippines, and perhaps others to cut deals or cede islands, such that China could garrison key geographic features that would turn the ringing island chains into portals vice obstacles.[16] Once this occurred, strategic enclosure would be broken, so the strategic itch would be scratched, the strategic headache cured. Assuming the United States finds both the money and the motivation to maintain a strong navy, the evolution of affairs just described would usher in a new geopolitical era, unlike any in the past. China would not displace the United States as the global great power, as was the case when the United States displaced Great Britain. Rather, China would become a true peer in a way the Soviet Union never was: it would enjoy global freedom of maneuver, almost commensurate with that of the United States.

We could use this scenario as a jumping-off point to imagine all kinds of futures, but that is not in keeping with the purpose of this article. Our speculations to this point seem to indicate that China's breaking of strategic enclosure would not be immediately fatal to the United States but would tear apart the security-export value network the United States painstakingly built over the course of the twentieth century. It also indicates that the United States has powerful incentives to keep its existing security-export value network intact. However, to take

a cue from Christensen, if the United States persists in its approach to exporting security, like the high-end, successful companies that failed by following good management practices and attending to the needs of their high-end customers, it risks finding out one day that its value network has collapsed.

STRATEGIC OPTIONS: A DOG'S BREAKFAST

Assuming that an American administration took the view of events espoused in this article, what strategic options might it consider? Normally, operational military planners like to concoct a list of course-of-action options that is collectively exhaustive; that is, the aggregate list contains all possible options. Second, the list should consist of options that are mutually exclusive; if you do one, you cannot do the others. This goal is hard enough at the military operational level; at the strategic level it is nearly impossible. Therefore, the options presented here are not mutually exclusive and, while they do seem to represent the potential range of things that could be done, there likely are an infinite number of other approaches. Hence, these options should be regarded as illustrative rather than prescriptive.

Option 1: Stay the Course

Of course, the first option is always just to keep doing what you are doing. For the United States, that means exporting high-end security as it has done since the fall of the Soviet Union. The 1995 National Security Strategy clearly lays out the characteristics of exported American security: "Our national security strategy is based on enlarging the community of market democracies while deterring and containing a range of threats to our nation, our allies, and our interests. The more that democracy and political and economic liberalization take hold in the world, particularly in countries of geostrategic importance to us, the safer our nation is likely to be and the more our people are likely to prosper."[17] In other words, nations that democratize and adopt free-market capitalism will prosper, thereby becoming more secure and, of course, producing a world order favorable to the United States.

The great thing about this option is that it comports well with the American value system. Just as we established a constitutional democracy of majority rule, we seek (we say) a rules-based international order. This would eliminate war as a source of insecurity and, of course, leverage the inherent advantages the United States enjoys in terms of economic power. The problem is that the democratization wave seems to have crested. A number of countries around the world that democratized in the wake of the Soviet Union's collapse have backslid into either authoritarianism or chaos. Populist and socialist movements have popped up in places such as Ecuador and Belarus. The global economic meltdown aggravated this process by dulling the burnish of democracy and reducing U.S. ability to aid liberalization by providing resources.

Staying the course is potentially analogous to the actions of the big companies on which Christensen reported—enterprises that failed precisely because competent management catered to the high-end value network that demanded the characteristics of their products. Analogously, the American high-end value network consists of what Thomas Barnett termed the "Functioning Core," those nations that are integrated into the global system of commerce and security. However, Barnett chose to include both China and Russia in that categorization, which made some sense in 2004.[18] However, Russia is one of the democratic backsliders and China never was democratic. While both are theoretically capitalist, their versions do not comport well with the American notion of a level global economic playing field. China can be thought of as a start-up company that has a new, disruptive technology it is trying to market. The danger, as Christensen points out, is that the high-end company will appear to be doing fine—until all of a sudden the bottom drops out of the market.[19]

Option 2: Compete in the Alternative Value Network

Competing in the alternative value network would involve trying to beat the Chinese at their own game. The United States metaphorically would hold its nose and prop up nondemocratic or socialist regimes, essentially making them a better offer than the Chinese. Of course, the United States is no stranger to this strategy, having befriended any number of questionable governments so long as they were anticommunist or at least anti-Soviet. The problem with this approach in this day and age is that the Internet and pervasive media make it hard to do such things on the q.t. Any administration that gets caught in the act will have a lot of political damage control to do, both at home and with the members of its high-end value network. Administrations have been getting away with befriending such authoritarian regimes as Saudi Arabia's simply because they generally can take care of themselves. When they cannot, as was the case with Hosni Mubarak in Egypt, a U.S. administration is in no position to assist.

Another problem with this approach is that it costs money, especially the kind that is hard to track, as it ends up in places not suitable for public affairs releases. Iraq and Afghanistan are good examples of this. Huge amounts of U.S. aid ended up in the pockets of friends and family members of Ayad Allawi, Hamid Karzai, and other power brokers. For the Chinese, this kind of thing is no problem. Moreover, the United States is a little short of funds right now, and it is harder to generate funds that can be moved around "off balance sheet."

Christensen cites companies that have adopted this strategy successfully by creating their own internal start-up companies to sell the disruptive technology and compete in the low-end value network. While this might work for business, it is hard to see how the United States might do such a thing, other than by

commissioning some other nation to act in its stead. But what nation would be so inclined, especially given the value compromises that appear necessary?

Option 3: Sabotage the Competitor

If you cannot beat your competitor at his own game, why not take him down directly? This is, of course, what we did to the Soviet Union through containment and, some say, the Reagan military buildup. This would mean adopting some combination of containment and economic warfare against China. However, China is not the Soviet Union. Such a strategy might undercut our own economy, given the interdependencies that have grown up. In addition, given the particulars of China's increasingly assertive policies in its "near abroad," including the first island chain, such a policy could lead to regional conflict and war, which, in this age, could find their way into the United States proper. Moreover, such a strategy likely would alienate our current value network, which is also economically interdependent with China.

It is this option, or at least gradations of it, that many hawkish "dragon slayers" find attractive. It is realism personified, and has a certain simplicity of concept that is congenial to those who like to produce weapons, ships, aircraft, etc., and to those who yearn for the clarity, if there was such, of the Cold War. This is perhaps a key danger of this policy: it becomes self-referential. To justify the policy, we define China as the enemy; China reacts in a hostile manner, thus confirming the going-in assumption. This is otherwise known as a security dilemma.

Option 4: Disrupt the Alternative Value Network

Disruption has been an auxiliary to option 1 over the decades. The United States covertly subverts regimes that it finds obnoxious for one reason or another. Since the late nineteenth century there have been at least a dozen instances, mostly during the Cold War when the United States feared that a communist or communist-sympathetic government would advance Soviet interests. One problem with such a tactic is that it can backfire and produce a worse regime, from the U.S. perspective. The displacement of the shah of Iran by a theocratic regime was the unanticipated result of the CIA-engineered coup that brought him to power. On the one hand, it would seem at least instrumentally permissible to engage in such activities if the idea is that the replacement government will be democratic and respectful of human rights. However, in many cases it has not panned out that way. Moreover, a number of the countries China is courting already are at least ostensibly democratic.

Pursuing this option would force the United States to look at itself in the philosophical mirror. Whereas inciting regime change, whether for ideological or realist reasons, might have been seen during the Cold War as justified in the larger context of stemming a global communist revolution, today, in the context

of Chinese overtures, it would take on a more baldly hegemonic cast. At the least this would convey the impression of a double standard: internally, the United States is all about government by the consent of the governed; externally, it is about security above all—a stance not that different from a Eurasian continental authoritarian power's. The United States always has seen itself as an exemplar of freedom and constitutional government, but pursuit of an inherently cynical, security-based foreign policy would tarnish that image, ultimately compromising the security it seeks to achieve.

ANALYSIS: THE PROMOTION OF VALUES IN A COMPETITIVE WORLD

Many will recoil from the menu of options just presented, and it is called a "dog's breakfast" for good reason—there is nothing appetizing about it.

One way to escape from the logic is to deny the analogy, to object that the global market for exported security cannot be likened to business dynamics. One major factor undermining the analogy could be the desire of nations for autonomy. Whereas nations have ceded some degree of sovereignty in the face of a common threat—for instance, by creating NATO during the Cold War—generally speaking, countries will hew to as independent a line as their strength or position will allow. Thus the idea of a value network composed of nations vice companies is a bit porous. On the other hand, we do see certain attempts, such as the Shanghai Cooperation Organization and some loose coordination among Central and South American populist countries, to counteract the overwhelming U.S. influence. To the extent that China can knit together elements such as these, a value network of sorts is created. Admittedly, the analogy is novel and certainly cannot be pushed too far, but it is at least a different lens through which to observe the world, and it would be unwise to dismiss it simply because it is threatening to one's values and existing worldview.

What is it that comes into focus if we peer at the world through the lens ground by this article? Most fundamentally, we see the difficulty of attaching American values as part of the U.S. package of exported security. This attachment seemed most appropriate and well received in the wake of the Soviet Union's collapse. However, the emergence of a competitor that at least potentially has the wherewithal to export a different kind of security on a global basis, with a different set of values attached, now makes our attachment of American political and moral values too expensive a product for quite a few nations—or, better stated, regimes.

We have to look no further than the crises in Syria and Egypt to see the problem. A desire to displace autocratic rule in Syria has spawned an armed rebellion that has attracted jihadists and helped spawn ISIS. The displacement of Mubarak in Egypt produced a democratically elected Islamist government that rapidly

became theologically autocratic, so in turn was displaced in a military coup, a result that seems to reflect the will of the majority. Attaching American values to security makes it almost impossible to render aid to either the Syrian rebels or the Egyptian military, but this is precisely what Christensen would call for in a business scenario: compete in the new value network.

Americans hold the values enshrined in the Declaration of Independence to be universal; the justification for separation from Great Britain rested on that assumption. The way we preserve those values for ourselves is through a constitutional federal republic. We thus have conflated values and structure, as was made clear in the quote previously cited from the 1995 National Security Strategy. So, the American-exported security package carries with it both explicit and implied costs that may produce an existential dilemma for any number of regimes. Because many nations are polyglot—that is, they are an amalgamation of multiple tribes or cultures—the self-identity of their citizens is cultural rather than political, so they do not cohere as naturally as the post–Civil War United States.

While the desire for freedom, security, and justice reasonably can be thought of as universal, the mechanism by which these are achieved is bound to vary in each case. Because of the unique geographic and historical circumstances of the United States, Americans generally subscribe to the notion that freedom comes first, with security and justice being possible only if freedom obtains. In countries whose circumstances are different, this outlook is almost antithetical to their cultural identity. Justice is valued above all, with security running a close second; freedom is something to be desired, but must be regulated in the service of the other two values. Conflation of values and structure prevents the United States from perceiving and accepting this. If the United States is to compete successfully in the alternative security value network, it will have to find a way to become comfortable with decoupling these two elements.

In the twentieth century, the United States came to be the leviathan that established and maintained a liberal, trading world order. The nature of the competition—the Soviet Union—was a defective combination of malignant ideology and military assertiveness. In this competition, the United States could export security on the basis of conflating its values and its military might. It won this competition; but success is a poor teacher of both limits and incisive perception. There is a new competitor and a new kind of competition in the world, and the United States must both recognize it for what it is and adjust its security-export strategy to account for it.

This article offers a diagnosis of the nature of the competition that is emerging. While it offers no specific formula for a new competitive grand strategy, it is hoped that this analysis provides insight into what would be necessary for an effective new one to be developed.

NOTES

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3. Samuel P. Huntington, "National Policy and the Transoceanic Navy," U.S. Naval Institute *Proceedings* 80/5/615 (May 1954), pp. 483–93.
4. Publius [Alexander Hamilton], "The Insufficiency of the Present Confederation to Preserve the Union," Federalist 15, available at www.congress.gov/.
5. Dr. Sarah Paine, Naval War College, Strategy and Policy Department, interview by author, n.d.
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PLANNING FOR THE KAMIKAZES

Toward a Theory and Practice of Repeated Operational Games

John T. Hanley Jr.

Operational gaming, which includes war gaming, in this context means a simulation that does not involve actual operations, one in which the flow of events affects and is affected by decisions made during the course of those events by players representing the roles of those involved in shaping the outcomes.[1] In 1957, operations analyst Clayton Thomas wrote that "there is no body of theory that sanctions the common use of operational gaming to seek a solution of a game through repeated plays."[2] Little in operational gaming has changed since then. The purpose of this article is to suggest possible approaches to, and the value of, repeated operational gaming, either by one institution repeating games or by accumulating data from games played anytime, anywhere to explore what is essentially the same contingency.

Fleet Admiral Chester Nimitz in 1960 stated: "[T]he war with Japan had been re-enacted in the game rooms here [at the Naval War College] by so many people and in so many different ways that nothing that happened during the war was a surprise—absolutely nothing except the kamikaze tactics towards the end of the war; we had not visualized those."[3] Although this is an overstatement, it is true that repeated operational games, at the tactical and strategic levels, did allow Nimitz to understand developments as they happened and

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to adjust his strategy for fighting in the Pacific.[4] By the start of World War II, 99 percent of all USN flag officers were graduates of the College.[5]

This article proposes that repeated operational gaming provides an unparalleled technique for predicting factors governing battles and campaigns and anticipating actions that would be reasonable for adversaries and allies / security partners to take, thus eliminating most surprises, thereby better informing operational planning, force allocation, and force development.

Since 2003, the Naval War College has been conducting "Halsey" games with its students, similar to the way it was done at the College from shortly after 1887, when William McCarty Little introduced war gaming there, until World War II.[6] An analysis of the Halsey games, using some elements of game theory, suggests promising ways to learn from repeated gaming.

This article addresses a version of the questions that George H. Heilmeier, a highly respected director of the Defense Advanced Research Projects Agency (1975–77), posed when he was determining whether to approve a new project.

WHAT ARE WE TRYING TO DO?

We are trying to understand the factors governing emergent developments in the real world through mastering the complexity created by the interaction of sentient actors—represented by role players, umpires, and game control—whose behavior, with an admixture of luck and the randomness of nature, affects what happens. More specifically, we are trying to develop understandings of how U.S. courses of action (COAs) would interact with those of both allies / security partners and potential or actual adversaries to achieve U.S. security aims.

Specific cases include anticipating the strategies that potential adversaries such as the Chinese People's Liberation Army (PLA), Russian military and paramilitary forces, Iranian Revolutionary Guards and military forces, and Islamic militants would use against U.S. forces in combat, so as to develop appropriate capabilities to deter and, if necessary, defeat them.[7] Armed conflict in the future also will involve a greater admixture of cyber and movements comprising small groups and individuals that can wreak havoc with terror and weapons of mass destruction at a level that only states could accomplish in the past. Over the past decade, Intelligence Community (IC) Title 50 authorities have become a larger component of operations that are still dominated by Department of Defense (DoD) Title 10 authorities in U.S. counterterrorism efforts. Improvements in our ability to identify and track "persons of interest" through advances in sources of information, including biometrics, and the processing of "big data" portend an expansion of "shadow wars" beyond counterterrorism as the United States extends these new tools to missions such as counterproliferation, counterintelligence, and long-term competition with potential state adversaries. Going beyond

the war-gaming techniques of the period between the world wars, we are trying to anticipate future equivalents to the kamikazes.

This effort involves two major objectives. The first is to understand the logic of the competition under study to identify governing factors and anticipate how the key players may act. The second is to create a common vision and commitment to action among relevant policy makers and commanders. Gaming is a powerful method for simultaneously mastering complexity, enhancing communication, stimulating creativity, and contributing to consensus and a commitment to action.[8]

HOW IS THIS DONE AT PRESENT?

The major militaries of the world have used war gaming for over two centuries to simulate the logic of combat. Before the development of operations research (OR) in World War II, war gaming and field exercises were the primary techniques military organizations employed to create the synthetic experience of war. While using operational gaming to predict the outcomes of engagements is exceedingly problematic, given the number of factors not under the control of the participants, war gaming has a history of predicting accurately the factors governing battles and campaigns that actually emerged during subsequent operations.[9] War gaming was a continuing activity at places such as the Naval War College and within German and Japanese military commands, by which participants studied operational challenges during the years between the world wars.

Following World War II, computer-based combat and campaign simulation largely replaced war gaming within the Pentagon, although the earlier practice continued in military colleges and operational commands. Repeated operational gaming within DoD is rare today. Although many institutions within DoD game elements of the same contingencies, these institutions and their supporting contractors have few incentives to share game details and outcomes.[10]

As noted, the role of war gaming in military decision making diminished significantly from the World War II era with DoD's adoption of OR's cousin, systems analysis. DoD largely turned to computerized combat and campaign simulations for operational, force, and procurement program planning. The models used in these simulations are direct descendants of those developed during World War II. When computerized combat simulations are used for operational planning, the forces and systems available are generally fixed, and alternative operational courses of action are explored; when these simulations are used for systems analysis, the operational concepts are fixed, and alternative systems are explored. This process does not capture the coevolution of technology and operational concepts as well as operations, gaming, and field exercises did in the past. Furthermore, when using computer simulation, it is the analyst developing the models

and analyzing the results who derives the experience rather than those directly involved in making policy or military decisions. In contrast, games provide decision makers themselves with direct experience in working through anticipated contingencies.

Recently, DoD leadership has directed a reinvigoration of war gaming.[11] The vast majority of games that DoD elements conduct explore a "wicked problem" for a day to a week to gain some insights. Characteristics of a wicked problem include that the problem is not understood until after the formulation of a solution, and that the solution uncovers other problems to be resolved.[12] These games explore essentially one course of action, which is principally a function of the scenario and the participants in that game.

In 2003, the Naval War College initiated the Halsey series of games to provide students with in-depth experience in developing campaigns against potential opponents they might face when occupying more-senior positions later in their careers.[13] Some of these games have used a two-sided "metagame" approach for examining alternative Red (i.e., opponent) objectives. This approach gives one side foresight of the other side's strategic concept for conducting its campaign, and then turns the tables iteratively until neither side can do better.[14] Once neither side can gain by changing its strategy—known in game theory as a "Nash equilibrium"—the games move on to examine a different Red objective and campaign approach. This is a valuable technique that explores a broader strategy space than single games and leads to interesting equilibriums that suggest what would be reasonable behavior for the various traditional and nontraditional forces involved in the fight. However, the number of games a Halsey team can play is limited. The program began playing one game per trimester, which evolved to one iteration per year to allow detailed exploration of tactical and logistical details. The Halsey approach is unique to the Naval War College.[15]

Few gamers know or appreciate game theory and how it should inform their gaming efforts. John von Neumann initiated game theory in 1928 as a rigorous approach to games such as poker and to economic and sociological problems that "involv[e] . . . questions of parallel or opposite interest, perfect and imperfect information, free rational decision or chance influences."[16] In 1944, along with Oskar Morgenstern, he published these concepts in *Theory of Games and Economic Behavior*. Although the mathematics is relatively simple, game theory is arcane, requiring detailed study to apply, and has few military practitioners. The comprehensiveness of the concepts, the focus on game-theoretic "solutions," and the application to economic behavior based on *Homo economicus* rather than deontic logic have deterred gamers from studying game theory, and thus the perceived value of applying game theory to gaming has been limited.[17]

Although several papers in the 1950s and '60s were published applying game theory to military topics, finding instances where game-theoretic analyses have influenced military decisions is rare, particularly recently.[18] Whereas war games are rich (complex) in detail, the vast majority of game-theoretic results come from toy models that strip away context important to actual decision makers. "For some games, game theory will suggest a 'solution' to the game, that is a best way of playing the game for each person involved; but for most games describing real problems all it can do is rule out some types of decision and perhaps suggest which players will [have incentives] to work together."[19] Careful application of game theory can illuminate structural details underlying operational gaming that assist in the formulation of strategy.

The core of OR techniques involves mathematical programming for optimization using deterministic models, stochastic models incorporating probabilities, and statistics for estimating expectations.[20] None of these techniques accommodate complex adaptive systems, such as human decision and learning. Approaches for dealing with complexity to understand the logic of the underlying phenomena, enabled by advances in computer simulation and biological rather than statistical and mechanical paradigms, are relatively new. Techniques such as genetic algorithms employing fitness landscapes, cellular automata, and agent-based models for understanding self-organization and emergence of new phenomena have blossomed over the past three decades, but as yet are on the margins of DoD and IC analysis.[21] Entities such as the Santa Fe Institute and the New England Complex Systems Institute have formed to bring together scholars from a wide range of disciplines and educate a new generation of analysts in these techniques.

Commercial gaming technology has advanced. Outside DoD, computerized games have become a ten-billion-dollar industry, with 67 percent of U.S. households playing video games for an average of eight hours per week.[22] An even larger fraction of the population in countries such as the Republic of Korea enjoys computer games. Within DoD, the Naval Postgraduate School and its sponsors have pursued efforts such as the Army Game Project for familiarization and recruiting and the Massive Multiplayer Online Wargame Leveraging the Internet (known as MMOWGLI) to foster innovation through crowdsourcing. The Navy originally developed a game for training and tactical development that became Harpoon Advanced Naval Warfare. Jane's Combat Simulations / Electronic Arts teamed with companies that do simulation and training for DoD to produce games such as 688-I and Fleet Command. These games contain high-quality data for expected systems performance. The PLA recently developed similar games to promote public interest and recruitment. However, a wide gulf exists between

the commercial and military gaming communities, with the former incentivized by the entertainment value of the game and the latter emphasizing the validity of combat models.[23]

WHAT IS NEW AND WHY MIGHT IT BE SUCCESSFUL?

In a sense, this article's central proposal is far from new. A century ago, Rear Admiral Bradley A. Fiske recommended a similar approach in *The Navy as a Fighting Machine:*

> By this scheme, a body of officers at the Navy Department would occupy their time wholly in studying war problems by devising and playing strategical and tactical games ashore and afloat. After each problem had been solved to the satisfaction of the staff, each distinctive situation in the approved solution would be photographed in as small a space as practicable, preferably on a moving-picture film. In the solution of problem 99, for instance, there might be 50 situations and therefore 50 photographs. These photographs, shown in appropriate succession, would furnish information analogous to the information imparted to a chess student by the statement of the successive moves in those games of chess that one sees sometimes in books on chess and in newspapers. Now if the film photographs were so arranged that the moves in the approved solution of, say, problem 99 could be thrown on a screen, as slowly and as quickly as desired, and if the film records of a few hundred such games could be conveniently arranged, a very wide range of situations that would probably come up in war would be portrayed; and the moves made in handling those situations would form valuable precedents for action, whenever situations approximating them should come up in war.[24]

Now, with the Internet, war games played anywhere, or online, can contribute to portraying a wide range of situations that probably would come up in the event of war. Whereas Fiske proposed using photographs, the proposed approach for developing and applying a theory of repeated games involves capturing, in extensive form, "manual" and online operational games played either sequentially by one organization, along with their context; in different times and places by various organizations; or many times online. In manual games (which may employ computer calculation in adjudication and may be played online), players must make decisions, either simultaneously or sequentially, during each of their moves, taking into account what they know about the current situation; and procedures used to evaluate the consequences of the player's decisions must be quite clear to the players and simple enough for the players to understand.[25]

Presentation of game data in extensive and strategic forms (see next section) allows a combination of game-theoretic and, for larger strategy spaces, complex adaptive science techniques to analyze the games. Given that this approach showed promise in analyzing the Halsey games, this type of analysis might be successful.[26] Tapping into games played anywhere but exploring the same

contingency would increase the space of strategies evaluated beyond what one team could do at an individual institution.

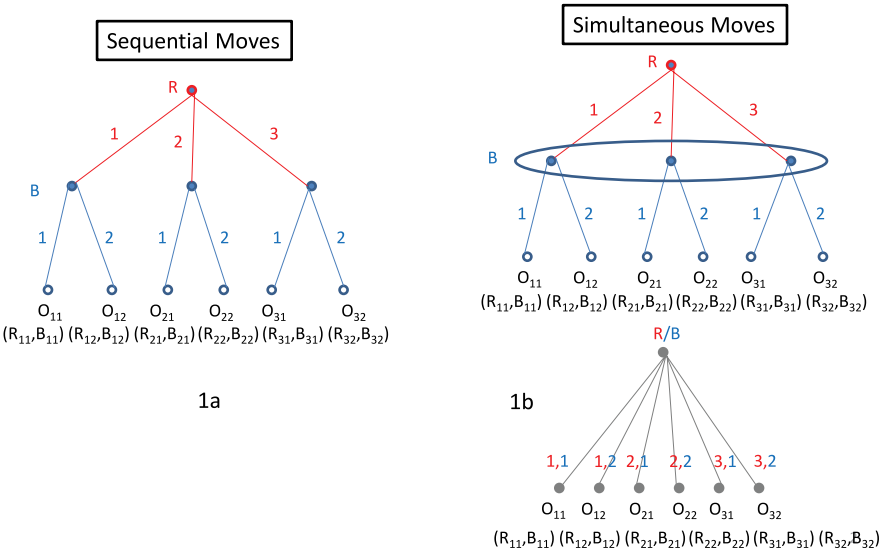
Useful Elements of Game Theory

Game theory "provides a language for the description of conscious, goal-oriented decision making processes involving more than one individual." It furnishes a methodology to make amenable to analysis such subtle concepts as state of information, choice, move, strategy, outcome, and payoff.[27]

Games presented in extensive form as a "tree" illustrate these concepts most clearly. Representing games in extensive form captures the timing of the players' moves relative to relevant events and representations of what the players knew about others' choices when they selected their moves. Figure 1 illustrates two simple, two-move games in extensive form involving players Red (R) and Blue (B). The players make sequential moves in 1a, where Blue knows Red's choice when making its move, and "simultaneous" moves in 1b, where both sides select their moves without knowing the other's choice.[28] For simplicity, these games represent Red having three and Blue having two choices, one branch representing each choice. A move involves selecting one of the possible choices—a COA. The moves are numbered and the outcomes are indicated with subscripts that relate to the players' moves, e.g., O_{ij} indicates the outcome should Red select COA *i* and Blue select COA *j*. The payoffs to Red and Blue are indicated similarly by R_{ij} and B_{ij}, respectively. The payoffs are the value (utility) of the outcome to each player. Should the value of all outcomes be equal and opposite for Red and Blue (i.e., $R_{ij} = -B_{ij}$ for all Red COAs *i* and Blue COAs *j*), the game would be zero-sum.

Von Neumann and Morgenstern developed a method for expressing the utility of an outcome to an individual player as a specific quantity. However, this

FIGURE 1
GAMES IN EXTENSIVE (TREE) FORM



method is difficult to employ and is made conceptually and practically much more difficult when attempting to quantify a single utility for multiple players representing different organizations or groups of individuals. In general, although some situations, such as winning or losing a duel, may be modeled usefully as a zero-sum game, the more complex the description of the outcome, the less valuable modeling the game as zero-sum is likely to be. Halsey game summaries provide descriptions of the tactical outcomes resulting from player moves and the operational outcome of the game, but the payoffs (i.e., the player's evaluation of the outcome and preferences among alternative outcomes) need to be inferred from the descriptions.

Figure 1b also illustrates two ways to represent simultaneous moves and the information available to players when they chose their next move. The bubble (ellipse) around the positions at which Blue selects its move indicates that Blue does not know which move Red has selected when it makes its choice. The lower figure is an alternative representation of the same situation.

In a game with more than two players, the sequence of player choices and moves is represented, adding to the detail above. Game controller and umpire decisions are treated similarly to a player's, representing their adjudications as moves in the game.

If the focus of the analysis is on strategy and payoffs, representing a game in strategic form may be more useful than the extensive form. A two-person game in strategic form (also called the normal form) is represented as a two-dimensional matrix. Each player represents a dimension, requiring games with three players to be drawn as cubes; games with more than three players are even more challenging to illustrate. Figure 2 illustrates the same games as in figure 1, but in strategic form.

In shifting to the strategic from the extensive form, the move sequence and information structure loses many details. However, the strategic form of these simple games shows the importance of information (intelligence). Blue has many more COAs available when acting with knowledge of Red's COA than without that knowledge.[29] A strategy in game theory is complete description of the play, accounting for all contingencies. Here the strategies, or COAs, available to Blue going from the simultaneous to the sequential game go from selecting either COA 1 or 2 to selecting among eight along the lines of (1,1);(2,1);(3,1), which means Blue selects 1 if Red selects 1; Blue selects 1 if Red selects 2; Blue selects 1 if Red selects 3. Blue has one COA for all combinations of the three Red moves and its two Blue moves. Although transitioning from a multimove game in extensive form to one in strategic form boils down to a matter of careful bookkeeping, accounting for all combinations of possible COAs in games with many moves is daunting.

FIGURE 2
GAMES IN STRATEGIC FORM (MATRICES)

2b

R \ B	1	2
1	(R_{11},B_{11})	(R_{12},B_{12})
2	(R_{21},B_{21})	(R_{22},B_{22})
3	(R_{31},B_{31})	(R_{32},B_{32})

Simultaneous Moves

2a

R \ B	(1,1);(2,1);(3,1)	(1,1);(2,1);(3,2)	(1,1);(2,2);(3,2)	(1,2);(2,1);(3,1)	(1,2);(2,2);(3,1)	(1,2);(2,2);(3,2)	**(1,2);(2,1);(3,2)**	(1,2);(2,2);(3,2)
1	(R_{11},B_{11})	(R_{11},B_{11})	(R_{11},B_{11})	(R_{12},B_{12})	(R_{12},B_{12})	(R_{11},B_{11})	**(R_{12},B_{12})**	$R_{12},B_{12})$
2	(R_{21},B_{21})	(R_{21},B_{21})	(R_{22},B_{22})	(R_{21},B_{21})	(R_{22},B_{22})	(R_{22},B_{22})	**(R_{21},B_{21})**	(R_{22},B_{22})
3	(R_{31},B_{31})	(R_{32},B_{32})	(R_{32},B_{32})	(R_{31},B_{31})	(R_{31},B_{31})	(R_{31},B_{31})	**(R_{32},B_{32})**	(R_{32},B_{32})

Sequential Moves

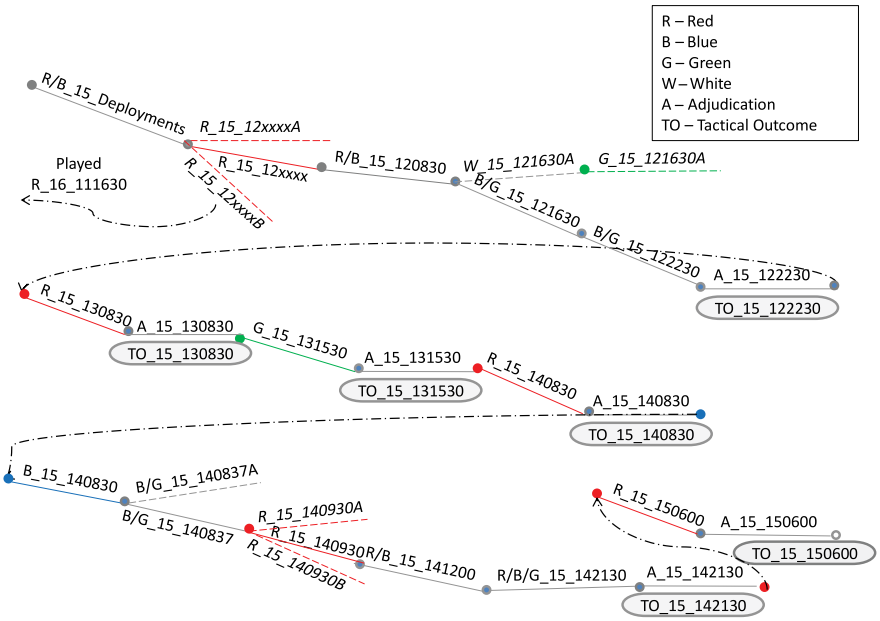
The strategic form is often easier to use than the extensive form for identifying equilibrium points and any absence of a pure strategy equilibrium point.[30] Formally, an equilibrium point is "a vector of strategies such that no one player, regarding the others as committed to their choices, can improve his lot."[31]

The Halsey Games as a Case Study

The proposition presented at the beginning of this article was that capturing the Halsey game moves in extensive form would provide a comprehensive way to illustrate the decisions that Blue and Red commanders made in executing their COAs so that others could see quickly what had been attempted and follow a narrative of what worked for each side and what did not. This would allow those others to benefit from the experience of the games. Also, the games in extensive form would allow direct alignment and analysis of multiple games played over a span of time.

Figure 3 diagrams Halsey game 15 in extensive form. The game begins with Red and Blue deployments, followed by Red considering three choices and selecting one. The solid line represents the move; the dashed lines represent choices not pursued. The numbering convention illustrates which team made the move, the number of the game, and the date/time of the move. The game involved Red, Blue, Green, and White, representing different countries. One of the Red choices not selected in game 15 became the Red move in game 16, which allows adding game 16 to the game tree for analysis (while complicating the illustration). Following Red's initial move, Red and Blue, followed by Blue and Green, made subsequent moves without any intelligence updates to the various role players on those teams, creating effectively simultaneous moves. Then the umpire and control team adjudicated a tactical outcome on the basis of the role player moves. The focus of the Halsey games is on move assessments and the exploration of

FIGURE 3
HALSEY GAME 15 IN EXTENSIVE FORM

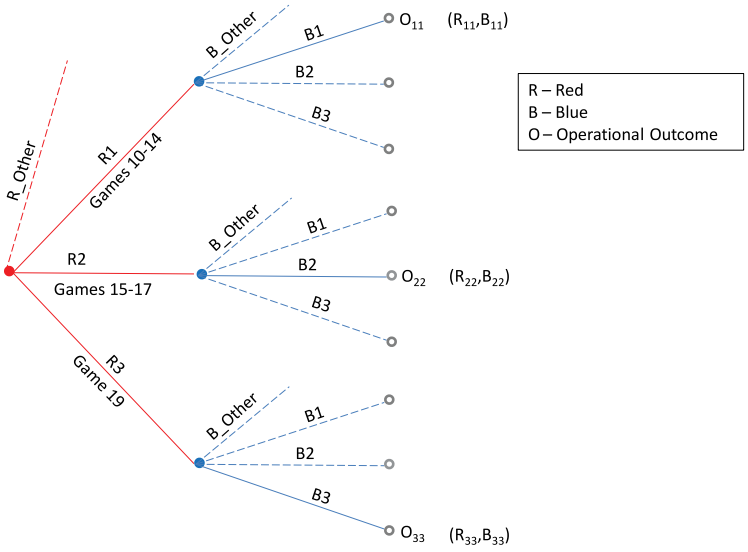


alternatives. The "meat" of the games is in the deliberation of alternatives.[32] The game continued to a culminating point for the purposes of that game.[33] In this way, the moves and outcomes for a play of a game representing one Red campaign approach may be captured.

Figure 4 illustrates the set of Halsey games at an operational level. Campaign-level games began with game 10. In these games, Blue knew Red's strategic concept, though not the tactical details. Blue then gamed one of its principal strategic concepts against Red's, using variations over several games, as Red also varied the details of its strategic concept on the basis of what had been learned in previous games.[34] The variations did not affect the overall operational outcome resulting from the pair of strategic concepts, which suggests that the governing factors identified in the games are robust across the variations in the specific COAs considered. (Although Green also made moves in the games, they did not affect the game outcomes significantly beyond the initial game conditions, so are not represented in the diagram.)

Games 10–14 explored Red pursuing one campaign strategic concept, games 15–17 explored another Red campaign strategic concept, and game 19 explored a third. (Game 18 explored a completely different contingency involving Red attacking a different opponent.) The U.S. IC provided the initial Red strategic, operational, and tactical concepts. The Halsey teams then refined these estimates as they enhanced the effectiveness of Red approaches against Blue and Green.

FIGURE 4
HALSEY OPERATIONAL-LEVEL GAME TREE

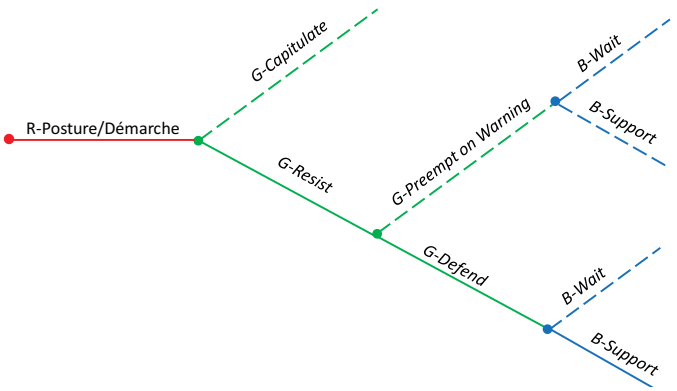


Blue responded with various COAs to each Red approach. The figure illustrates that Blue strategic concept 1 provided the best operational outcome against Red strategic concept 1, Blue strategic concept 2 provided the best operational outcome against Red strategic concept 2, and Blue strategic concept 3 (combining several possible Blue COAs) provided the best operational outcome against Red strategic concept 3, of those examined. Red and Blue "other" provide place marks for concepts not yet examined in the Halsey series as of the date the analysis was conducted. The diagram provides a concise chart for an extended narrative on the play and outcomes. It illustrates how the games proceeded over time, with games 10–14 at the top, games 15–17 in the middle, and game 19 at the bottom.

The first game of a new COA spent significant time exploring the motivations and timing of the players' moves for establishing the initial conditions.[35] Figure 5 depicts a typical set of decisions that Blue and Green would address in each of these games.

Each game began with Green and Blue either observing Red posture or receiving a démarche. Green then had to decide whether to capitulate or resist, and, if choosing to resist, whether to preempt Red on warning or to defend following a Red attack. Blue then had to choose whether to wait or come to Green's support immediately. Although the Halsey team explored some branches of the tree in figure 5, for the purposes of the study Green always chose to resist and defend, and Blue to support Green. This is a type of subgame for which a rich game-theoretic literature exists, and one example of where existing game-theoretic work could be used to inform the gaming.[36]

FIGURE 5
BLUE-GREEN INITIAL SUBGAME



Gaming often is criticized for a lack of rigor and a limited ability to accumulate knowledge. A standard for rigor is whether another group could replay the game, recognizing that different player or umpire/control adjudication, including chance moves, will dictate different tactical outcomes, some of which may affect the operational outcome. The Halsey games demonstrate that, with appropriate documentation, games conducted by one organization sequentially, or by many organizations in different times and places, can be arranged to provide a detailed understanding of sets of feasible and acceptable tactical and operational COAs from Red's perspective, and feasible and acceptable Blue COAs for each Red approach.[37]

The Halsey games demonstrated that standardized game documentation should include the following:

- Player moves, adjudication, and tactical outcomes using a consistent indexing system that identifies player, game, and time references.
    - Blue should use appropriate portions of joint operations planning procedures, and other teams should use their best understanding of adversary/allied planning procedures. Benefits of using operations planning procedures include both educating officers in writing orders and improving the use of gaming in analyzing courses of action. Using the planning procedures of adversaries/allies highlights the state of understanding about how they approach the situation under study. The war-gaming "process highlights tasks that appear to be particularly important to the operation and provides a degree of familiarity with operational-level possibilities that might otherwise be difficult to achieve."[38] Educating officers in writing orders was a key benefit of German war gaming between the world wars.[39]
    - The mission analysis should document COAs considered but not played.

    - The geographic displays and synchronization matrices used in the games for decision making help communicate the concept of operations rapidly and should be part of the move documentation.
    - Control logs should document the tactical outcomes from each individual adjudication made, providing the "true" state of the world as a consequence of the adjudication.
- The tactical outcomes (intelligence updates) provided to each side, to clarify the information conditions.
    - The control team should consider carefully the trade-off between open information and contingency planning. As Quade notes (from RAND's experience in its SIERRA Project of gaming, which had many features in common with the Halsey Alfa games), having less information about adversary moves encourages contingency planning.[40]
    - Routinely documenting the alternative branch points—the COAs—considered would suggest alternatives for future games, better support meshing operational games as they are played, and provide information needed for more in-depth, formal analysis of the games.
- Documentation of any paths that were replayed, if that occurred during the game.

Relevant combatant commanders have sought the results of the Halsey games to inform their planning, and the Halsey team has proposed a set of low-cost measures to enhance fleet capabilities to the Navy staff, some of which are being adopted now.

Extending the Approach to Online Gaming

Conceptually, it is also possible to capture online games in extensive form by capturing the moves of each player in the game electronically, potentially expanding the COAs examined as more players play the game more frequently. This might allow the identification of equilibriums and dominant strategies that prevail against all adversary COAs.[41] Whereas manual war games such as Halsey involve a mix of free-form and semirigid adjudication (using some standard calculations), online games use rigid adjudication, dictating an outcome for each interaction as it occurs. Games such as Fleet Command allow command organizations and involve adjudicating multiple tactical interactions in a game that approaches the operational level of war.

Online games usually specify the mission or provide a choice of missions. Player setup of the scenarios in such games provides much of the information (e.g., friendly and enemy forces) contained in mission analyses and operations orders. However, the commander's intent and concept of operations may be less clear in online gaming.

This raises the issue of act and action meaning.

> [T]he data for behavioral science are not sheer movements, but actions—that is, acts performed in a perspective which gives them meaning and purpose. Plainly, it is of crucial importance that we distinguish between the meaning of the act to the actor (or to other people, including ourselves, reacting with him) and its meaning to us as scientists, taking the action as a subject-matter. I call these, respectively, *act meaning* and *action meaning*. . . . The behavioral scientist must first arrive at an act meaning, that is, construe what conduct a particular piece of behavior represents; and then he must search for the meaning of the interpreted action, its interconnections with other actions or circumstances.[42]

In online gaming, capturing a move, such as one unit engaging another, represents an act meaning and is conceptually easy. However, without clear statements of the commander's intent and concept of operations, the action meaning must be inferred.

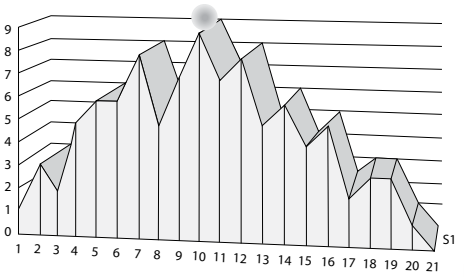
If the objective of an analysis is merely to assess which COAs provide better combat outcomes, the act meaning may be sufficient, given a very large number of COAs being explored. No matter the intent, the moves that provide better outcomes may be clear. Current large-scale, computer-based campaign analyses use this approach. However, if the game involves any forms of signaling, deterrence, or uses of force for influence rather than simply defeating enemy forces, capturing the action meaning is essential.

Employing Game-Theoretic and Complex Systems Analyses

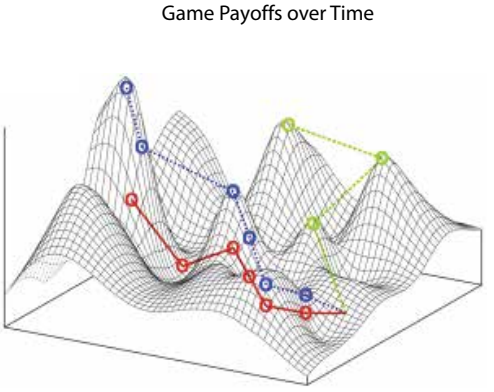
Since translating games in extensive form into games in strategic form is a matter of detailed bookkeeping, once games are captured in extensive form, creating computer programs to represent them in strategic form is feasible. Once the games are represented in strategic form, finding dominant strategies and equilibriums is conceptually straightforward. With close attention to information conditions, these data also could support more-sophisticated game-theoretic solution concepts.

The major complication is in evaluating payoffs, using the description of outcomes. Where those contemplating an operation can review and rank outcomes quickly from a limited number of player-strategy pairings (or vectors, for more than two players), doing so for a large number of outcomes created by online gaming would require scoring criteria. Conceptually, the subjective judgment involved in selecting scoring criteria is little different from that employed in quantitative adjudication. Different participants will have different ideas about the value of a specific outcome, depending on their sophistication and ability to think through actions beyond the time frame and scope of the game. The commander's intent should provide the basis for evaluating outcomes, although this too should be evaluated for how the intent supports national security aims. For

FIGURE 6
FITNESS LANDSCAPES



Zero-Sum Game



the process to be objective, the adjudication and scoring should be apparent to the players and analysts involved and allow for *reclama* and adjustment, if disagreements occur.

Beyond game-theoretic solution concepts, these data may be used to develop fitness landscapes in which the height of a point on the landscape represents the value of the courses of action.[43] The outcomes of a two-person, zero-sum game (where the value to one player is the negative of the value to the opponent) may be envisioned as a mountain range where the height of each mountain is the value resulting from the outcome of paired courses of action of the players. A player trying to minimize the maximum is akin to someone looking for the lowest passage through the mountain range. This analogy suggests a way to capture, depict, and analyze the implication of the values to each player of a set of actions (moves). Figure 6 depicts fitness landscapes for what payoffs might be involved in a two-person, zero-sum game and the payoffs to two players in a multiple-move, non-zero-sum game, showing the payoffs over time for the COAs each side selects on each move.

The intuition is that, just as armies in Europe used the same routes over the centuries on physical landscapes to attack and retreat, fitness landscapes may anticipate logical paths that a conflict could follow. The analogy of physical terrain to fitness landscapes could be particularly useful in understanding cyber operations, leading to traditional mission, enemy, troops, terrain, timing, and civilian effect analysis (referred to as METT-TC) in what is otherwise a conceptually challenging space to depict. More broadly, fitness landscapes may allow application of developments in complexity sciences.

IF YOU'RE SUCCESSFUL, WHAT DIFFERENCE WILL IT MAKE? WHAT IMPACT WILL SUCCESS HAVE? HOW WILL IT BE MEASURED?

The first level of success would be to involve a much broader range of national security professionals, particularly members of the military, in synthetic experiences that would inform their preparations for operations, both in operational planning and force allocation and development. The second level of success would be to provide decision makers with deeper and more-accurate appreciations of the challenges and opportunities at hand, resulting in wiser policies and strategies. The third level of success would be a phase change in DoD's and the IC's analytical cultures, weaning them off methods and tools inappropriate for the complexity of the age.

The thresholds for the first level of success would be the extent of adoption of the manual operational gaming process by military colleges, then by the broader officer corps, and then by the Pentagon for force-development analysis. The threshold for the second level would be the time that senior decision makers devote to gaining synthetic experience, rather than taking briefs, and the effects of this on security and defense policy and strategy. The threshold for the third level would be the extent to which this approach replaces the reliance on inappropriate computer combat and campaign models in DoD and supplements international relations / political science techniques in the IC. Using operational gaming, in conjunction with fleet/field exercises and complementary forms of analyses, we would not expect to create Hari Seldon's psychohistory (from Isaac Asimov's *Foundation* series), but would expect to take significant steps in understanding many of the factors that govern the logic of competition and cooperation.

WHAT ARE THE RISKS AND THE PAYOFFS?

The proposed approach requires multidisciplinary teams, involves both technical and methodological challenges, and faces headwinds from the current culture of and incentives enjoyed by the military modeling and simulation community and industry. Adoption of the approach would require military and commercial gamers to work with game theorists and scholars of complex adaptive systems—each of whom is not fully familiar with the others' disciplines. Currently, need-to-know and proprietary restrictions bar the sharing of detailed game data within DoD and the IC.[44] This prevents accumulation of knowledge from games within these communities except in superficial ways. The first experiment with representing the Halsey set of games as a game in extensive form demonstrated challenges in representing actions at different echelons of command as game moves and attaching values to the outcomes.[45] Capturing moves and outcomes from online games is apparently unprecedented (although commercial games are tuned routinely as

players discover dominant strategies).[46] Analysis of fitness landscapes is at the early stage of development and has relatively few practitioners.

Employing institutions that are dedicated to education and research and have long experience in manual and online war gaming (such as the military colleges) and complexity sciences (such as the New England Complex Systems Institute) would mitigate the risks of experimenting and demonstrating the conceptual approach.[47] In March 2016, the Chief of Naval Operations and the Commandant of the Marine Corps established a virtual community of practice, or vCOP, for a limited group of sailors, Marines, and civilians with an interest in war gaming and provided funding to the Naval War College to provide web-based war-gaming/experimentation repositories.[48] This effort could serve to share the data needed to construct and analyze games in extensive form.

The major obstacle is the analytical culture in DoD and the IC, as amplified by the large contract base employed in conducting analyses for these communities. The major payoff would lie in changing this culture and producing more-insightful analysis that affects senior policy-maker and military decisions more frequently. Hopefully, part of DoD's reinvigoration of gaming will result in senior officials taking the time to participate in games rather than just receiving briefings on them.

HOW MUCH WILL IT COST?

The answer depends on the scale of the effort. The principal costs are in creating interdisciplinary teams, some of whose members may be part-time consultants. A team should consist of leads from military planning and gaming, a lead who has experience working with the commercial gaming industry, a game theorist, and a complex adaptive systems lead with experience in fitness landscapes. Consultants should include those familiar with combat/campaign models, statistics, behavioral economics, history, and political science (preferably with experience in agent-based models). Software licenses likely would be required for commercial gaming technology. Establishing standards and training war-gamers for data collection would entail additional costs. Several million dollars per year should be sufficient to develop the practice and exploitation of repeated gaming.

HOW LONG WILL IT TAKE?

This program should use rapid spiral development. Four years should be sufficient to make or break the concept, although early failures can be anticipated. The aim for the first year should be to establish game documentation and sharing standards, while using commercial games to demonstrate the techniques required for online gaming. Military college and other DoD/IC game data should be available in the second year to learn what works and to transition the

theoretical approach into early practice. A focus on cyber warfare, with the aim of developing and analyzing cyber fitness landscapes, would test the limits of the concept.

WHAT ARE THE MIDTERM AND FINAL "EXAMS" TO CHECK FOR SUCCESS? HOW WILL PROGRESS BE MEASURED?

Early elements required for success are the ability to document and share manual games, and to track online game moves and outcomes and represent them as games in extensive and strategic forms and as fitness landscapes. The next exam would be the ability to derive the logic of the competition from game-theoretic analyses and these landscapes. Then the measures of adoption discussed above will come into play.

NOTES

The author would like to acknowledge contributions from Wayne P. Hughes, John B. Hattendorf, James R. FitzSimonds, Thomas L. Allen, Stephen Downes-Martin, and Robert C. Rubel.

1. Paraphrasing Peter P. Perla, *The Art of Wargaming: A Guide for Professionals and Hobbyists* (Annapolis, MD: Naval Institute Press, 1990), chap. 4. Note that operational gaming applies to situations other than warfare. Richard D. Duke and Jac L. A. Geurts, *Policy Games for Strategic Management: Pathways into the Unknown* (West Lafayette, IN: Purdue Univ. Press, 2004) provides excellent examples.
2. Gerald R. McNichols, *An Objective Appraisal of War Gaming* (Washington, DC: Headquarters, U.S. Air Force, Operations Analysis, 1970), p. 35.
3. Chester W. Nimitz [FAdm., USN (Ret.)], address to the Naval War College, October 10, 1960, Naval War College Archives, courtesy of Prof. John B. Hattendorf, Naval War College, e-mail to author, March 29, 2016.
4. Prof. Wayne Hughes points out that this statement is not quite accurate: "The games did not predict the Solomons campaign and the dual drive up New Guinea and through the Central Pacific. The games did not predict the replacement of battleships with aircraft carriers, nor the buildup of the combat logistics force. Nor did the games predict that extent to which we would be qualitatively and quantitatively inferior through most of 1942. Nimitz was thinking in macro terms and about his own command, but he is grossly inaccurate to say 'absolutely nothing was a surprise except the kamikaze attacks.'" Wayne P. Hughes [Capt., USN (Ret.)], e-mail to author, March 1, 2016.
5. James O. Richardson, *On the Treadmill to Pearl Harbor: The Memoirs of Admiral James O. Richardson (USN Retired), as Told to Vice Admiral George C. Dyer (USN Retired)* (Washington, DC: U.S. Navy Dept., Naval History Div., 1973), p. 109. From John M. Lillard, "Playing War: Wargaming and U.S. Navy Preparations for World War II" (PhD dissertation, George Mason Univ., Fall 2013), p. 11.
6. "Research & Gaming—McCarty Little," *U.S. Naval War College,* www.usnwc.edu/.
7. The gaming technique applies equally well to understanding governing factors shaping the competition and cooperation in noncombat situations. But the emphasis here will be on understanding combat.
8. Duke and Geurts, *Policy Games for Strategic Management,* p. 23.
9. John T. Hanley Jr., *On Wargaming: A Critique of Strategic Operational Gaming* (Ann Arbor, MI: Univ. Microfilms International, 1991), pp. 184–227.

10. Garry D. Brewer and Martin Shubik, *The War Game: A Critique of Military Problem Solving* (Cambridge, MA: Harvard Univ. Press, 1979), pp. 58–74 provides a history of the development of war gaming from the 1950s to the '70s. A few games, such as RAND's SIERRA, which investigated limited war and tactical airpower, lasted a few years. The Naval War College conducted repeated Global War Games in the 1980s, first to explore the maritime strategy of the day, then to explore the implications of prolonged conventional conflict. Current Global games explore different topics each year. Although DoD occasionally has attempted to catalog games and gaming systems, few DoD institutions and supporting contractors share game details, citing proprietary and security (need-to-know) concerns, while fearing what others might do with the information they have developed.
11. Secretary of Defense to Deputy Secretary of Defense et al., memorandum, "The Defense Innovation Initiative," November 15, 2014; Deputy Secretary of Defense to Secretaries of the Military Departments et al., memorandum, "Wargaming and Innovation," February 9, 2015, available at news.usni.org/.
12. Horst W. J. Rittel and Melvin M. Webber, "Dilemmas in a General Theory of Planning," *Policy Sciences* 4 (1973), pp. 155–69 discusses the attributes of "wicked" problems.
13. John T. Hanley Jr., *The Halsey Games: An Assessment of Continuous Gaming* (Alexandria, VA: Institute for Defense Analyses, 2010). SECRET classification.
14. Martin Shubik, *Game Theory in the Social Sciences: Concepts and Solutions* (Cambridge, MA: MIT Press, 1982), pp. 328–31 describes metagames as used in this context.
15. The Halsey games began as tactical games and evolved to this approach. The Naval War College Halsey staffs also experiment with other approaches.
16. John von Neumann and Oskar Morgenstern, *Theory of Games and Economic Behavior* (Princeton, NJ: Princeton Univ. Press, 1944), p. xxix.
17. *"Homo economicus"* refers to people making rational choices using cost-benefit logic, where the benefit is in material gain. In deontic logic, rational choice is based on obligation (e.g., duty to family, tribe, or religion) and permission.
18. O. G. Haywood Jr., "Military Decision and Game Theory," *Journal of the Operations Research Society of America* 2, no. 4 (November 1954), pp. 375–85; Robert P. Beebe, *Military Decision from the Viewpoint of Game Theory* (Newport, RI: U.S. Naval War College, Advanced Study Group, 1957); John E. Nolan Jr., "Tactics and the Theory of Games: The Theory of Games Applied to the Battle of Guadalcanal," *Army* 11 (August 1960), pp. 77–81.
19. L. C. Thomas, *Games, Theory and Applications* (London: Ellis Horwood / John Wiley, 1984), p. 15.
20. Gaussian distributions underlie essentially all combat models, either explicitly or in the form of expected values. New appreciations of the ubiquity and implications of power-law distributions, which anticipate "black swans," have yet to be explored and incorporated in combat models. Network sciences are developing ways to expose power-law behavior.
21. The literature is too comprehensive to address here. Highlights would include John H. Holland, *Hidden Order: How Adaptation Builds Complexity* (Reading, MA: Helix Books, 1995); Stuart A. Kauffman, *The Origins of Order: Self-Organization and Selection in Evolution* (Oxford, U.K.: Oxford Univ. Press, 1993); and Stephen Wolfram, *A New Kind of Science* (Champaign, IL: Wolfram Media, 2002).
22. "Video Gaming Statistics," *ESRB Ratings,* www.esrb.org/.
23. An annual series of conferences called Connections brings together international military and commercial gamers to reduce the gulfs among various gaming communities. Stephen Downes-Martin, e-mail to author, March 25, 2016.
24. Bradley A. Fiske, *The Navy as a Fighting Machine* (New York: Scribner's, 1916), pp. 256–57.
25. Thomas A. Brown, *Potential Applications of Manual Games* (Santa Monica, CA: RAND, 1984).
26. Hanley, *The Halsey Games.*
27. Martin Shubik, "On Gaming and Game Theory," *Management Science* 18, no. 5 (January 1972), pp. 37–53.

28. Game theory generally assumes that each player knows the other players' possible courses of action and evaluation of outcomes—which rarely occurs in actual circumstances. Some work has been done on evaluating games with misperceptions. The analysis is challenging enough, and may be sufficient for the purposes of the model without going to this level. The purpose of the analysis determines the level of complexity required.
29. In this analysis, as in most game-theoretic analysis, no distinction exists in the model between decision and action. Therefore the terms *decision* and *action* are used interchangeably. A more detailed model of subordinate actions following commander decisions could be made if useful for the purposes of the analysis.
30. The absence of a pure strategy equilibrium point indicates a situation with high potential for deception. However, this requires a lengthy explanation.
31. Shubik, *Game Theory in the Social Sciences,* p. 240.
32. Jim FitzSimonds, e-mail to author, March 24, 2016.
33. Operational games conducted over short periods require careful design to reach a culminating point.
34. Strategic concepts are on the level of forward offensive operations, versus standoff strikes, versus blockades as the main effort to achieve campaign objectives.
35. Moves included other than force-on-force actions, such as diplomacy or information operations. Since the focus of the games is on force-on-force interactions, the Halsey Group queries area experts on nonmilitary factors affecting the scenario and either uses best judgments or randomizes the political play. Control makes plausible arguments for why a player team should pursue a particular policy. FitzSimonds e-mail. Halsey control used versions of the "principle of relevancy" that select the branch most useful for the game objectives when at a branch point (rather than assessing the most plausible among plausible paths), and the "principle of the lesser included event," which forces the players to deal with a more complex or challenging situation under the premise that the solution would work in simpler situations. RAND developed these principles for its SIERRA series of games in the 1960s; the methodology was very similar to that developed independently by the Halsey Alfa Group. E. S. Quade, "Gaming" (unpublished handout material accompanying lectures on gaming at the Univ. of Michigan summer course, 1962), pp. 55–117.
36. See R. Harrison Wagner, "Deterrence and Bargaining," *Journal of Conflict Resolution* 26, no. 2 (June 1982), pp. 329–58, for example.
37. *Feasible* and *acceptable* are terms of art used in joint operational planning. U.S. Defense Dept., *Joint Operation Planning,* JP 5-0 (Washington, DC: Joint Staff, 2011), p. IV-27.
38. Ibid., p. IV-28.
39. Rudolf Hofmann, *War Games,* MS P-094 (Washington, DC: U.S. Army Dept., 1952).
40. Quade, "Gaming," p. 83.
41. Downes-Martin e-mail alerted the author to Gambit, a library of game theory software for analyzing finite games. *Gambit: Software Tools for Game Theory,* gambit-project.org/. The author has not yet used these software tools.
42. Abraham Kaplan, *The Conduct of Inquiry: Methodology for Behavioral Science* (Scranton, PA: Chandler, 1964), p. 32.
43. Kauffman, *The Origins of Order.*
44. Sponsors who conduct games at the Naval War College control all game-related materials and require permission for the College to share the data. Tom Culora, Dean, Center for Naval Warfare Studies and former Director, NWC War Gaming Department, e-mail to author, February 29, 2016.
45. Hanley, *The Halsey Games.*
46. J. C. Herz, "Harnessing the Hive: How Online Games Drive Networked Innovation," *Release 1.0: Esther Dyson's Monthly Report,* October 18, 2002, www.oss.net/.
47. The Santa Fe Institute did not indicate any interest in such a project when approached by the author.
48. DON Innovation, "SECNAV Establishes Wargaming Virtual Community of Practice," *CHIPS,* April 1, 2016, www.doncio.navy.mil/.

EXPANDING THE ROKN'S CAPABILITIES TO DEAL WITH THE SLBM THREAT FROM NORTH KOREA

Sukjoon Yoon

The navies of both Koreas are capable of conducting effective underwater operations. The North Korean navy possesses more than seventy submarines that, while aging and relatively obsolete, remain difficult to detect. They are tasked mainly with disrupting South Korean sea lines of communication. The Republic of Korea (ROK) Navy (ROKN) enjoys European technological support and coordinates its operational tactics with the United States; the ROKN belatedly has deployed advanced littoral patrol submarine forces against the threat of North Korean submarines.[1]

Although earlier tests, presumably from a Sinp'o-class ballistic-missile submarine (SSB), were of debatable success, North Korea's test firing on August 24, 2016, of an indigenous submarine-launched ballistic missile (SLBM), the KN-11, from a larger submarine, seems to represent a milestone.[2] This success has drawn greater attention to the balance of power between the two Korean navies.[3]

North Korea thus stands to become the sixth nation with SLBMs, joining the United States, the United Kingdom, China, Russia, and France. Such missiles provide a critical retaliatory (second-strike) capability, which is an effective deterrent against preemptive (first-strike) attacks. Nevertheless, serious doubts remain about the viability of North Korea's prototype SLBM and SSB

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technologies and the extent to which its land-based missile technologies can be adapted to SLBMs without further innovations. Regardless, this development certainly poses a new challenge for the ROKN; its ally, the U.S. Navy; and the Japan Maritime Self-Defense Force (JMSDF). This challenge requires effective countermeasures using sea-based antiair and antimissile assets to enhance antisubmarine warfare (ASW) capabilities, as well as improved naval cooperation among the three navies to deter North Korean maritime threats, both conventional and nuclear.

Unfortunately, few good countermeasures are available to the ROKN, and the situation is complicated by a heated debate between those who believe that North Korean deployment of a full-fledged and effective SLBM capability is imminent and those who are not convinced that the three test launches during 2016 represent an urgent threat. In any case, it seems very likely that within a few years North Korea will deploy SSBs with some limited SLBM capacity. The ROKN needs to strengthen its readiness to respond to such North Korean missile and submarine threats, and must seek a way to secure strategic credibility for its deterrence posture.

This article considers the options open to the ROKN, in the context of its maritime cooperation with the U.S. Navy, to deal with these intractable North Korean SLBM threats. What is the best approach to take, and what types of naval assets can reduce the strategic ramifications of North Korean deployment of SLBMs? The only feasible option appears to be for the ROKN to improve its submarine forces, placing greater reliance on subsurface forces to provide strategic deterrence. This should keep North Korean SSBs at bay without incurring excessive reactions from North Korea or other regional states.

NORTH KOREAN DEVELOPMENT OF SLBMS: ANOTHER RISKY STRATEGY

North Korea seems determined to expand its nascent weapons of mass destruction (WMD) capabilities to the maritime domain around the Korea Peninsula. This is the most opaque of all war-fighting domains, and North Korea is deploying its underwater assets with WMD capability against the United States and South Korea, and even against China, if recent speculations are to be believed.[4] For North Korea, operating any class of submarines—whether conventional or of a more modern type, and whether large or small—represents an attractive new asymmetric strategic option.[5] This was proved by the sinking of the ROK ship (ROKS) *Cheonan* in 2010 by an indigenous North Korean midget submarine that launched a torpedo attack against the corvette in the West Sea (i.e., the Yellow Sea).[6]

North Korea claims that on May 8, 2015, just off the coast of the Korea Peninsula in the East Sea (i.e., the Sea of Japan), it successfully test fired an SLBM it calls Bukkeuksong-1.[7] South Korean analyses, drawing on U.S. defense intelligence agencies' resources, indicate the missile was launched by a Sinp'o-class SSB, which are declared by North Korea's *Nodong Sinmun (Worker's Paper)* to be "strategic submarines."[8] These vessels are sixty-six to sixty-eight meters in length, with a beam of 6.6 meters. The large conning tower is fitted with a single vertically mounted tube. North Korea has had access to several types and classes of submarines capable of operating as SSBs, through the use of either "Shaddock" tubes or a very large conning tower tube. These submarines were built by the Soviet Union at Komsomol'sk-na-Amure and Severodvinsk from 1958 until the mid-1960s (notably the Yankee/Golf classes) and by China at Dalian in 1964. The first Sinp'o-class SSB, a conventional ballistic-missile submarine, was built in November 2014 at Sinp'o shipyard. There is also some evidence of preliminary SLBM testing at that time.[9]

North Korean deployment of submarines carrying one to two ballistic missiles, each capable of delivering a miniaturized nuclear warhead, would be a very significant threat. Such vessels would be challenging to locate and track and would provide a mobile launch platform able to attack from any direction and at a significant distance from the Korea Peninsula. South Korean military analysts anticipate the North Korean navy will be ready to deploy a nine-meter SLBM with a range of two thousand kilometers within a few years.[10]

North Korea's decision to develop an indigenous SLBM capacity appears to be an extension of its nuclear brinkmanship strategy.[11] Acquiring a sea-based, second-strike nuclear option complements the nuclear weapons assumed to be deployed on land-based ballistic missiles. Two major motives underlie these policies: the North Korean regime is pursuing a blackmail strategy to demonstrate its "true nuclear power status," hoping thereby to attract more attention from the United States and perhaps from China; and Kim Jong Un is trying to establish himself as North Korea's absolute leader, building a personality cult to match those surrounding his father and grandfather.[12]

Kim has a two-pronged policy of simultaneous nuclear expansion and economic development, known as the "*byongjin* policy," but only the latter prong was declared a core political issue for the ruling North Korean Workers' Party's Seventh National People's Congress, which was held in May 2016, following an unexplained thirty-seven-year hiatus.[13] That Kim Jong Un's rule is yet to be consolidated fully is shown by the top-to-bottom purges of political and military leaders since the execution of his uncle, Jang Song Tak, in December 2013. Kim Jong Un is hoping to use the development of SLBM capacity to demonstrate his

vision for a new era, differentiating him from his late father, Kim Jong Il. Kim wants to be seen as improving living standards for the North Korean people, but also as building a strong North Korean nation, to which end he is striving to make it a genuine and acknowledged nuclear power. In this way he hopes to put pressure on the international community, including China, and also to bolster his personal support through North Korean patriotism and anti-Western sentiments.

Kim deliberately has gotten directly involved with the new SLBM system and also with the new ship-to-ship missile known as the KN-01. The latter is likely a reverse-engineered version of the Russian SS-N-6, launchable from either Sinp'o-class SSBs or surface platforms.[14] According to the official (North) Korea Central News Agency (KCNA), Kim observed the test firing of the surface-launched antiship missile on February 7 and of the SLBM on May 8, 2015. These events were meant to be viewed as a dramatic success, especially in comparison with the satellite launch that occurred in December 2012.[15] That launch was part of North Korea's efforts to develop an intercontinental ballistic missile (ICBM) capable of delivering a nuclear warhead to targets as far away as the continental United States. The ROKN and the U.S. Navy tracked the three-stage rocket from its boost phase to its midcourse phase over the Yellow Sea and recovered debris from the initial propulsion stage—to North Korea's humiliation.[16]

The two-pronged policy of developing nuclear weapons and the country's economy simultaneously seems likely to present grave problems for North Korea, which experienced a severe drought in 2014–15 and is likely to face a serious shortage of food and a variety of social problems. These will be exacerbated by a reduction in aid from China and probably Russia and by sanctions over nuclear and missile development by South Korea, the United States, and Japan. With the basic incompatibility of the two prongs becoming obvious, North Korea is seeking a way out of its dilemma by attempting to terrorize the United States and South Korea. This new threat, of a second-strike nuclear capability, represents a potent counter to the possibility of surgical military operations by the United States and to proactive tactics against North Korean military provocations by South Korea. Majority opinion perceives this scenario as a strategic nightmare, although some have argued that it actually stabilizes the situation, since North Korea no longer needs to rely on preemptive attack or a launch-on-warning policy.[17]

A further ratcheting up of tensions came on January 6, 2016, with a fourth North Korean nuclear test. KCNA claimed the test was of a hydrogen bomb, but this is generally disputed. On February 7, 2016, North Korea conducted its fourth satellite launch via long-range ballistic missile.[18] The private, U.S.-based research institute 38 North also has reported that the North Korean Sohae satellite launching station has been upgraded by construction of fuel-storage bunkers; it argues

that this indicates that the launch of a fifth North Korean long-range rocket, presumably another ICBM test, is upcoming.[19]

In summary, Pyongyang seems committed to grabbing the attention of Seoul, Washington, and Beijing by continuing to pursue a policy of nuclear blackmail to force their recognition of North Korea as a true nuclear power—which is central to Kim Jong Un's consolidation of power.

TECHNICAL AND OPERATIONAL ISSUES FOR NORTH KOREA'S DEVELOPMENT OF SLBMS AND SSBS

The true extent of North Korean capabilities remains unclear, and observers' skepticism abounds.[20] Even in the absence of credible evidence that North Korea is capable of launching any SLBM, let alone a nuclear one, and from a true SSB, the apparent test firing of its first SLBM could be a game changer that disrupts the balance of naval power between the two Koreas.[21] This view has dominated press coverage in South Korea.[22] If North Korea's new capability is confirmed, its sea-based nuclear-power status could strengthen significantly the strategic credibility of the country's nuclear deterrence posture toward the United States and, by extension, toward South Korea.

For the near term, however, the SLBM test firing of May 2015 may well impose some strategic costs on Kim Jong Un's regime. For instance, the North Korean pursuit of an SLBM capacity is in clear violation of four UN Security Council (UNSC) resolutions condemning North Korea's nuclear and missile proliferation: Resolution 1718 (2006), Resolution 1874 (2009), Resolution 2087 (2013), and Resolution 2094 (2013).[23] It also caused South Korean president Park Geun Hye to take a firmer line with the North, since her most significant diplomatic accomplishment was her strong working relationship with China, on the basis of which she offered the North the prospect of a "unification bonanza," conditional on military restraint.[24] President Park's insistence was clear during the North-South dialogues held in November 2015: "Unless you demonstrate your commitment to denuclearization, you will get nothing from the South: you should be convinced of this fact."[25] President Park's subtle diplomatic maneuvering, intended to influence China's attitude toward the two Koreas, can be seen in her courageous participation in the 2015 China Victory Day Parade, a distinctly military occasion, despite strong objections from Washington and Tokyo.[26]

Indeed, following the latest round of sanctions imposed by UNSC Resolution 2270 following North Korea's January 6, 2016, fourth nuclear test, President Park insisted that the North abandon its nuclear ambitions entirely: "[D]espite North Korea's continuous saber rattling through nuclear and missile tests and its defiance of UNSC resolutions, any future provocations will be met with robust retribution."[27] The security situation on the Korea Peninsula has deteriorated further

since the latest sanctions, with North Korea repeatedly firing short- and medium-range missiles and also broadcasting video mock-ups of military landings and preemptive drills targeting South Korea's capital and U.S. cities.[28] Meanwhile, U.S. president Barack Obama's policy of "strategic patience" has given North Korea scant room to maneuver, despite the United States becoming more accommodating toward Cuba and Iran. More seriously, from Kim Jong Un's perspective, China has become a less reliable ally for North Korea, with ideological ties being given less weight than before.[29]

Various commercial satellite images indicate, and some military and private intelligence agencies monitoring North Korean SLBM and SSB development suggest, that the North Koreans are encountering some serious technical difficulties: they are using liquid propellant rather than the superior solid variety, as shown by a distinct lack of white smoke in images; and there are problems with the condensed air propulsion to eject the SLBM above the water's surface, as evidenced by the use of a vertical launch tube to push the missile out of the conning tower. Further problems arise from the need to adapt to the length and beam of the available SSBs, which are rather too small to accommodate the SLBMs' "plug-in/plug-out" design. North Korea's SSB is apparently the product of reverse engineering 1970s vessels built by Russia and China.[30] The London-based *IHS Jane's Defence Weekly* analyzes the North Korean KN-11 SLBM as being similar to the Soviet R-27 Zyb / SS-N-6 Serb SLBM; North Korea is known to have acquired some of these missiles in 2003.[31]

It also has been reported that on November 28 and December 12, 2015, attempted follow-on test firings of KN-11 SLBMs from Sinp'o-class SSBs resulted in failure, so perhaps North Korea's Sinp'o-class SSB will remain nothing more than an impractical prototype, similar to those of Russia and China during the 1960s.[32] Furthermore, even if SLBMs can be launched reliably, a great deal more would be involved before the North Koreans could establish a submarine-based second-strike nuclear attack capability, and they are very far from achieving the operational capabilities and technological innovations required for the continuous at-sea deterrent nuclear capability that other powers maintain. Indeed, South Korean analyses suggest that North Korea may acquire just a single prototype of the Sinp'o-class SSB, with a single vertical launch tube for SLBMs.[33]

In summation, U.S.-ROK combined military intelligence agency analyses conclude that this submarine was built at the Sinp'o shipyard, on the basis of 1960s technologies, by reverse engineering Golf-class SSBs acquired from the Soviet Union; that it can carry a maximum of three KN-11 SLBMs; and that it would be incapable of operating as a far-sea strategic nuclear deterrent without significantly enhanced far-sea command-and-control systems and capacities.[34] Russia and China have preferred to deploy their SSBs and SSBNs in a near-sea

environment—the so-called bastion strategy, whereby nations with a continentally oriented naval strategy, lacking sufficient deep-sea control, seek to maximize the chances of operating an effective second-strike capability.[35] It therefore seems impossible that North Korea could deploy its SSBs for far-sea strategic-deterrent patrol operations, since this would require surface combatant task units centered on aircraft carriers.

Even if North Korea succeeds in building indigenous SSBs by copying Russian and Chinese models, ejecting an SLBM from a vertical launch tube through the large conning tower of the Sinp'o-class SSB remains a formidable challenge. *The Washington Free Beacon,* an online news site, reported on December 10, 2015, that a Sinp'o-class SSB had been damaged after it failed to eject a KN-11 SLBM (or perhaps a submarine-launched cruise missile [SLCM]) properly off the coast of Wonsan in North Korea.[36] If this U.S.-originating report is correct, the failure represents a serious setback for North Korea's SLBM and SSB program.[37]

Those with a skeptical view of North Korea's progress can point to the small size of the Sinp'o-class SSB, which seems inadequate for SLBM launching. A South Korean think tank has argued that the SLBM test firing was completely fabricated to support Kim Jong Un's pretensions to lead a true nuclear power and to bolster the personality cult of the Kim family.[38] Since the KN-11 SLBM's length is nine meters, the Sinp'o-class SSB's length appears too small, unless North Korea has redesigned the submarine; and since the KN-11 SLBM has a range of less than two thousand kilometers, the Sinp'o-class SSB is not capable of carrying out an attack on the continental United States, for which a much larger vessel (of more than three thousand tons) would be required.[39] Moreover, analysis of the recovered debris from the first stages of North Korean rockets launched in December 2012 and February 2016 has revealed that North Korea lacks the materials and the fabrication skills that other navies with SLBM capability employ.[40] China's *Global Times* revealed that, surprisingly, the main body of the KN-11 SLBM appears to be made of reinforced glass fiber rather than the carbon fiber usual for modern, advanced missiles.[41] Chinese military analysts also have argued that North Korea appears to lack confidence in its preliminary SLBM trials: apparently it conducted ejection tests using a stationary submersible platform.[42]

Such doubts about North Korean capabilities have been partially resolved by photographs and video footage released by KCNA of the three launches on April 23, July 9, and August 24, 2016.[43] One day after the latest test, North Korea's state-run website *Uriminzokkiri* claimed a fully successful flight test of an SLBM following the earlier ejection tests. The missile was fired at a very steep angle and flew about five hundred kilometers (311 miles) toward Japan, falling into the East Sea within Japan's air defense identification zone; had it been fired at a shallower angle, it could have flown more than a thousand kilometers. The U.S.

and South Korean militaries report that the 2016 tests were probably powered by solid rather than liquid propellant, and also confirm that they were launched from below the surface of the water, presumably by compressed gas, judging by the narrow translucent exhaust plumes; this cold-launch technology represents a significant milestone. Some video images of the loading and launch appear to show a larger submarine than the Sinpo-class SSB used for the previous tests;[44] it seems that this latest test was conducted from a new type of SSB, of the Gorae class (after the Korean word for dolphin), displacing approximately two thousand tons and equipped with a vertical launch tube.[45] Both the Sinpo and Gorae classes have limited endurance and missile-carrying capabilities, however, and South Korean analysts have speculated that the Gorae class is an experimental prototype intended to pave the way for larger SSBs with better endurance, which may well be nuclear powered.[46]

This demonstration of several important SLBM technologies, including underwater ejection and initial attitude control and an improved underwater platform, lends weight to the fear that North Korean SLBM capabilities could mature much more quickly than previously believed.

IMPLICATIONS OF NORTH KOREAN SLBMS FOR SOUTH KOREA AND ITS NEIGHBORS

There are two distinct schools of thought about the viability of North Korea's capacity to operate its KN-11 SLBM system. Opinions differ on the progress North Korea has made toward the miniaturization of nuclear warheads for long-range delivery, the authenticity of its SLBM test firings, and the feasibility of deploying full-fledged SSBs in the East Sea.

The Optimists

Some see little immediate cause for concern, arguing that North Korea's missile-related technologies and systems for submarine-launched and long-range missile strikes are insufficient.[47] They also cite its lack of far-seas operational experience and proficiency, the inadequacy of Russian and Chinese Golf-class SSBs, and the weakness of the Sinpo naval base where the SSBs are constructed—satellite imagery shows the base has a simple flat-top design, in contrast to the complex zigzag features of Russian and Chinese naval bases, implying a lack of sophistication in the comparable Sinpo facilities. Rumors abound that during the mid-1990s North Korea purchased Chinese and Russian Golf-class SSBs as scrap, using them as the Chinese navy did in developing its first-ever aircraft carrier in 1997 from a Russian vessel.[48] Such views mainly come from U.S. and South Korean defense experts, who believe that North Korea would need considerable time and effort before it could deploy SSBs with SLBM capability to conduct true

strategic-deterrence patrol missions, and that doing so would require clandestine technical support from both China and Russia.[49]

The Pessimists

In contrast, many serving and former naval officers are very worried about North Korean progress in operating SSBs with SLBM capabilities. They cite North Korea's secretive technological collaboration with China and Russia on ballistic missiles and submarines; its long experience in developing land-based, three-stage ballistic missiles under the pretext of launching commercial satellites; and the many circumstantial indications that it has miniaturized its nuclear warheads successfully. The recent ceremonial military parade in Pyongyang provided especially noteworthy evidence:[50] display of a modified version of the liquid-fueled KN-08 ICBM, apparently with a small nuclear warhead. The KN-11 SLBM appears to be a new version of the KN-08.[51] These naval officers also mention recurring evidence of land-based tests of a submarine ejector system using vertical launch tubes, conducted at an island off Sinp'o.

Common Concerns: South Korea, Its Neighbors, and Its Allies

Both sides agree, however, that the North Korean test firing used an SLBM, not an SLCM; that problems remain with miniaturizing nuclear warheads and with developing missile-ejection technology; and that North Korea intends to acquire SLBM capability with WMD warheads, whatever the costs and consequences. It is therefore just a matter of time before North Korea deploys indigenous KN-11 SLBMs in Sinp'o/Gorae-class SSBs. However, in addition to this SLBM threat, some South Korean naval and security experts argue that North Korea may be able to develop SLCMs as well. In October 2015, the Russian Project 636.3 Kilo-class diesel-electric submarine (SSK) *Rostov-na-Donu* fired multiple Kalibr (3M-14) SLCMs through its torpedo tubes, from the Caspian Sea into Syria's Ar Raqqah province. Many lesser naval powers have acquired Kilo submarines, and North Korea may be intending to make use of the Russian SLCM experience and technologies.[52] Kalibr SLCMs carry a five-hundred-kilogram warhead, have a range of two thousand kilometers, and are accurate within a few meters.[53]

The two sides differ on the timescale of when North Korea will be able to deploy indigenous SLBMs carried by Sinp'o/Gorae-class SSBs, with the pessimists anticipating sometime in 2017 as the earliest this might occur.[54] If such views prove correct, this would be a grave concern for South Korea and other countries in the region, as well as for the United States.[55] Military experts and security analysts from both sides of this debate, in Seoul and in Washington, were caught out by North Korea's development of an SLBM capability, which further increases the threat its weapons of mass destruction pose.[56] It is certainly true that missiles launched from underwater assets are more difficult to detect and intercept than

land-based ones, and as North Korea's SLBM capabilities expand into the deep seas this problem will become more serious, threatening South Korea, Japan, and U.S. bases in Northeast Asia, and also complicating U.S.-led theater missile-defense planning. The wider regional character of North Korea's agenda is clear to the military establishments in Seoul and Washington.[57]

These developments also affect South Korean plans for an indigenous missile-defense system intended to guard against potential missile attacks from both China and North Korea.[58] South Korea's National Security Committee considers that North Korean SSBs carrying land-attack missiles would complicate regional missile-defense planning seriously, since the system under development and due for completion by 2020, known as the Korea Air and Missile Defense (KAMD), only targets North Korean aircraft.[59] Therefore the ROK Ministry of National Defense (MND) is attempting to change the conceptual framework of KAMD from a proactive defense posture to a preemptive one. North Korean SLBMs would be targeted in ports capable of harboring SSBs.

Accomplishing this likely would require U.S. cooperation to enhance KAMD's competency. Moreover, bilateral negotiations are taking place between the U.S. Department of Defense and the ROK MND about deploying the Terminal High Altitude Area Defense (THAAD) system on South Korean soil, although the U.S. Army would operate it; however, the results of the recent election in South Korea have cast doubt on the political feasibility of this deployment.[60] The Japanese defense minister also recently referred to this issue publicly for the first time, in the context of protecting Japanese and U.S. forces in Japan.[61] On June 28, 2016, the U.S. Navy, the JMSDF, and the ROKN conducted their first joint missile-tracking naval exercise, code-named PACIFIC DRAGON, off the coast of Hawaii, on the sidelines of the Rim of the Pacific exercise (known as RIMPAC). PACIFIC DRAGON focused on improving tactical and technical coordination among the three navies. It included live ballistic target tracking, with each navy's Aegis ballistic-missile defense (BMD) system sharing tactical data.[62]

North Korea and China

Even China has expressed serious concerns about North Korea's third SLBM launch, on August 24, 2016, and its fifth nuclear test, on September 9, 2016, and has criticized North Korea's claim to be a nuclear-armed state.[63] In light of the WMD threats from North Korea, Chinese president Xi Jinping's ambitious but ambiguous "True Maritime Power" initiative may be impacted, with China's neighbors wondering who is responsible for North Korea's brinkmanship strategy and perhaps also having second thoughts about participating in China's "One Belt, One Road" initiative, given the prospect of wider geopolitical fallout.[64] North Korea also fears President Xi's ambitious plans to establish a "New Type of

Great-Power Relations" with the United States. China is distracted further by territorial disputes in the East and South China Seas. Indeed, there is some evidence of a shift in Chinese policy toward North Korea, especially China's collaboration with the United States and Japan to pass stricter sanctions, via UNSC Resolution 2270, in response to North Korea's nuclear and ICBM tests in January and February 2016.[65] Despite Xi Jinping's apparent endorsement of Kim Jong Un in a formal letter in October 2015, the Chinese are surely aware of the geopolitical and strategic implications of North Korea's latest nuclear test, on September 9, 2016.[66]

The growing disharmony between China and North Korea has been manifest even in the dimension of popular culture: a five-day Chinese tour by the all-female North Korean musical group Moranbong in December 2015 was called off suddenly—just three hours before the first performance. Sources from the Chinese Communist Party attributed this to "communication issues at the working level" with the North Korean Workers' Party, although it is rumored that this debacle may have been China's response to Kim Jong Un's hints about developing a hydrogen bomb.[67]

In general, China seems less inclined to provide the political and economic commitment that North Korea desires; yet Chinese supplies of cash, food, arms, and energy remain crucial for North Korea. With China proving less tractable, it is no longer unreasonable to suppose that an impoverished North Korea may be trying to exert pressure on Beijing, as well as on Washington and Tokyo. Hence the continued nuclear brinkmanship as a strategy intended to overcome such external difficulties.[68]

Yet, although the Chinese are scrambling to avoid being blamed for North Korea's disruptive behavior, they are unlikely to go beyond the stern words already uttered; it probably will be business as usual, with China doing the minimum to ensure North Korean survival and to avoid the threat of North Korean collapse, which for China would be an even worse outcome than the status quo.

A Chinese monthly magazine dealing with naval matters has referred openly to the fact that China considers the proliferation of various types of submarine operations in the East Sea to be a serious problem. China is concerned that North Korea could create sanctuaries within the East Sea where its low-value SLBM submarines could operate within a "bastion," emulating the classic Soviet and Chinese strategy.[69] China is worried that this would convert the East Sea into an operational theater for Western submarines, disrupting Chinese plans to use it as a sea route for supplying bituminous coal from three poor northern Chinese provinces to the country's prosperous eastern cities. Another problem for China is that North Korean SLBMs might prompt the ROK to set aside its long-standing complaints about Japan's historical transgressions to forge a closer trilateral

military alliance with Japan and the United States—something China has worked hard to prevent.[70]

China doubts the plausibility of North Korea's modification of the Sinp'o/Gorae-class SSB to carry and launch its indigenous ballistic missiles. But, beyond the possibility of North Korea actually operating SLBMs, China seems upset by North Korean grandstanding in the East Sea in general.[71] The Chinese understand that SLBM submarines would need extensive protection from other naval forces to respond rapidly to hostile forces seeking to restrain the SLBM submarines in confined seas. The prospect of a North Korean deployment of Sinp'o/Gorae-class SSBs in the East Sea drawing more attention from the ASW forces of the ROKN, the U.S. Navy, and the JMSDF is most unwelcome to the Chinese military, especially if such scrutiny extends into the West Sea—a very sensitive area for the Chinese People's Liberation Army Navy, which bases its North Sea Fleet at Qingdao.[72]

Although North Korea's rhetoric remains focused on the United States, alarm bells are beginning to ring for China as North Korean WMD threats become reality.

The KN-11 SLBM clearly represents an advance toward building a genuine SLBM capability, one that North Korea is intent on developing. Recently North Korea implicitly claimed a successful test (though not a flight test) of a new ICBM engine that would enable it to strike the North American continent with a miniaturized nuclear warhead. Several steps remain before North Korea could realize its ICBM aspirations, but there have been indications of some progress in miniaturizing nuclear warheads; in testing reentry technology to allow an ICBM to return through Earth's atmosphere without breaking up; and in building a solid-fuel rocket engine, which expedites launch preparation.[73] North Korea has vowed to expand its nuclear and missile programs in defiance of the latest round of tougher UNSC sanctions imposed in March 2016.

It would be a serious mistake for the United States to overlook the gravity of the nuclear threat that North Korea represents; this issue will remain near the top of the U.S. national security agenda.[74]

THE ROKN'S REQUIREMENTS OF OPERATION: A PREEMPTIVE ANTI-EXIT STRATEGY

If the worst-case scenario materializes—North Korea technically and operationally perfects its SLBM capabilities and miniaturizes its nuclear warheads for long-range delivery (it is believed to have stockpiled six to eight nuclear warheads)—the ROKN certainly will need to carry out a wholesale revision of its concepts of naval warfare.[75] It should continue to deter North Korean maritime subsurface

threats through its existing littoral ASW and antiair warfare (AAW) approaches, but also must develop new capabilities for submarine deterrence patrols and anti-exit operations, as well as intensive air and surface ASW operations, sea-based special operations, theater missile defense, and enhanced antisurface warfare (ASUW).

It has been reported that after observing the North Korean SLBM test firing, President Park Geun Hye immediately ordered the ROK MND to develop appropriate preemptive measures, focusing especially on sophisticated underwater assets and indigenous air- and missile-defense capabilities.[76] The initial emphasis is on countering North Korean SLBM threats through an innovative military doctrine, called the "4D military posture" for *defend, detect, disrupt,* and *destroy*.[77]

But it is also essential to establish new operational countermeasures. While the operational abilities of North Korean SLBMs remain unproven and the specifications of the Sinp'o/Gorae-class SSBs are still mysterious, the ROKN should deter North Korean submarine and WMD threats by a well-defined preemptive anti-exit strategy that entails sustainable long-duration submarine operations beyond the South Korean area of operations (AOR). To accomplish this, the ROK MND is planning an "underwater KAMD system." Detection will employ military-intelligence surveillance satellites and strategic, high-altitude, unmanned aerial vehicles to monitor North Korean Sinp'o/Gorae-class SSBs berthed at their naval base; tracking will be done by dispatching Aegis-equipped ROKN destroyers and frigates to the scene; and destruction will rely on intercepting SLBMs with antiair missiles such as SM-2s launched from surface combatant ships.[78]

The ROK MND recently published a five-year defense improvement plan, which proposes supplementing the limited ability of the current Aegis air-defense system by developing an indigenous theater ballistic-missile defense function or an air/missile defense capability.[79] The ROKN is known to have wanted to implement a limited sea-based BMD system for the existing Aegis-equipped KDX-III destroyers with the SM-6 missiles under development, but this BMD was considered inadequate for the ROKN's long-term requirements, and the project was derailed by political difficulties during the liberal administration of the late president Roh Moo Hyun. The ROKN's next three *King Sejong the Great*–class KDX-IIIs will be equipped with the Aegis Baseline 9 naval combat system that features an integrated air- and missile-defense capability, including Lockheed Martin's SPY-1 multifunctional radar system. The ships will be constructed by South Korean shipbuilder Hyundai Heavy Industries and are expected to come into service in 2020, 2021, and 2022.[80]

Both the SM-6 and the SM-3 were developed for the U.S. Navy for either land- or sea-based missile defense. The SM-6 has only a limited capability as a missile interceptor, so the U.S. Navy relies primarily on the SM-3; but this is a

very expensive option for intercepting North Korean ICBMs, especially when the latters' ability to carry nuclear warheads is still in doubt.[81] The U.S. Navy and the JMSDF collaborated on the development and deployment of the SM-3, but the ROKN so far has not used this missile on its *King Sejong the Great*–class KDX-III destroyers. Having chosen to stay outside the U.S.-led BMD architecture intended to counter regional WMD threats, the ROK is faced with a difficult decision. The indigenous KAMD system, even if bolstered by U.S. assistance, will offer only a brief window of defense against the short-range ballistic missile threat from North Korea, and both the ROK and its ally, the United States, remain in the crosshairs of North Korean SLBMs. ROKN acquisition of SM-3s to counter such WMD threats is not an absurd idea, but it would be extremely expensive to accomplish.[82]

North Korea's SLBM aspirations have provoked operational and tactical turmoil in the ROKN. If it is not feasible to acquire SM-3s or SM-6s to function as interceptors as part of an underwater KAMD system, there is an urgent need to enhance far-seas ASW operational capability. The ROKN still is operating its obsolete P-3C Orions for littoral ASW missions, and has yet to secure defense budget allocations to acquire replacements. Many naval experts have proposed acquiring P-8 Poseidon far-seas maritime security surveillance aircraft to support the ROKN's underwater KAMD system and to enhance its ASW operational capabilities.[83] The Poseidon is the world's most capable maritime patrol aircraft, with a state-of-the-art networked ASW system; next-generation sensors, such as fourth-level, low-frequency, active sonar; and reliable, high-efficiency turbofan engines. ROKN acquisition of the P-8 would allow greater interoperability with the U.S. Navy and the JMSDF, which are already operating these aircraft throughout the Indo-Asian-Pacific region, and would enhance greatly the ROKN's ASW abilities to detect North Korean underwater assets.[84]

It is essential for the ROKN to establish a robust and rigorous new concept of submarine-based ASW to exploit the technical and functional vulnerabilities of the North Korean SLBMs and SSBs so as to contain them within the bay of Sinp'o. This will require two major operational changes: increasing the capacity for preemptive submarine operations and extending the operational areas beyond their present limits. Despite the ROKN's substantial experience with ASW in its East Sea AOR, it will not be an easy task to detect SSBs in such a cluttered and noisy body of water and then to destroy them in the face of North Korean antisubmarine operations.

Conducting preemptive anti-exit strikes on North Korean naval bases under the concept of the underwater KAMD doctrine will require changes to several aspects of current South Korean practice: expanding the AORs, revising rules

of engagement (ROEs), and deploying ROKN submarine forces in the near sea around the Sinp'o naval facility. Under the current rather basic guidelines of defense-oriented ROEs, which regulate how to fight against North Korean military provocations, the ROKN would have very limited options in deploying its far-seas ASW assets to deter North Korean SLBMs preemptively beyond the existing AOR. Open publications from the ROKN and ROK MND explicitly mention how the ROKN AORs are limited by the northern limit line (NLL) and indicate that this prevents the ROKN from conducting an effective preemptive anti-exit strategy.[85]

In this regard, urgent negotiations with the United States also are needed to implement a *conditional* wartime transfer of operational control to the ROKN. One of the top priorities of an ROK-led wartime operational plan is the expansion of the ROK's AORs to deter North Korean WMD threats that currently are being allowed to develop in the shelter of the NLL and the Demilitarized Zone. Relatively silent SSBs with a low acoustic signature provide very little indication of their presence and can launch SLBMs without warning. In the complex and noisy underwater domain of the East Sea, such vessels, once submerged in deep seas, are very hard to detect, presenting a serious challenge to South Korea's national security.[86]

The ROKN therefore needs to move beyond its current littoral ASW operations, mostly conducted by surface combatant platforms in the existing limited AOR. Two constraints severely hamper these operations: the armistice agreement between the North Korean military and the UN Command, and the prevailing operational plans under the guidelines of the ROK-U.S. Combined Forces Command, established in 1978. Under the current defense-oriented naval doctrine, the ROKN is exercising only very limited littoral ASW capabilities, targeting the aging North Korean Romeo-class submarines and midget submarines. All ROKN platforms operate within the currently designated AORs: the East Sea, and south of the NLL in the West Sea. The emerging threat from North Korean Sinp'o/Gorae-class SSBs makes an early expansion of the limited South Korean AORs essential.

Under the current implementation of the ROEs, according to the armistice agreement, the ROKN can deploy no preemptive assets into North Korean waters, so it is not possible to deploy submarine forces to detect North Korean SSBs or to conduct comprehensive far-seas ASW operations against North Korean SSB patrols.[87] To meet the newly formulated ROK MND 4D military doctrine, the ROKN's operational capacity in the East Sea needs to be expanded significantly within the next few years.[88] Preemptive anti-exit operations in the underwater domain will require larger underwater assets capable of sustaining long-duration

missions.[89] The 4D military posture also will require technological advances to detect, track, and attack the Sinp'o/Gorae-class SSBs in today's increasingly cluttered and noisy maritime environment.[90]

The ROKN has concentrated mainly on AAW and ASUW, with littoral ASW capabilities being essentially self-defensive. The kinds of mission so far prioritized are represented by the ROKN's acquisition of *Gwanggaeto the Great*–class KDX-I, KDX-II (a.k.a. *Yi Sun Shin*–class KDX-II), and KDX-III (a.k.a. *King Sejong the Great*–class KDX-III) destroyers; *Ulsan*-class FFX frigates; and *Chang Bogo*–class KSS-I and KSS-II (a.k.a. *Sohn Won Il*–class KSS-II) submarines.[91] With the advent of North Korean SSBs, however, surface vessels are clearly vulnerable to attack unless the ROKN has the resources to conduct intensive ASW operations. The ROKN is operating an organic ASW air asset, the P-3C Orion, and would benefit greatly from establishing an underwater sound-tracking system in the sensitive seas by integrating the ASW resources of friendly navies. In addition, with the prospect of a near-term North Korean deployment of its SSBs carrying SLBMs in deep-sea domains of the East Sea, the most opaque of all war-fighting theaters, the ROKN is urging more sustained development of its underwater firepower with better and more capable sensors and weapons.[92] Its next-generation submarines, the *Chang Bogo*–class KSS-IIIs, and the *Gwanggaeto*-class KDX-III destroyers are expected to have a long-range, land-strike capability, using indigenous long-range cruise missiles, code-named Haesong-III, with a range of more than a thousand kilometers.[93]

ROKN OPTIONS

How can the ROKN implement a preemptive anti-exit strategy in the underwater domains to counter North Korea's SLBM-oriented nuclear brinkmanship strategy? It needs to acquire strategic ASW platforms to facilitate comprehensive ASW operations and enhance its ability to contribute to joint or combined ASW operations with the U.S. Navy and the JMSDF. This will send a strong signal to North Korea that its plan to operate its SLBM submarines by emulating the Soviet or Chinese bastion strategy will be riskier than expected. The essential requirement is to bottle up North Korean SLBM submarines and hunt them down in confined waters, thus effectively countering the North Korean bastion strategy.[94]

As to the specifics, there are several options for the ROKN to enhance its comprehensive ASW capabilities: purchase P-8s, build an ASW-oriented aircraft carrier (CV), or build nuclear-powered submarines (SSNs).[95]

Submarines

Some important work is already in progress: the ROKN's submarine force command, established in mid-2015, has demonstrated its effectiveness quickly; and on January 4, 2016, the ROKN set up a task force to design and configure the first

batch of *Chang Bogo*–class KSS-III submarines. The project's defense industrial partner is Daewoo Shipbuilding & Marine Engineering, which has demonstrated its capacity for first-in-class construction with the *Chang Bogo*–class KSS-I/II, with the KSS-I being constructed under license and the KSS-II using indigenous technologies and designs.

Unofficial sources contacted by the Seoul Broadcasting System have revealed that a decision on the propulsion system for the second and third batches of the *Chang Bogo*–class KSS-III submarines has yet to be made. It seems not unlikely, then, that the air-independent propulsion mode of the first batch may be replaced by an indigenous nuclear propulsion system for the subsequent batches.[96] It also has been reported that the ROKN plans to build a total of nine *Chang Bogo*–class KSS-III submarines between 2027 and 2043; these will have a three-thousand-ton displacement and be equipped with vertical missile launchers.[97] The Sohn Won Il Forum (the Korea Institute for Maritime Strategy mechanism for discussing maritime security issues) has recommended that the subsequent batches be capable of long-endurance underwater operations (preferably 50 percent longer than Sinp'o/Gorae-class SSBs), high speed, and improved maneuverability at various depths in the complex underwater spaces around the Korea Peninsula.[98] Nuclear power plants using highly enriched uranium fuel may be the best option, although they would be limited to less than 20 percent enrichment to meet the ROK-U.S. nuclear agreement signed when the ROK abandoned its secret nuclear weapons program during the 1970s.[99]

Carriers

The ROKN has been negotiating with the ROK MND and joint chiefs of staff about acquiring a next-generation *Dokdo*-class batch 2 landing helicopter dock (LHD). An ASW-oriented aircraft carrier would be invaluable for integrating a wide variety of naval component operations in the open seas, including comprehensive ASW operations in the surface, air, and underwater domains to counter the proliferation of conventionally powered quiet submarines capable of extended submerged operation.[100]

An ASW-oriented CV of this kind would provide the ROKN with many benefits: advanced, long-range, underwater, high-/low-frequency sound sensors; air and surface tactical ASW data integration at the theater level; close operational coordination by a dedicated shipborne ASW commander; and active ASW weapons, including heavy torpedoes. An ASW CV, by providing firm sea control, also would provide the SSNs already discussed with greater survivability and sustainability in conducting long-duration, deep-sea deterrent patrols. A very capable ASW CV thus would be able to implement the necessary preemptive anti-exit strategy. Such a highly integrated surface platform could deliver far-seas ASW

functionality beyond the current AORs and adopt more-active ROEs to detect, identify, and attack North Korean SSBs.

In addition to ASW, the ROKN CV could coordinate many related functions: dispatching special operations forces; using attached submerged vehicles; and launching long-range, land-attack cruise missiles.

Choices, Combinations, and Collaboration

Nuclear-powered submarines can operate in deep waters, and can both chase enemy submarines and elude torpedo attacks on themselves. Fast and stealthy SSNs are an offensive asset, capable of conducting submarine-to-submarine operations and land-attack warfare. South Korean SSNs could prevent North Korean SLBM submarines from operating in distant seas, obliging them to stay close to shore. Whether the ROKN will be able to build an indigenous ASW CV or SSNs or both in the near future is uncertain; but, if it becomes necessary to choose among ASW assets, SSNs are probably the best option.

In addition to the capabilities mentioned above, SSNs can detect unknown submarines acoustically, but this is not easy; only an ASW-oriented naval task force will be able to conduct effective ASW operations in the complicated underwater environment around the Korea Peninsula, in which sound distortion is commonplace. Even with SSNs, the ROKN's offensive capabilities would remain very limited, so ROKN SSNs would have to be capable of supporting a USN CV strike group, which would include assets able to project power inland from the littoral, such as a USN *Zumwalt*-class destroyer designed for land-attack missions. The ROKN still would lack underwater assets for far-seas operations.[101]

What models are available for an ROKN ASW CV? The Royal Australian Navy's *Canberra*-class LHD is an interesting example. Austal USA produced a trimaran littoral combat ship for the U.S. Navy, and the same company has suggested a trimaran CV capable of carrying many unmanned aerial combat vehicles.[102] If North Korea succeeds in deploying a submarine force with an SLBM capacity, a CV-based organic ASW air wing capacity would provide an effective deterrent. An ROKN ASW CV should not be regarded primarily as an offensive naval platform, but essentially as a defensive asset intended to deny access to any potential adversaries' underwater assets in the near seas of the Korea Peninsula.

Another issue concerns U.S. plans to redeploy more than 60 percent of its naval combatants to Asia by 2020. According to the recently revised "Cooperative Strategy for 21st Century Seapower," now subtitled "Forward, Engaged, Ready," the U.S. Navy's current and upcoming budget submissions will provide for a fleet of more than three hundred ships and a forward presence of about 120 ships by 2020, the latter up from an average of ninety-seven in 2014. The strategy includes a statement that "[t]he centerpieces of naval capability remain the Carrier Strike Group and Amphibious Ready Group. . . . These ships, aircraft, Sailors,

and Marines have deterred and defeated aggression since World War II and will continue to do so well into the future."[103] However, as China seeks to become a true maritime power and disputes in the East and South China Seas grow hotter, the U.S. Seventh Fleet may be drawn away from Korean waters in the near future.

Therefore the ROKN may have to take responsibility for preserving maritime security around the Korea Peninsula and for handling North Korean maritime threats. An ASW CV and SSNs would be immensely helpful for fulfilling this enhanced role. USN cruisers and destroyers assigned to monitor, track, and intercept North Korean WMD threats currently have insufficient air wing ASW assets and underwater platforms to conduct effective ASW operations, so it is only sensible for the ROKN to provide complementarity. The ROKN needs hybrid assets capable of both defensive and offensive naval operations. By building an indigenous ASW CV and SSNs, the ROKN can satisfy both strategic aims in a rapidly changing maritime security environment that presents several pressing challenges.

This article has summarized the political and operational contexts within which North Korea's latest acts of nuclear blackmail—its flight test of an SLBM on August 24, 2016, and its fifth nuclear test, on September 9, 2016—should be understood. Its analysis of the KN-11 SLBM and the Sinpo/Gorae-class SSB has been based on official South Korean (especially MND), U.S., and other sources, including from the United Kingdom and China.

The results of this exploration are inconclusive: there is simply not enough evidence available at present either to confirm or to refute the existence of a functional North Korean SLBM and SSB. North Korea's claims about its SLBMs are undermined by news of several apparently unsuccessful earlier test firings. Even accepting North Korea's claims about its SLBMs at face value, there is little proof that North Korea has succeeded in miniaturizing its nuclear warheads, so the most extravagant fears are not justified. Nevertheless, the North Korean determination to possess such assets should not be taken lightly, as evidenced by the building of a new and larger SSB and the successful flight test of a solid-propellant SLBM.[104]

Taken together with North Korea's announcement of a supposed test of a hydrogen bomb on January 6 and of an ICBM on February 7, 2016, the KN-11 SLBM claims probably should be seen primarily as part of an effort to establish North Korea as a nuclear power, both to exert external political pressure and to bolster internal political support for Kim Jong Un's rule.

In recent years, South Korea has played a subtle and skillful diplomatic game, balancing the ROK-U.S. military alliance with the ROK-China strategic cooperative partnership. The received wisdom is that continuing this strategy offers the

most plausible chance of ultimately resolving the tensions and threats arising from North Korea. But for the diplomatic track to succeed, it is essential to prepare appropriate military options as well, both as a backup strategy and to focus minds and bring urgency to the diplomacy.

The ROKN should formulate a preemptive anti-exit strategy, acquire P-8s, build an ASW CV and SSNs to implement submarine strategic deterrent patrols, and extend the existing limited AORs to facilitate the preemptive anti-exit strategy. Other deterrence options could be considered, but surely it is significant that the ROKN for the first time recently referred publicly to the idea of deploying an ASW CV and SSNs.

NOTES

The author would like to thank Rear Adm. Mike McDevitt, USN (Ret.), for his insightful comments on this article. He made some very valuable and thought-provoking points that tightened and strengthened the arguments herein. Following his suggestion, the policy of preemptive response recommended for the ROKN has been termed an "anti-exit" strategy.

1. This article mainly relies on analytic articles and reports published in South Korea, North Korea, and the United States, but generally refrains from referring to some institutions and individuals concerned with monitoring North Korea (e.g., 38 North) that take an avowedly proactive stance. Although some of these may be credible sources, at least with regard to the substance of North Korean weapons of mass destruction threats, the intent of this article is to focus on South Korean and U.S. reactions to submarine-launched ballistic-missile developments and their implications for policy on coping with North Korea's defiance of international opinion.
2. Several different English, Korean, and Chinese names have been applied to the prototype North Korean SLBM, including Red Star–1, Polaris-1, Bukkeuksong-1, Musudan, 北極星-1號, and 無水端. ROK Ministry of National Defense (MND) has officially codenamed it KN-11.
3. The official (North) Korea Central News Agency published a quite extraordinary report that compared the SLBM test to North Korea's three nuclear bomb tests and to its indigenous, satellite-launching, three-stage rocket. In South Korea, the event was depicted in epochal terms: "Editorial: A Sputnik Moment?," *Korea Joongang Daily,* May 11, 2015, p. 8.
4. Since North Korea's fourth nuclear test and the UN Security Council's response imposing stricter sanctions, there has been considerable speculation about North Korea's surprising attitude in rebuking China. See Charlie Campbell, "A North Korean Satellite Launch Angers China," *Time,* February 15, 2016, p. 13, and Shin Hyon Hee, "North Korea Fires Two Ballistic Missiles, One Explodes Midair," *Korea Herald,* March 19–20, 2016, p. 4.
5. Christopher P. Cavas, "Seeking Game Changers in the Underwater World," *Defense News,* November 27, 2015, www.defensenews.com/.
6. Andrew Forbes and Sukjoon Yoon, "Old and New Threats from North Korea against the Republic of Korea," in *Korean Maritime Strategy: Issues and Challenges,* ed. Geoffrey Till and Sukjoon Yoon (Seoul, ROK: Korea Institute for Maritime Strategy [hereafter KIMS], 2011), pp. 17–56.
7. Jang Sae Jung and Hur Jin, "South Korean Military Monitors North Korean Test-Firing of First SLBM," *Joongang Ilbo,* May 12, 2015, p. 1.
8. James Hardy, "North Korean SLBM Test Presents More Questions Than Answers," *IHS Jane's Defence Weekly,* May 20, 2015, p. 17.

9. Definite information is scarce, but several blogs and newspaper articles in South Korea and the United States have suggested that North Korean tests to evaluate the ejection of a submerged ballistic missile from a static launcher on land, rather than a full test of a new missile system at sea, took place near the coastal city of Sinp'o in January and November 2014 and in January and April 2015.
10. Hyen Il Hoon, "North Korea Will Operate 9-Meter SLBM within 2 Years Period," *Joongang Ilbo,* May 12, 2015, p. 5; papers presented at the Eighth Maritime Security Workshop held by KIMS and the U.S. Center for Naval Analyses, Seoul, ROK, November 4–5, 2015.
11. Lee Willett, "Strategic Power: SSBNs Maintain Course in Evolving Security Environment," *IHS Jane's Navy International,* December 2015, pp. 13–14; Peter Felstead, "Annual Defence Report 2015: Asia-Pacific," *IHS Jane's Defence Weekly,* December 9, 2015, pp. 26–31.
12. During the last couple of decades, North Korea has declared itself a nuclear-armed nation, but the United States has not acknowledged this status. The United States describes North Korean policies as nuclear blackmail and as brinkmanship designed to intimidate the United States and South Korea.
13. Song Sang Ho, "N. Korea to Face Greater Dilemma over Nuke Policy," *Korea Herald,* December 23, 2015, p. 4.
14. Jeong Yong Soo and Sarah Kim, "North Test-Fires Its First Missile from a Submarine," *Korea Joongang Daily,* May 11, 2015, pp. 1–2.
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BLUNT DEFENDERS OF SOVEREIGNTY

The Rise of Coast Guards in East and Southeast Asia

Lyle J. Morris

What is the role of coast guards in the realm of territorial disputes? Until ten years ago or so, few policy makers in East and Southeast Asia had to grapple with this question, because regional navies, not coast guards, were the central actors asserting sovereignty in disputed areas.[1] The decision by states, most notably China, to build up and employ coast guards as first-line defenders during territorial disputes has resulted in the following recent trends in the region:

- Rather than employing coast guards as tools of regional peace, countries are using them, as opposed to naval forces, as aggressive instruments of state power to assert territorial claims—a new and destabilizing phenomenon in maritime territorial disputes.[2]
- Coast guards in the region are acting as "blunt defenders of sovereignty," undertaking actions such as ramming other states' coast guard and fishing vessels, rather than acting as traditional instruments of law enforcement against strictly civilian actors.
- The use of coast guards—nominally under civilian control—as instruments to protect claimed territory while conducting peacetime patrols of disputed maritime territory has blurred the line between the platforms and missions traditionally associated with "law enforcement" and those associated with "national defense."[3]

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- The employment by states of civilian assets alongside coast guard and naval vessels as components of state power has blurred further the boundaries among civilian, government, and military roles in conflict and injected destabilizing dynamics into maritime encounters.
- The protection of sovereignty and territorial integrity has become an increasingly important mission of coast guards in the region.

At the center of regional coast guard growth is China, which recently consolidated four of its five agencies in charge of maritime law enforcement (MLE) under one civilian bureaucracy called the State Oceanic Administration (SOA), further unifying Chinese forces and doctrine.[4] With this reform and China's recent ambitious fleet expansion, the country now boasts the largest coast guard in the world. China's rapid enlargement of forces and its increasingly aggressive tactics have reshaped perceptions fundamentally among regional states.[5] Increasingly, such states are turning to coast guards, not navies, to patrol formerly unregulated maritime zones, demonstrate presence, and consolidate administrative control over disputed territories in the East and South China Seas. These factors—China's expansion of its coast guard and increasing administrative control over disputed territory, as well as a desire to combat nontraditional security challenges such as illegal, unreported, and unregulated fishing near the country's coastline—appear to be the central motivation prompting other states such as Japan, Vietnam, and the Philippines to undertake corresponding investments in coast guard fleets.[6]

Against a background of growing Chinese coast guard capabilities, this article seeks to illuminate the complex security environment in East and Southeast Asia, as seen through the prism of regional coast guards, and to evaluate the implications for regional security and stability. On the basis of interviews with coast guard officials, naval officials, and academics, as well as open-source materials such as media and government reports, the article provides an overview of the key enablers of coast guard expansion in the region; examines existing rulings in international law on the use of force by coast guards in disputed waters; examines the history and organization of the coast guard fleets of China, Japan, Vietnam, and the Philippines; offers short "baptism-by-fire" case studies that illuminate key confrontations that Japan, Vietnam, and the Philippines have had with China; and concludes by examining the ramifications of coast guard expansion on regional security dynamics.

The four countries examined for this report were chosen for several reasons. First, they remain the most active parties in the ongoing territorial disputes in the East and South China Seas. Second, their coast guards increasingly are being tasked as the first line of defense in asserting sovereignty claims. Finally, the coast

guards of these four countries are undergoing various stages of development and reform, revealing the differing priorities the countries have assigned to the varied roles of coast guards in maritime law enforcement.

IMPETUS BEHIND THE GROWTH OF COAST GUARDS IN EAST AND SOUTHEAST ASIA

The UN Convention on the Law of the Sea (UNCLOS), adopted in 1982, for the first time granted states the authority to regulate jurisdictional zones beyond their twelve-nautical-mile (nm) territorial seas, in particular in what is known as an exclusive economic zone (EEZ). Within 200 nm of their coastlines, states have exclusive rights to exploit natural resources and fisheries, among other living and nonliving resources.[7] The notion that coastal states had preferential rights and interests and could manage the resources within a greatly enlarged body of water created a new maritime consciousness for policy makers charged with the protection and preservation of their coastal environment.

UNCLOS, however, remains silent on which maritime platform should be employed for maritime enforcement within states' EEZs. For most countries in East and Southeast Asia, this task primarily fell to navies, for two reasons: most states lacked a dedicated coast guard fleet; and navies had readily available, large-capacity assets with which states could carry out MLE missions. Yet navies generally are ill suited for such duties. As figure 1 illustrates, navy platforms and personnel are tailored for military campaigns and are equipped for high-kinetic environments—not always appropriate for MLE and fisheries patrols.

Deploying a warship to arrest fishermen, for example, may convey messages of intimidation and lethality unnecessarily.[8] Even taking into account that some navies in Southeast Asia have the domestic legal authority to carry out policing functions at sea, the potential remains high for naval action to lead to reaction from another country's naval vessels, resulting in escalation, especially in scenarios involving use of force by naval vessels against civilian assets. In contrast, the platforms, personnel, use-of-force doctrine, and bases in domestic and international law of coast guards are tailored for the wide array of MLE duties that modern maritime states require. Nonetheless, until recently the notion of creating a constabulary MLE fleet to manage, regulate, and enforce domestic and international maritime laws and conventions remained a relatively new concept in Asian maritime affairs.[9]

Recent developments, however, have spurred countries in the region to create, consolidate, or enhance their coast guard forces.[10] For one, decades of overfishing have depleted fish stocks, a vital industry for many maritime economies. Moreover, countries in the region increasingly see the advantages of a dedicated

FIGURE 1
A COMPARISON OF CHARACTERISTICS OF COAST GUARDS AND NAVIES

	Coast Guard	Navy
Platform	• Thinner hull more vulnerable to high-kinetic attacks • Lightly armed with deck-mounted machine guns • Less expensive to operate and maintain	• Thicker hull constructed to withstand high-kinetic attacks • Full array of armaments, radar, and communications systems • More expensive to operate and maintain
Personnel	• Customs, border patrol, fisheries, and counternarcotics officers • Trained to enforce maritime laws and regulations	• Weapons officers, navigators, and commanders • Trained to prosecute war
Use-of-force vs. rules-of-engagement doctrine	• Use-of-force doctrine; graduated actions designed to exert minimum force to compel compliance of civilian actors	• Rules-of-engagement doctrine; lethal, highly kinetic actions against combatants
Basis in law	• Enforce domestic and international maritime laws and conventions	• Defend national sovereignty and citizens from external attack or aggression

Source: Author analysis based in part on Daniel Patrick O'Connell, *The Law of the Sea,* vol. 2 (Oxford, U.K.: Oxford Univ. Press, 1984), pp. 1062–93, and Sam Bateman, "Regional Navies and Coastguards: Striking a Balance between 'Lawships' and Warships," in *Naval Modernisation in South-East Asia: Nature, Causes and Consequences,* ed. Geoffrey Till and Jane Chan (London: Routledge, 2014), pp. 246–49.

civilian maritime police authority to carry out nontraditional maritime missions such as search and rescue, port security, environmental protection, and counterpiracy.

But a third factor appears to be prompting states to build up their coast guards: as a means to counter China's unprecedented coast guard expansion, which China

FIGURE 2
TOTAL COAST GUARD TONNAGE INCREASES OF SELECT COUNTRIES IN EAST AND SOUTHEAST ASIA, 2010–16

Country	Total Tonnage (2010)	Estimated Added Tonnage (2010–16)	Total Tonnage (2016)	Total Percentage Increase
China	110,000	80,000	190,000	73% increase
Japan	70,500	35,000	105,500	50% increase
Vietnam	20,500	15,000	35,500	73% increase
Philippines	10,000	10,000	20,000	100% increase

Source: Author estimates based on open-source media reporting and on U.S. Navy, *The PLA Navy*, p. 45. Estimated added tonnage column takes into account vessels that are either under construction or anticipated to be delivered by the end of 2016. China's coast guard calculations do not include vessels from the MSA, which is not considered part of China's reformed coast guard fleet and typically does not patrol disputed areas in the East and South China Seas. Vietnam's coast guard calculations do not include vessels from the VFSF, VINAMARINE, or the VBG. The Philippine Coast Guard calculations do not include vessels from the PNP-MG, Customs, or the BFAR. Overall estimates of total tonnage are rough approximations of the total capacity and are meant for illustrative purposes only.

has been using to assert more aggressively what it sees as its legitimate rights in the East and South China Seas. As depicted in figure 2, China has increased by a large margin its total coast guard capacity over the last five years compared with others in the region, and now has the largest coast guard in the world in terms of total tonnage, at an estimated 190,000 tons.

China's massive investment in its coast guard since 2010 has altered fundamentally the security perceptions in the region. By employing what China regards as nonmilitary assets to demonstrate administrative control over disputed territory in the East and South China Seas, China has attempted to "civilianize" its expansion of sovereignty protection to strengthen its legal claims over other claimants. Other countries in the region, as a result, feel compelled to turn to coast guards, as opposed to navies, to counterbalance China and assert administrative control, so they have sought to bolster their coast guard fleets.

However, most countries in the region other than Japan lack the funds to match China's coast guard fleet adequately, and some perceive navies as offering a more potent deterrent against foreign infringements of their EEZs.[11] Whether developing their own coast guard fleets is the appropriate way for states to respond to China's coast guard expansion is a matter of ongoing debate among policy makers in the region.[12]

Further complicating the operational environment for coast guards is the existence among states of overlapping maritime claims to maritime features and adjacent waters in the Spratly, Paracel, and Senkaku Islands in the East and South China Seas, areas that for some states lie far beyond their 200 nm EEZ boundaries. Using a coast guard to patrol disputed territory far from a nation's coastline appears to be a new phenomenon in maritime affairs.[13] In relatively recent history, states have employed navies, not coast guards, as the primary instrument to assert sovereignty claims far beyond their coastal jurisdictional waters. But China, for example, now relies primarily on its coast guard, not its navy, to patrol the area within its "nine-dash line," which covers almost 90 percent of the South China Sea and cuts into the EEZs of five other countries, as well as covering thousands of square kilometers of disputed territory. Other countries—Vietnam, Malaysia, Brunei, Taiwan, and the Philippines—also claim portions of the Spratly Islands and increasingly are dispatching coast guard vessels to patrol the disputed area (figure 3).

As a result of these overlapping claims, countries have adopted tactics that might be considered a deviation from established standard operating procedures of safety and good seamanship.[14] This includes actions such as ramming and using water cannon against civilian vessels, and in some cases other states' coast guard vessels, in an attempt to repel or eject them from a disputed area. Regional states

FIGURE 3
OVERLAPPING CLAIMS IN THE SOUTH CHINA SEA

Source: Wikimedia Commons

for the most part are not interested in employing coast guards to conduct inspections or prosecute civilian violations based on domestic or international maritime law and conventions because of the diplomatic fallout that might result from arresting violators and sending them back to host nations.[15] Instead, coast guards are used primarily to establish presence in disputed areas and as instruments to repel and coerce rival claimant vessels. The greatest weapon in this "competition for presence" is the number and size of vessels countries can bring to bear in disputed waters. China, by all accounts, appears to be outpacing all other regional actors in terms of vessel numbers and total capacity.

Before turning to an examination of each of the four coast guards in the study, it is important to highlight the application of international law to the question of use of force by MLE entities, so as to understand better the legal principles governing "policing" versus "national defense" functions at sea.

USE OF FORCE BY MARITIME LAW-ENFORCEMENT AGENCIES UNDER INTERNATIONAL LAW

What constitutes an act of *military* aggression against another state, for example, as opposed to a state simply executing what it considers *law enforcement* based on domestic maritime law? When are the actions of MLE agencies considered a breach of international standards of navigation and safety at sea? These questions are important when considering the sheer number of MLE vessels operating in East and Southeast Asia and their use of increasingly assertive tactics. International courts of law have ruled on the issue of use-of-force actions undertaken by MLE agencies in disputed maritime zones, in particular on which criteria differentiate military actions from police or constabulary actions.

A starting point in considering the use of force at sea involves an assessment of whether a state has violated article 301 of UNCLOS, which stipulates that in exercising their rights states shall "refrain from any threat or use of force against the territorial integrity or political independence of any State, or in any other manner inconsistent with the principles of international law embodied in the Charter of the United Nations."[16] This provision, while broad in scope, generally is understood to prohibit aggressive actions at sea that threaten or use force in a manner inconsistent with the UN Charter, with application to both MLE and naval vessels in peacetime. However, not all use-of-force measures can be interpreted clearly under UNCLOS as "aggressive actions," including cases involving MLE vessels employing less-than-lethal degrees of force against foreign vessels or naval vessels purporting to be undertaking law-enforcement activities in jurisdictional waters.

The *Guyana v. Suriname* case involving paramilitary activities, which came before an arbitral tribunal under the Permanent Court of Arbitration (PCA) in 2007, provides perhaps the most relevant ruling on the distinction between MLE and military use of force under UNCLOS. The case involved a use-of-force action by the Suriname Navy against an oil-drilling platform operating in waters disputed by Suriname and Guyana. The Suriname Navy approached *C. E. Thornton,* an American oil-drilling rig retained by the Canadian-owned CGX Energy Inc., and warned the rig repeatedly to leave the area or face "consequences."[17] Those in charge of the oil rig, fearing lethal force, promptly withdrew it from the disputed area. The tribunal was asked to rule on whether Suriname had violated UNCLOS by its threat to use "armed force" against state assets operating in the territory of Guyana. Suriname, on the other hand, maintained that the measures it took did not constitute such a threat of use of force, but instead had been "of the nature of reasonable and proportionate law enforcement measures to preclude unauthorized drilling in a disputed area of the continental shelf."[18]

To decide on this point of contention, the tribunal had to consider the characterization of the threatened force in the CGX incident. In doing so, it first affirmed that in international law "force may be used in law enforcement activities provided that such force is unavoidable, reasonable and necessary."[19] This, however, did not prevent the tribunal from unanimously ruling that Suriname's actions went beyond those appropriate for MLE missions: "The action mounted by Suriname on 3 June 2000 seemed more akin to a threat of military action rather than a mere law enforcement activity [and] therefore constituted a threat of the use of force in contravention of the Convention, the UN Charter and general international law."[20] In other words, the tribunal held that the warning by the Suriname Navy—which claimed to be undertaking law-enforcement duties in disputed territory—for the oil rig to leave the area or "face the consequences" had crossed a threshold that constituted a "threat of the use of force" in violation

of UNCLOS principles, in particular article 301. (The tribunal did find that Suriname's actions fell into the category of "less grave forms" of the use of armed force, like those typical of border incidents.)

The *Guyana v. Suriname* case admittedly addresses only a small subset of potential acts of armed aggression. There exists a large range of conduct, constituting a continuum, with armed military force on one end and "less grave" forms of forcible measures against foreign ships by MLE agents on the other. However, the case sets a precedent that international lawyers and analysts can use to assess whether a certain use of force, or threat to use force, by a vessel purporting to enforce maritime law is unavoidable or necessary or both in the particular context of the MLE mission it is undertaking in disputed waters.

A second important recent legal ruling was not directly related to the use of force at sea, but merits examination because of its impact on coast guard operations in disputed areas. An arbitral tribunal under the PCA ruled in July 2016 on a case brought by the Philippines against China regarding the latter's maritime claims in the South China Sea.[21] In particular, in section VII(F) of the ruling, entitled "Operation of Law Enforcement Vessels in a Dangerous Manner," the court examined whether the actions of China's MLE vessels near Scarborough Shoal had breached articles 21, 24, and 94 of UNCLOS by operating in a "dangerous manner causing serious risk of collision to Philippine vessels." In rendering its judgment, the court relied on the guidelines in the Convention on the International Regulations for Preventing Collisions at Sea, 1972 (COLREGS), of which both China and the Philippines are members, as one of the "generally accepted international regulations" to which flag states are required to conform regarding rules of navigation, avoidance of accidents at sea, and good seamanship.

In unambiguous terms, the court found that Chinese actions had violated rules 2, 6, 7, 8, 15, and 16 of the COLREGS, thus breaching article 94 of UNCLOS. In particular, passage 1105 of the report rendered the following judgment:

> In light of the foregoing analysis, the Tribunal considers China to have repeatedly violated the Rules of the COLREGS over the course of the interactions described by the crew of the Philippine vessels and as credibly assessed in the two expert reports. Where Chinese vessels were under an obligation to yield, they persisted; where the regulations called for a safe distance, they infringed it. The actions are not suggestive of occasional negligence in failing to adhere to the COLREGS, but rather point to a conscious disregard of what the regulations require.[22]

In other words, the court dismissed the notion that Chinese actions were simply a defensive measure undertaken in response to a perceived threat from the Philippines. Rather, the court found that Chinese maneuvers themselves created an immediate danger, demonstrating a "serious and apparently intentional

breach" of the requirement that ships take precautions to avoid accidents at sea, as required under the COLREGS.[23]

As in all cases before an international court of law, culpability depends on the specific evidence brought to bear within the case and the specific context of the scenario examined. However, on the basis of the *Guyana v. Suriname* and *Philippines v. China* cases before two arbitral tribunals, it is reasonable to assess that many of the actions that MLE vessels have been undertaking in the South China Sea that are the focus of this article would be found in a court of law to be in violation of several articles of UNCLOS that prohibit excessive use or threat of use of force by MLE actors or state assets undertaking MLE-type missions.

EAST AND SOUTHEAST ASIA COAST GUARDS

The following sections will examine the history and organization of the four coast guard agencies chosen for this study. The study will also present three case studies that highlight the role of coast guards in territorial disputes within the region.

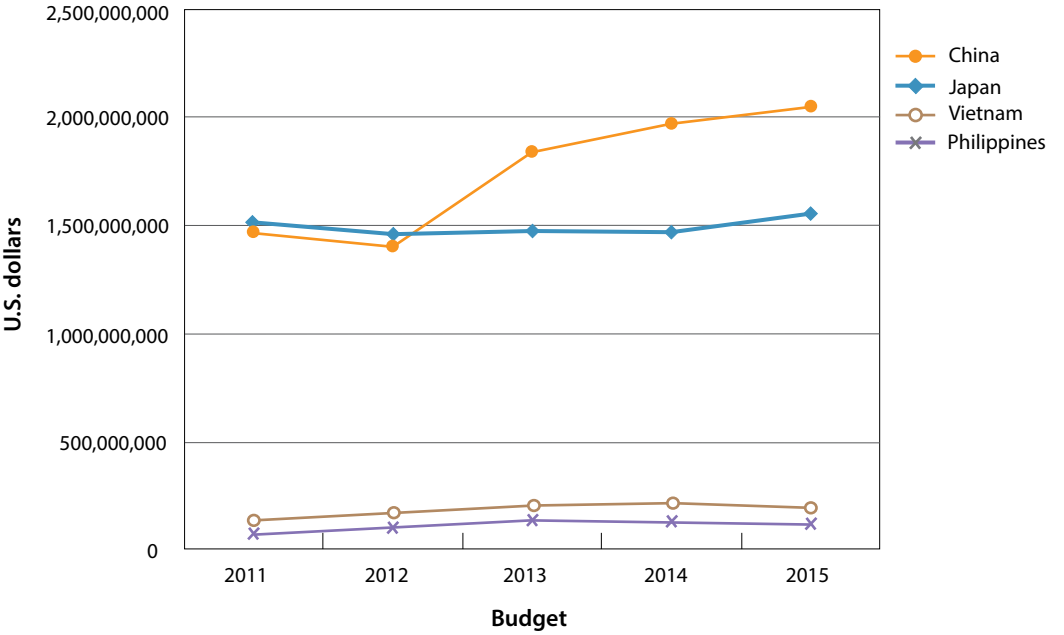
China

China is a prime example of a country that has chosen to deploy coast guard assets instead of its navy to assert claims over maritime features and waters in the East and South China Seas. Interviews with Chinese scholars and officials reveal that Chinese policy makers employ coast guards to attempt to demilitarize territorial disputes, as well as to show rival claimants that China views these disputed areas as sovereign Chinese territories subject to *domestic* laws and regulations. From the perspective of Chinese policy makers, invoking domestic law as the basis for China's coast guard presence in disputed territory confers legitimacy in areas where naval vessels traditionally might be deployed—subject to international laws of warfare.[24]

The 中国海警 (China Coast Guard [CCG]) reform of 2013, to be discussed in more detail below, represents the bureaucratic manifestation of a larger commitment to build the largest and most formidable coast guard forces in the world. China spent close to U.S.$8.7 billion on its coast guard from 2011 to 2015, an average of $1.74 billion a year, including both operational and shipbuilding costs (see figure 4).

China's spending constitutes the largest expansion among coast guards in the region over the five-year period. Japan comes in second and remains China's only peer competitor in terms of total budget, spending roughly U.S.$7.5 billion over five years, an average of $1.5 billion a year. Although gaps in data exist for the coast guards of Vietnam and the Philippines over this period, the author estimates that they spend an average of U.S.$100 to U.S.$200 million a year. In comparison, the U.S. Coast Guard spends an average of U.S.$10 billion per year, by far the biggest spender among coast guards in the world.[25]

FIGURE 4
COAST GUARD BUDGETS OF CHINA, JAPAN, VIETNAM, AND THE PHILIPPINES, 2011–15



Source: Author estimates based on open sources. To estimate the total budget of China's coast guard, the author used budget figures for "maritime law enforcement operations" among the various predecessor/constituent agencies available on their websites. This includes spending on "sovereignty protection" and "law enforcement and surveillance" by the State Oceanic Administration; the total budget of the Maritime Anti-smuggling Police within the General Administration of Customs; budgets for "border control" by the Ministry of Public Security; and the total budget of the Fisheries Administration within the Ministry of Agriculture. An estimate was then made on the amount of spending on ships—based on number of ships commissioned and estimates of ship manufacturing costs for each ship dimension—among the various maritime agencies. Finally, these two figures were combined to provide a rough estimate of the total budget of the China Coast Guard from 2011 to 2015; however, owing to gaps in data, it most likely underestimates China's total spending. Except for Vietnam, budgetary estimates for the other countries were derived from budgets published on their coast guard websites or from media articles. Vietnam's estimate was based on a rule of thumb estimate of 5 percent of its annual defense budget. Estimates are rough approximations of the total amount spent over time and are meant for illustrative purposes only.

Budgetary outlays correspond with the overall tonnages of regional coast guard fleets. China's investment has yielded a total fleet size of around 215 vessels, of which 105 are considered large (more than one-thousand-tons displacement) and 110 small (less than one thousand tons).[26] In terms of total tonnage, China boasts the largest coast guard in the world at roughly 190,000 tons, enjoying substantial quantitative overmatch over its Asian competitors (see figure 2).

In January 2016, China laid claim to deploying the largest coast guard vessel in the world, *Haijing 3901,* with a displacement of 12,000 tons and boasting several deck-mounted autocannon, including a 76 mm, and two auxiliary and two antiaircraft machine guns.[27] Since the 2013 reorganization, most but not all CCG vessels have been refashioned with front- or rear-mounted autocannon or both, ranging in caliber from 25 to 57 mm, depending on the size of the vessel, and most officers carry light arms on board. CCG air assets remain small, with only six twin-engine turboprop, fixed-wing aircraft in operation, although more may be coming on line in the near future.[28] Finally, a total of 17,000 personnel work in the Chinese coast guard, although this is likely a conservative estimate.[29]

China's massive coast guard expansion is an outgrowth of then-president Hu Jintao's call for China to become a "maritime power," as outlined in his *Eighteenth Party Congress Work Report* in November 2012.[30] In particular, Hu's call to "resolutely safeguard China's maritime rights and interests" reflected a desire to bolster China's presence in Chinese-claimed waters in the East and South China Seas—areas that Chinese policy makers long believed were poorly regulated and administered owing to disorganized maritime bureaucratic actors with overlapping areas of responsibility. China's current president, Xi Jinping, elaborated on President Hu's "maritime power" strategy by outlining four components for China to pursue in the maritime domain: (1) safeguarding China's maritime rights and interests; (2) developing the marine economy; (3) protecting the marine environment; and (4) enhancing China's capacity for exploiting marine resources.[31] China's coast guard was envisioned as carrying out the tasks within the first component.

At the National People's Congress session in March 2013, policy makers addressed the diffuse nature of China's MLE bureaucracies by reorganizing four of the five MLE agencies and placing them under a new civilian authority. In the Chinese State Council's March 2013 announcement of the reform of the CCG, the council's secretary general Ma Kai cited a need to "enhance the protection of ocean resources . . . and safeguard the state's maritime rights and interests" by revamping the State Oceanic Administration and consolidating four of China's five MLE agencies (referred to by one Western analyst as the "five dragons"[32]) under one unified coast guard *(zhongguo haijing)* under SOA authority.[33]

The SOA, the statement continued, would "formulate maritime development planning, implement maritime sovereignty rights enforcement, supervise the management of the maritime domain and marine environmental protection."[34] The revamped CCG would "develop maritime rights protection law enforcement on behalf of the SOA," a task that aligns with the second of the four missions Xi laid out in his maritime power speech.[35] In other words, policy makers clearly envisioned sovereignty protection as the top priority for the revamped CCG to undertake, as part of the broader set of missions assigned to the SOA. Compared with the missions of the other coast guards in this report, China's and Vietnam's coast guards both emphasize maritime sovereignty protection, while those of Japan and the Philippines focus more on such responsibilities as marine safety, search and rescue, and environmental protection.

On June 9, 2013, the State Council outlined the structure, functions, and size of the reconstituted SOA, referred to as the "Three Decisions Plan" *(sanding fangan)*.[36] The revamped CCG would be one of eleven branches *(zong dui)* within the SOA. It would comprise a headquarters, a command center, and operational branches split among three regions: north, east, and south. The CCG thenceforth

would have full responsibility for coordinating and carrying out law enforcement across the full spectrum of maritime bureaucracies, to include fisheries, customs, immigration, and environmental management. Although it would reside under the SOA, the CCG would receive "operational guidance" from the Ministry of Public Security (MPS). Finally, the restructuring plan calls for establishing a State Oceanic Committee *(guojia haiyang weiyuanhui),* conceived as a high-level coordinating body on maritime operations. The SOA reportedly will "carry out" the committee's "specific tasks."[37]

The placement of the CCG under the SOA reflects China's attempt to "civilianize" the agency. Yet two aspects undermine the notion that the CCG is strictly a civilian entity. First, many new coast guard vessels being deployed are refurbished naval frigates previously decommissioned by the People's Liberation Army Navy (PLAN), armed with an array of ship-mounted automatic machine guns. While these vessels were stripped of some of their military-grade, highly kinetic armaments during decommissioning, much of the armaments and communications equipment architecture was left behind, as well as the reinforced, military-grade hull constructed for environments requiring a high standard of survivability. They thus boast a certain degree of lethality that other coast guards of the region do not offer.[38] Second, many of the officers within the CCG are either from the reformed Border Defense Coast Guard—a branch of the People's Armed Police under the MPS—or receive training within a rank and grade structure more akin to an armed police force.[39]

On July 22, 2013, a new "China Coast Guard" sign was unveiled at SOA headquarters in Beijing, officially inaugurating the new agency.[40] Most ships from all four agencies were repainted white with blue and red stripes, complete with new pennant numbers and with the English name "China Coast Guard" featured prominently. New uniforms were designed and issued to most officers, along with new life jackets. The external makeover, while far from complete, was in full swing within six months of the announcement of the reorganization.

The internal process of merging the various bureaucracies and cultures appears to be moving slower than expected, however. On the basis of interviews with U.S. government officials with knowledge of the reform, it appears that vested interests are preventing full integration of the different agencies.[41] Individual agencies do not seem to be operating as one cohesive whole, with each still executing its own patrols and operating under old command-and-control (C2) structures. For example, one CCG official noted that officers wear their new uniforms only during "national security" patrols in the East and South China Seas.[42] The fact that the officers wore uniforms from all four "dragons" at the most recent CCG press conference substantiates the claim that a complete merger has not taken place.[43] According to this official, the "Three Decisions Plan," unveiled in June 2013, still

is awaiting final approval from senior Chinese policy makers.[44] Finally, most vessels still do not mix officers from each of the four agencies, and officers are not undergoing an expanded course of training in areas such as fisheries, customs, and immigration enforcement, as would be expected under a unified command.[45]

Nonetheless, there are indications that the CCG has enhanced coordination and become more confident as a result of the reform. Patrols of disputed waters in the East and South China Seas have increased in regularity and scope.[46] Their central mission is to assert administrative control over disputed territory. Patrols also act to defend what the Chinese deem to be legitimate interests by protecting fishing vessels and natural resource and scientific exploration and attempting to halt "illegal" foreign activities—including foreign fishing and oil and gas exploration.

Furthermore, China's use of force appears to be evolving—becoming more assertive. In the past, Chinese vessels adopted a relatively nonconfrontational approach when they encountered what China regarded as illegal activities of foreign vessels. Typically they would query the other vessels regarding the purpose of their deployment, meanwhile verbally declaring Chinese sovereignty through radio communications *(han hua)*. Only in rare cases did they attempt to expel foreign vessels, for which they used floodlights; water cannon aimed near the vessel, as a warning; and close-proximity maneuvering.[47] Starting around 2011, two shifts in use of force became apparent. First, Chinese vessels began to employ more-aggressive actions, such as ramming and the use of water cannon inside the cabins of opposing vessels.[48] Second, Chinese fishing vessels were used more frequently as proxy arms of the CCG and the PLAN. Vietnamese officials traced the latter development to 2011, when a Chinese fishing vessel cut a seismic cable of a Vietnamese civilian survey ship, seemingly carrying out the actions pursuant to Chinese state policy.[49] Both Philippine and Vietnamese officials noted an increased propensity for Chinese fishing vessels to "stand and challenge" attempts by the countries' coast guards to arrest Chinese fishermen in or otherwise repel them from designated areas. In the past, according to these officials, Chinese fishermen usually would depart the scene or acquiesce to boardings.[50] Finally, officials also noted an increase in bullying tactics by CCG officers who boarded Philippine and Vietnamese fishing vessels, such as taunting fishermen at gunpoint, throwing out catch, and stealing property and money.[51]

Recent training exercises involving the CCG and PLAN highlight growing institutional interaction. The first large-scale joint exercise, East China Sea Cooperation 2012, was held in October 2012. It involved vessels from the PLAN East Sea Fleet, the Fisheries Law Enforcement Command (FLEC) East China Sea Bureau, and the China Marine Surveillance (CMS) East China Sea branch. The training involved a scenario in which Chinese fishing vessels were "followed, harassed, and hindered" by vessels from another country. PLAN

frigates then "quickly took up positions right and left of the Marine Surveillance and Fisheries Law Enforcement vessels and warned, monitored, intimidated and blocked" the foreign vessels.[52] A subsequent joint exercise was held in May 2013, with the PLAN South Sea Fleet participating alongside FLEC and CCG vessels near the Spratly Islands. The participants reportedly set up "scientific and effective interaction mechanisms" and "jointly formed a line of maritime defense with military and civilian forces."[53] Finally, CCG vessels participated in an exercise with PLAN units near Dongguan City in Guangdong Province in November 2013. Participants included local military units alongside customs, maritime police, and security personnel from the Dongguan Maritime Bureau.[54] These training exercises highlight the increasing cooperation between the CCG and PLAN and demonstrate a desire to create C2 synergies between the two bureaucracies. As recent events make clear, CCG and PLAN vessels appear to be working in closer coordination to repel Vietnamese vessels from disputed territory in the Spratlys.[55] Since the Chinese State Council has yet to issue a formal coast guard law, it is unclear whether the CCG retains a war-fighting function alongside the PLAN similar to that of the U.S. Coast Guard during wartime. One could reasonably assume, given recent CCG-PLAN training, that such a function does exist.

Overall, while reform is still in its early stages, the coast guard China is developing gives cause for both optimism and concern. Chinese policy makers' decision to replace their navy with coast guard forces as the central actor in executing what China calls "maritime rights protection" patrols in the East and South China Seas is, on one level, a positive development in terms of dampening the potential for escalation. The inadvertent sinking of a naval vessel carries far more catastrophic consequences, from a crisis-stability standpoint, than does the sinking of a coast guard or fishing vessel, for example. On the other hand, China deploys its coast guard as a coercive civilian arm of its military.

China's numerical superiority over its smaller peers ensures continued dominance within the region. The exception is Japan's coast guard, whose assets and experience appear to mitigate the adoption of more-assertive tactics by the Chinese during patrols around the Senkaku Islands.

Japan

The 海上保安庁 (Japan Coast Guard [JCG]) was founded in 1948 as a civilian MLE entity called the Maritime Safety Agency (MSA). For decades, the agency played a tertiary role to the U.S. Navy and the Japanese Maritime Self-Defense Force (JMSDF) in executing Japan's MLE and search-and-rescue (SAR) missions along the Japanese coastline. The MSA's role increased significantly with the 1986 U.S.-Japanese SAR agreement that gave Japan sole responsibility over SAR activities within most maritime areas within Japan's EEZ and beyond.[56] In 2000, the

MSA was reorganized under the Ministry of Land, Infrastructure, Transport, and Tourism and officially changed its name to the Japan Coast Guard.

As an island state, Japan's combined territorial and exclusive economic zone is nearly twelve times larger (4,470,000 sq. km) than its land area (380,000 sq. km). This presents the JCG with a formidable maritime area to patrol. It is no surprise, then, that among Asian coast guards the JCG boasts the second-largest fleet in tonnage, is the second largest in numbers of personnel, and has the most coast guard aircraft. In terms of fleet size, the U.S. Office of Naval Intelligence estimates that Japan has approximately fifty-three large and twenty-five small vessels in operation.[57] The largest vessels in the JCG fleet include two PLH-class vessels with a displacement of 6,500 tons (9,000 tons fully loaded) and two *Mizuho*-class vessels of 5,200 tons.[58] For comparison, the largest and most capable destroyers in the JMSDF, the *Kongo*-class vessels, displace approximately 9,500 tons. Most of the medium-to-high-endurance JCG vessels are equipped with deck-mounted autocannon that range in caliber from 20 to 40 mm, and most JCG officers carry light firearms for self-defense.[59] Notably, the PLH-class cutters are only equipped with two Oerlikon 35–40 mm autocannon and two M61 Vulcan 20 mm six-barrel Gatling-style guns, compared with the 76 mm cannon on China's largest cutter, *Haijing 3901*.

In terms of aviation assets, the JCG has by far the largest fleet in Asia, second only to the U.S. Coast Guard in the world, boasting twenty-six fixed-wing aircraft and forty-eight helicopters.[60] Finally, the JCG has roughly 13,500 personnel, second most among coast guards in Asia.[61]

A 2001 revision of the JCG law ushered in an expanded set of missions for the service beyond simply SAR at sea. They include the following tasks:

- Patrolling Japan's territorial seas and EEZ
- Countering smuggling and illegal immigration
- Countering piracy
- Countering terrorism
- Conducting surveillance of illegal operations by foreign fishing vessels
- Acting against suspicious vessels and surveillance ships
- Dealing with unlawful acts by foreign oceanographic research vessels
- Firing on noncompliant vessels that ignore warnings
- Patrolling and guarding waters near disputed territory, such as the Senkaku Islands[62]

While the formal justification for the JCG's expanded roles and missions focused on the service's police and maritime safety functions, the 2001 law and the ensuing evolution from a strictly MLE and SAR entity to one that undertakes territorial protection and can use force for defensive purposes represent a significant change in Japanese national security strategy. Richard Samuels calls the expansion of the JCG's mission sets "the most significant and least heralded Japanese military development since the end of the Cold War."[63]

The refinement of the JCG's role as a frontline defender of Japanese territory even as the service remains an important element of the enforcement of laws pertaining to customs, immigration, SAR, and fisheries brings it more in line with the U.S. Coast Guard in mission and practice. It is no coincidence that the training and the standard operating procedures of the JCG closely resemble those of the U.S. Coast Guard. For example, as in the U.S. Coast Guard, most JCG personnel are sworn customs officers and undergo rigorous training in their coast guard academy in the skills necessary to perform a wide range of MLE duties in such areas as fisheries regulation, counternarcotics, counterterrorism, and immigration.

Article 25 of Japan's coast guard law states explicitly that the JCG is not a military organization and that the responsibilities it undertakes should not be considered similar to those of an "armed force."[64] However, articles 18 and 20 provide sufficient leeway for coast guard personnel to use deadly force as a police entity against noncompliant domestic and foreign vessels.[65] Indeed, months after the passage of the 2001 coast guard law, the JCG engaged in Japan's first use of deadly force since the end of World War II, firing in self-defense on an unmarked North Korean spy vessel after the North Korean vessel apparently fired on the JCG vessel using what have been called "military-grade armaments." The clash, which became known as the battle of Amami-Ō-shima, resulted in the sinking of the North Korean vessel and the deaths of fifteen North Korean crewmembers.[66] The incident remains the largest maritime conflict in the history of postwar Japan and thrust the JCG into the spotlight as an important, albeit controversial, arm of Japanese maritime security policy.[67]

This was not the first encounter between the JCG and a North Korean spy ship, however. A lesser-known clash occurred in March 1999, twenty-eight miles off the Noto Peninsula. In this incident, the JCG had to request assistance from the JMSDF, which fired warning shots at and pursued several suspected North Korean spy ships for over twenty-four hours before abandoning the chase on reaching North Korean territorial waters.[68] The military action marked the first time Japan had fired warning shots since 1953 and the first employment of a 1954 law that allows the prime minister to request assistance for the JCG from the JMSDF during encounters with foreign naval or spy vessels.

The 1999 incident forced the JCG to consider how to increase coordination between MLE forces and the JMSDF when encountering vessels armed with military-grade heavy weaponry. Up to that point, the JCG law lacked language legalizing the use of force within Japanese territorial waters against "suspicious vessels" equipped with "military-grade armaments," such as the North Korean spy ship, during the course of which JCG officers might inflict injury or death on suspects while firing warning or disabling shots. The 2001 JCG law greatly enhanced the JCG's ability to use force against suspicious or noncompliant armed vessels, and increased its ability to call on the JMSDF for assistance when needed. The JCG also has begun training with JMSDF forces, in June 2015 participating in a first-ever joint civilian-military "gray zone" exercise that lasted ten days.[69] However, Japan's coast guard law does not assign the JCG a war-fighting function with the JMSDF during wartime.

Looking to the future, the JCG plans to build an additional twenty-five vessels over the next five years, in large part to address increasing concern over Chinese actions near the Senkaku Islands.[70] Of these twenty-five vessels, ten medium-endurance vessels (one thousand to three thousand tons) are to be deployed to Ishigaki Island, site of the 11th Regional Coast Guard Headquarters, the closest outpost with vessels responsible for patrolling the disputed Senkaku Islands. Two four-thousand- to six-thousand-ton high-endurance helipad vessels already have been deployed, to nearby Naha Island because of pier constraints at Ishigaki.[71] This accretion of vessels near the Senkakus is part of a broader strengthening of presence in the area, to include the addition of a six-hundred-member unit exclusively for the Senkaku area of responsibility.[72] In March 2016, Japan announced that it had built a radar observation station on Yonaguni Island, about ninety miles east of Taiwan and south of the Senkakus. According to Colonel Masashi Yamamoto, military attaché with the Japanese embassy in Washington, the radar station is part of a "three-phased" approach to contingency planning for any escalation of tensions around the Senkakus.[73] This buildup in manpower and facilities in all likelihood will continue while China maintains or increases its rate of incursions into the Senkaku Islands territorial sea.

It is these Senkaku Islands (known as the Diaoyu Islands in Chinese) that are the subject of this article's first case study. Both Japan and China claim them. The Japanese government's purchase of three of the islands from their private Japanese owner on September 11, 2012, set off a diplomatic dispute over sovereignty that continues today. After the announcement, the Chinese foreign ministry called the purchase "totally illegal and invalid," saying the move "can in no way change the historical fact that Japan stole Diaoyu and its affiliated islands from China and the fact that China has territorial sovereignty over them."[74] Four days after the purchase, the biggest anti-Japanese protests since China and Japan

normalized diplomatic relations in 1972 broke out in cities across China. The Japanese embassy in Beijing was besieged by hundreds of protesters throwing rocks, eggs, and bottles.[75]

In the days that followed, two Chinese ships, *Haijian 46* and *Haijian 49* of the CMS, penetrated the 12 nm territorial sea of the Senkakus.[76] China's actions, it emerged, were a precedent for a water and air incursion campaign into the Senkakus contiguous zone, territorial waters, and airspace by China that became routinized over subsequent years.

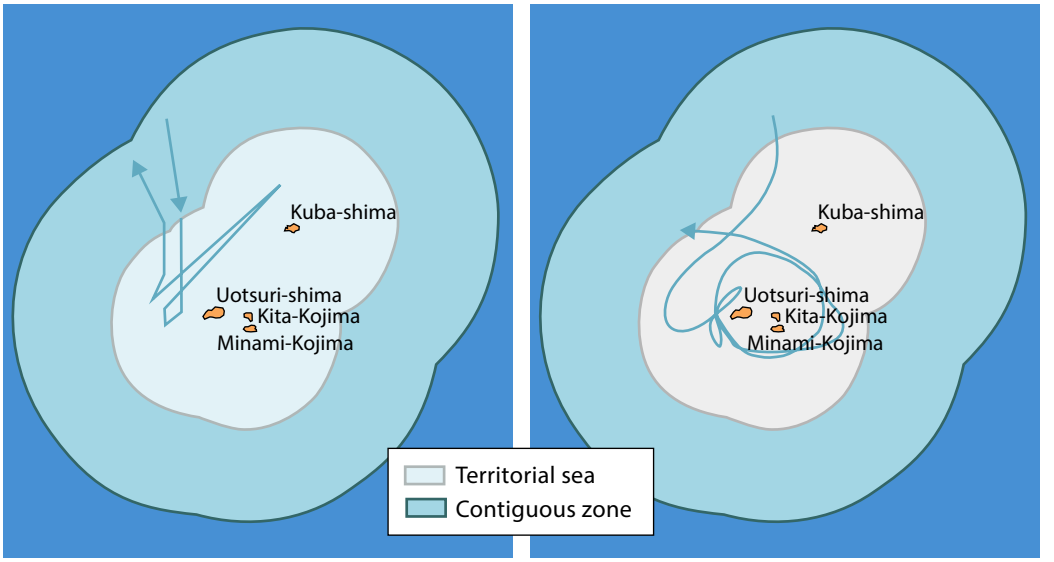
By the end of 2012, the JCG reported that Chinese coast guard ships had intruded into Senkaku territorial waters sixty-eight times since September 11, an unprecedented spike in intrusions from previous years.[77] The campaign continued, with 188 vessels penetrating the territorial sea in 2013, 88 in 2014, and 86 in 2015. On the basis of reporting from the SOA, the same eighteen CCG hull numbers appear to be responsible for patrolling the Senkaku Islands; the ships range in size from one thousand to four thousand tons.[78] Notably, *Haijing 3901,* which is assigned to the East China Sea area of operations, has yet to be deployed near the Senkakus.

China has supplemented its maritime pressure by flying naval and coast guard surveillance aircraft close to the islands, contributing to a record number of air-defense scrambles by Japanese fighter jets in the area. In fiscal year 2014, Japanese fighter jets undertook 943 scrambles, 464 of which were to intercept Chinese aircraft near the Senkakus.[79]

The sustained level of penetration of Senkaku territorial waters and airspace, while a clear challenge to Japanese claims of sovereignty and administrative control, has not had the destabilizing effect on the region that some feared.[80] Discussions with JCG officials reveal that China's coast guard officials and diplomats appear very aware of Japan's "redline" regarding Chinese activities in the Senkakus.[81] For example, when entering the territorial waters, CCG vessels typically deploy in groups of two and follow a fairly predictable pattern of behavior: they either make a pass from one end of the group of four Senkaku Islands (Kuba-shima, Uotsuri-shima, Kita-Kojima, and Minami-Kojima) to the other, or circumnavigate the group of islands once, then depart (see figure 5).

The incursions typically last anywhere from three to fourteen hours, and Japan always sends vessels to shadow the CCG vessels out of the territorial sea. There have been no instances of CCG vessels loitering, dropping anchor, arresting Japanese fishing vessels, or charting a path directly toward the islands that would prompt more-assertive countermeasures by JCG vessels in an effort to repel the Chinese vessels from the area. Until recently, there also have been very few instances of Chinese fishing vessels penetrating the Senkaku territorial sea, and no instances of fishing vessels attempting to fish or drop anchor there.[82]

FIGURE 5
NOTIONAL DEPICTION OF CHINESE COAST GUARD PENETRATION OF SENKAKU TERRITORIAL SEA



Source: Author rendering based on Japan Coast Guard annual report on responses to EEZ intrusions from China. See "Responding to China Public Vessels," "Senkaku Island Waters," and "Japan Coast Guard Protection of Territorial Waters and EEZ," in *Japan Coast Guard Annual Report, 2013,* available at www.kaiho.mlit.go.jp/.

Nonetheless, the CCG's recent behavior has raised red flags in Tokyo regarding Beijing's intentions. In November 2015, China for the first time sent a PLAN surveillance vessel into the Senkaku territorial sea; it reportedly "sailed one-and-a-half laps through the waters from east to west before departing westward."[83] The intrusion prompted Japan's Defense Minister Gen Nakatani to announce that the JMSDF could be called on to conduct "maritime policing activities" if a foreign warship entered Japanese territorial waters for purposes other than "innocent passage," if the JCG was "outgunned," or if it became "difficult" for the JCG to "deal with the matter."[84] The following month, China deployed CCG 31239, a refurbished PLAN frigate armed with four 37 mm autocannon, marking the first instance in which China had sent an armed coast guard vessel into Senkaku territorial waters.[85] Japan regarded both actions as a provocative escalation by China, and perhaps a signal from Beijing of a change in strategy. Finally, beginning in early August 2016 and continuing over several weeks, China sent a flotilla of CCG and fishing vessels into the contiguous zone and territorial sea of the Senkakus. A total of thirty-six CCG ships penetrated the territorial sea and two hundred to three hundred fishing vessels penetrated the contiguous zone—the largest number of Chinese government and fishing vessels ever recorded by the JCG in waters near the Senkakus. Of the CCG vessels involved in the August 2016 incident, seven reportedly were armed with cannon.[86]

Generally speaking, however, China's relatively stable pattern of behavior in the East China Sea contrasts with its behavior against rival claimants to territory in the South China Sea. The CCG has shown little desire to undertake provocative or threatening actions against JCG vessels, such as ramming, and seems intent only on establishing administrative control near the Senkakus. Chinese restraint may be a function of the actor involved. Beijing is keenly aware of the escalation potential with Tokyo and understands that Japan possesses both the capability and the capacity to respond to Chinese incursions in ways that smaller claimants in the South China Sea cannot.

Chinese moderation should not be taken for granted, however. As the August 2016 incident makes clear, China has the capacity to inundate Senkaku waters with government and civilian vessels in such a way as to greatly challenge the JCG's capacity to respond. The incident is reminiscent of another standoff that occurred soon after the Japanese government purchased the Senkakus in 2012, in which close to fifty Taiwan civilian vessels (with activists aboard, seeking to land on the islands) and coast guard vessels descended on the islands. In that incident, the JCG used water cannon and shouldered the civilian vessels to prevent them from approaching the islands.[87] The standoff represented one of the greatest challenges to Japanese protection of its claimed sovereign territory, and serves as a reminder that other countries, such as China, could again decide to inundate the Senkaku territorial sea with fishing and coast guard vessels (perhaps, say, on the anniversary of Japan's purchase of the Senkakus).[88]

Vietnam

The Vietnamese Marine Police (Cảnh sát biển Việt Nam) was established in 1998 under the then Ministry of Defense (MoD) as an arm of the Vietnam People's Navy (VPN). Before 1998, the VPN carried out constabulary maritime missions, as the coast guard did not possess the number and type of high-endurance assets needed to undertake primary MLE duties. In 2008, the Marine Police was renamed the Vietnam Coast Guard (VCG) and was elevated in status to an armed service under the joint command of the MoD and VPN.[89] During the same year, the VCG, under the auspices of the MoD, and the Ministry of Transport (MoT) issued a joint circular under which the two agencies would "coordinate operations and information sharing regarding patrols of Vietnamese waters," further stipulating that the VCG would "consult with the MoT on proposed legal documents and coordinate with the MoT on international cooperation, education and training on maritime expertise for Coast Guard staff, [and] communication of relevant legal documents."[90] Then, in October 2013, the VCG became a fully independent civilian armed service under the MoD, in part to be eligible to receive Japanese foreign aid to purchase patrol vessels from Japan.[91]

The change to a civilian entity was a symbolic shift for the coast guard, accustomed to being the "forgotten arm" of the VPN. The separation from the VPN also meant that the commandant of the VCG reports directly to the minister of defense and to the general secretary of the Communist Party of Vietnam, as opposed to just the VPN commander.[92] Like the equivalent services in the Philippines and the United States, the VCG retains both civilian police powers for law enforcement and military duties during wartime. Despite its separation from the navy, the VCG coordinates closely with VPN ships when operating at sea, and VCG ships are still dependent on VPN shipyards for maintenance and repair.[93]

Articles 5 and 6 of Vietnam's coast guard law detail VCG's main missions and responsibilities within Vietnam's territorial waters, contiguous zone, and EEZ. These include (1) protecting national sovereignty; (2) maintaining security, order, and safety; (3) protecting natural resources; (4) preventing environmental pollution; and (5) countering drug trafficking, smuggling, and human trafficking.[94] As with China's coast guard, it is notable that the first task listed for the VCG deals with national sovereignty, which speaks to the degree of emphasis Vietnamese authorities place on territorial protection.

The VCG has approximately fifty vessels: five large (the largest displaces 2,500 tons) and forty-five small.[95] Soon after the *Haiyang Shiyou 981 (HYSY 981)* incident in 2014, Vietnamese prime minister Nguyen Tan Dung announced the allocation of U.S.$540 million to build thirty-two new coast guard ships and hundreds of aluminum fishing vessels that can withstand ramming better.[96] With the delivery of two five-hundred-ton TT400TP-class patrol vessels in January 2016 and the addition of six one-thousand-ton patrol craft pledged from Japan, Vietnam will boast the largest coast guard fleet in Southeast Asia.[97] Most VCG vessels have light-caliber deck-mounted autocannon or machine guns (ranging in size from 14.5 to 23 mm) or both, and most crewmembers carry light firearms for self-defense.[98] The VCG has three fixed-wing CASA C-212 Aviocar patrol aircraft. The VCG has approximately 5,500 total personnel.[99]

In April 2014, Vietnam unveiled a Fisheries Surveillance Force (VFSF) under the Ministry of Agriculture and Rural Development's Directorate of Fisheries. The force is tasked with protecting domestic fishermen and with detecting and managing violations of Vietnam's fisheries laws and regulations by foreign fishermen within Vietnamese territorial and EEZ waters. At the ceremony marking the establishment of the VFSF, Vietnamese authorities emphasized that the most important duty of the force is to "safeguard the country's sovereignty and ensure the safety of fishermen and their vehicles in the country's sea areas."[100] Vietnamese officials highlighted the fact that one million Vietnamese fishermen and 120,000 boats operate in Vietnamese waters, adding that the fishing industry is one of the

country's "key economic sectors." According to Vietnamese officials interviewed, the VFSF's MLE responsibilities are limited to inspecting and fining illegal fishing boats or repelling them from Vietnamese waters. They are not authorized to arrest and transport offenders back to mainland Vietnam for prosecution, for example.[101] The VFSF currently has four small patrol craft of five hundred to one thousand tons and two medium-endurance cutters, called KN-781 and -782, each displacing two thousand tons.[102]

The addition of the VFSF adds another maritime actor with responsibilities for enforcing maritime law to the Vietnamese roster, which includes the VPN, the Vietnam Border Guard (VBG), the Vietnam Maritime Administration (VINAMARINE) under the Ministry of Transportation, the General Department of Vietnam Customs, and the Department of Anti-smuggling under the Ministry of Finance. Of these actors, only the VPN, VCG, VFSF, VINAMARINE, and VBG have vessels that patrol Vietnamese waters. The VBG is responsible for enforcing maritime regulations within Vietnam's territorial sea and inland waterways and does not patrol Vietnam's EEZ. The VINAMARINE undertakes missions related to SAR, environmental protection, and maritime traffic control. The VPN, VCG, VINAMARINE, and VFSF all share responsibility for patrolling Vietnam's EEZ, while the VPN, which has the most high-endurance vessels, is deployed alongside the VCG performing the frontline patrols instituted in response to territorial disputes in the South China Sea.[103] Overlapping mandates and jurisdictions of the above-mentioned agencies have created redundancies in authority, mission, and jurisdiction like those that continue to confront MLE agencies throughout the region.

The *HYSY 981* incident previously mentioned constitutes the second case study. From May 2 to July 15, 2014, China deployed an oil-exploration rig designated *HYSY 981* off the Paracel Islands in the South China Sea; the islands are claimed by China and Vietnam. The location of the rig was roughly 200 nm south of China's Hainan Island and 120 nm from the Vietnamese coast—well within Vietnam's EEZ. The deployment of *HYSY 981* triggered the biggest diplomatic crisis between China and Vietnam since the normalization of relations in 1991, involving mass protests across Vietnam and attacks on Chinese-owned businesses and citizens in the country. The incident also debuted a new operational strategy on the part of China that featured the large-scale deployment of Chinese fishermen and civilian auxiliary vessels working alongside Chinese naval and coast guard vessels to protect the oil rig and repel advances by Vietnamese vessels.

Soon after the oil rig was deployed, China established a security cordon of coast guard and fishing vessels 10–11 nm from the rig, with naval vessels maintaining a presence nearby. One Vietnamese report noted the presence of 102–108 Chinese vessels, including 37–39 coast guard vessels, 12–14 transport vessels,

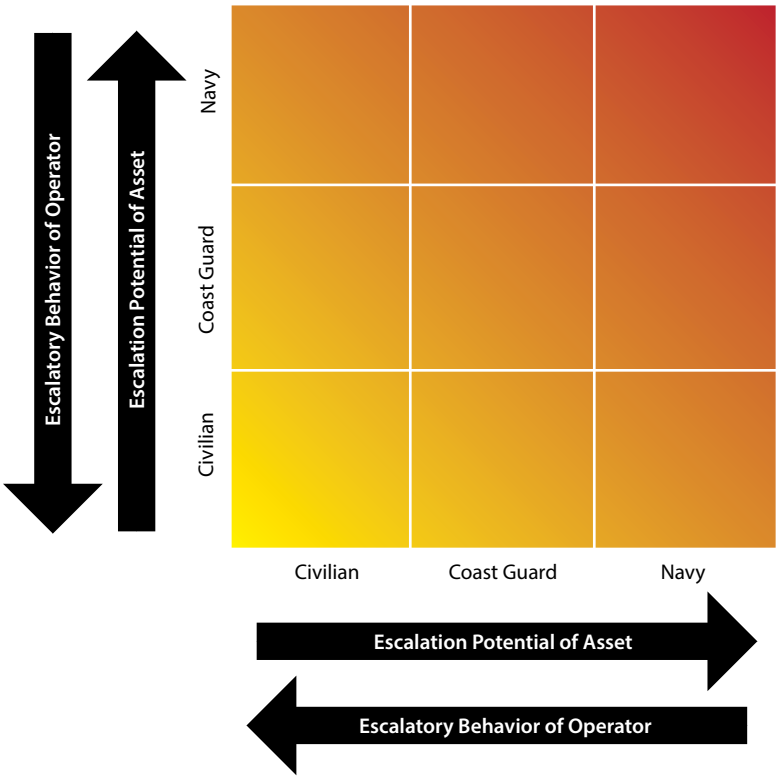
17–19 tugboats, and 30 fishing boats.[104] In response, Vietnam sent coast guard, naval, and fishing vessels to penetrate the cordon and repel the Chinese vessels from the area. A test of wills ensued, with Vietnamese vessels advancing to within 10 nm of the rig and Chinese vessels repelling their advance. Over the next few weeks, China began to deploy greater numbers of fishing vessels on the front line of the cordon, including maintenance and supply ships, trawlers, and tugboats.[105] China also increased the aggressiveness of its tactics, ramming opposing vessels and using water cannon.[106] In one case, a large Chinese fishing trawler rammed and sank a wooden Vietnamese fishing vessel; all the crewmembers were saved by a nearby Vietnamese coast guard vessel.[107] In another case, a Chinese coast guard vessel used water cannon against Vietnamese fishing and surveillance vessels for hours, in an attempt to flood the vessels and disable their engines.[108]

The employment of Chinese fishing and auxiliary vessels during the *HYSY 981* incident is noteworthy not only because it indicates a strategy on the part of China's decision makers to use civilian actors as a first line of defense against other countries' government and military vessels; it also highlights a high level of coordination among the different actors. One Vietnamese official remarked that this was the first time he had seen a coordinated campaign of Chinese fishermen being "out in front" during a conflict and undertaking "assertive actions such as ramming and sinking Vietnamese vessels."[109] The official suspected that these civilian assets and personnel receive guidance, training, and funding from the Chinese military.[110]

Fishing, coast guard, and naval assets operating as one loosely coordinated unit to defend a position injects a new and potentially destabilizing escalation dynamic into the maritime sphere (see figure 6).

In scenarios of this type, fishing vessels, coast guards, and navies can and often do clash with vessels of a different kind. The *HYSY 981* incident showcased fishing vessels ramming other fishing vessels, fishing vessels ramming coast guard vessels and vice versa, coast guard vessels ramming another coast guard's vessels, and coast guard and fishing vessels coming close to naval vessels patrolling the area. As one moves up the escalation ladder from civilian assets through coast guard assets to naval assets, the potential for escalation increases. Yet during the *HYSY 981* incident, operators manning civilian assets exhibited more escalatory actions precisely because they were not employing the strongest weapons or assets available, and because of the plausible deniability of state involvement. A greater willingness for civilians operating civilian assets to undertake assertive actions may explain partially China's use of a fishing trawler to ram and sink a Vietnamese fishing vessel, for example. The involvement of civilian, government, and military assets in this case has introduced a new and potentially dangerous escalation dynamic into the existing maritime environment in the South China Sea.

FIGURE 6
ESCALATION DYNAMICS OF CIVILIAN, GOVERNMENT, AND MILITARY ASSETS DURING *HYSY 981* INCIDENT



The outcome of the *HYSY 981* incident was a bitter pill to swallow for Vietnamese authorities. Vietnam's coast guard and navy found themselves severely outnumbered, and the inclusion of Chinese civilian vessels as proxies for the Chinese state confronted commanders with a fundamentally new combat landscape. For Vietnam, the incident underscored the need for greater investments in naval and coast guard assets, as well as the loosening of use-of-force policies governing its coast guard and fisheries-surveillance forces.[111]

The Philippines

The creation of the Philippine Coast Guard (PCG) (Tanod Baybayin ng Pilipinas) can be traced to October 17, 1901, when Philippine Commission Act No. 266 created the Bureau of Coast Guard and Transportation (BCGT). The BCGT's primary tasks were to maintain lighthouses in different parts of the archipelago, support the inspection trips of government officials, and prevent illegal entry of aliens.[112] On October 26, 1905, its functions were taken over by the Bureau of Navigation, and later by the Bureau of Customs and the Bureau of Public Works.[113]

In 1948, during the early years of the Philippine Republic, the Philippine Naval Patrol, which eventually became the Philippine Navy (PN), was created; it absorbed most of the functions of the coast guard. Then, from 1967 to 1998, under Republic Act (RA) 5173, the coast guard gained the formal name "Philippine Coast Guard" and became a major unit of the PN, part of the armed forces of the Philippines.[114] Perceiving the need to make the PCG a constabulary force under civilian authority, President Fidel V. Ramos signed Executive Orders 475 and 477 in 1998, paving the way for the PCG to be transferred to the Department of Transportation and Communications (DOTC).[115]

On February 12, 2010, the Philippine Congress approved the PCG's statutory place as an armed service under and attached to the DOTC by enacting RA 9993, otherwise known as the Philippine Coast Guard Law of 2009.[116] The PCG therefore is considered a "paramilitary" force because its personnel and vessels are armed, and because it would fall under the command of the Philippine Department of Defense during wartime. The separation from the PN in 2010 also meant that the commandant of the PCG reports directly to the secretary of the DOTC as well as to the president of the Philippines.[117]

The PCG maintains a small fleet of eight medium-endurance patrol craft, mounted with 50 mm autocannon; four buoy tenders; and roughly thirty-two small patrol vessels.[118] Japan's announcement that it plans to sell eight medium-endurance cutters to the Philippines will mean an almost doubling of the PCG medium-endurance-cutter fleet.[119] The PCG has only two operational aircraft—one fixed wing and one helicopter—but it is slated to receive two helicopters from France within the next few years.[120] Finally, there are roughly 9,000 personnel in the PCG, with plans to expand to 13,500 by 2020.[121]

Although notionally it is the central actor overseeing MLE within Philippine territorial and EEZ waters, the PCG, like many other coast guards in East and Southeast Asia, shares that responsibility with a wide range of bureaucracies within the national government. These include the Philippine National Police Maritime Group (PNP-MG), Customs, Immigration, the Philippine Bureau of Fisheries and Aquatic Resources (BFAR), and the PN. The PNP-MG, for example, retains jurisdiction over Philippine territorial waters and has a small fleet of inshore patrol vessels that police these waters. The BFAR, PCG, and PN share jurisdiction over Philippine contiguous zones and EEZ waters. Furthermore, because of institutional reliance on the PN, especially its larger assets that are capable of high-endurance missions in the South China Sea, the PCG plays a secondary role in patrolling disputed territory in this area.

There are three functional commands within the PCG: Maritime Safety Services Command, Maritime Security and Law Enforcement Command, and

Marine Environmental Protection Command.[122] With these three mission sets, the PCG is, in theory, authorized to carry out all MLE functions while on patrol. This includes SAR, customs, immigration, and fisheries enforcement. In fact, the Philippine Coast Guard Law is explicit regarding the various scenarios under which PCG officials may undertake missions and tasks on behalf of other law-enforcement agencies. However, more training is needed for PCG officers to be able to perform the full spectrum of SAR, fisheries, customs, and immigration missions that are required. Furthermore, most PCG vessels are unable to sustain operations far from shore for long periods.[123]

The overlapping mandates and command structures of the PCG and BFAR highlight redundancies that continue to hamper unified MLE action. The BFAR was established under fisheries law RA 8550 to protect Philippine fisherman rights and interests at sea as well as to police illegal fishing activities within the Philippine EEZ.[124] The BFAR maintains its own mandate, command, fleet, personnel, and rules for use of force. Soon after the BFAR was created, it signed a memorandum of agreement with the PCG to coordinate operations, and PCG personnel frequently man BFAR vessels during patrols. Most BFAR patrols in the South China Sea, for example, are under the direct supervision of the PCG.[125] Furthermore, the majority of inspections the PCG conducts and violations it encounters in the South China Sea relate to fisheries enforcement, which are nominally under the purview of BFAR, yet PCG personnel prosecute most cases. This has created an unnecessary overlap in mission and jurisdiction between the BFAR and the PCG that continues today.

One case involving the fatal shooting of a Taiwan fisherman by a BFAR vessel in May 2013 highlights the pitfalls of dueling Philippine MLE actors undertaking use-of-force actions under loose C2 structures. Known as the *Guang Da Xing No. 28* incident, the case involved a BFAR vessel chasing and opening fire on a Taiwan fishing vessel within an area of overlapping EEZs of Taiwan and the Philippines. The BFAR vessel was manned by a mix of BFAR and PCG personnel, and Philippine authorities maintain that the officers were undertaking defensive actions after they were rammed by the Taiwan vessel in Philippine waters; they claim they were attempting simply to disable its engine.[126] However, video footage of the incident appears to show PCG officials indiscriminately shooting dozens of rounds from a firearm into the hull and windows of the Taiwan vessel.[127] A tense diplomatic standoff ensued, with Taiwan imposing sanctions on the Philippines and conducting a series of naval drills near the area where the incident occurred.[128] Ties eventually were mended after a Philippine investigation recommended homicide charges against eight PCG personnel involved in the shooting, and a representative of the Philippine government traveled to Taiwan to apologize officially to the victim's family.[129]

The case highlights vulnerabilities created by overlapping command structures and lack of intra-agency standard operating procedures. As a result of the case, the PCG and BFAR tightened use-of-force procedures and initiated greater coordination of operations between the two services.[130] However, the incident illuminates the larger coordination issues that exist among the PCG and the PN, the PNP-MG, and the BFAR. According to one PCG officer, the different agencies do share some intelligence during patrols and train together occasionally in the classroom, but they essentially operate independently of one another, with few direct communication links.[131] As will be discussed later in the article, the Philippine National Coast Watch System (NCWS) will alleviate some of these issues by sharing intelligence across agencies and providing a common maritime domain awareness picture for operators on patrol. The BFAR also plans to install a million automatic identification system sensors on Philippine fishing vessels, which would increase greatly coordination with domestic fishermen.[132]

The Scarborough Shoal incident, discussed below, has resulted in the PCG being tasked as the primary enforcer of Philippine maritime rights and interests in the country's EEZ, a role the PN traditionally filled. This development, along with the decision to place the NCWS under PCG command, has endowed the PCG with a greatly expanded set of roles and responsibilities within Philippine maritime security policy. However, competing bureaucratic interests, undercoordination with other MLE agencies, and chronic underfunding by the Philippine government continue to hamper the PCG's development and have forestalled its realization as the preeminent force protecting Philippine maritime interests.

The aforementioned Scarborough Shoal incident provides the third case study. The April 2012 standoff between the CCG and the PN and PCG that occurred at Scarborough Shoal in the South China Sea was a highly contentious and dangerous test of wills between the respective nations. It began on April 8 when the PN flagship, BRP *Gregorio del Pilar* (a decommissioned and transferred U.S. Coast Guard cutter), attempted to apprehend several Chinese fishing boats suspected of hauling an illegal catch of corals, clams, and live sharks. PN officers boarded one vessel and discovered the catch. After the Philippine sailors disembarked, the Chinese vessels sent a distress call to local officials in Hainan via satellite phone.[133] When PN personnel attempted to board a second vessel, two 1,500-ton CMS (CMS is now part of the CCG) vessels, *Haijian 75* and *Haijian 84,* arrived and inserted themselves between the Philippine warship and the Chinese fishing vessels, preventing an arrest.[134]

Chinese statements and actions at the outset of the standoff marked a dramatic departure from earlier behavior. This was the first time a CCG vessel had prevented the PN from arresting Chinese fishermen. More significantly, China challenged Philippine territorial waters over a shoal that was 124 nautical miles

from the Philippine island of Luzon and well within the Philippine EEZ. According to Philippine officials, China had never issued such stern warnings about the shoal being Chinese territory.[135]

On April 10, Philippine president Benigno Aquino III, realizing that his country was engaged in a dangerous standoff with a militarily superior foe whose behavior lately had become unpredictable, made a decision that would greatly influence the development of the PCG. He decided to withdraw *Pilar* and replace it with the largest coast guard vessel in the PCG fleet, the thousand-ton medium-endurance cutter BRP *Pampanga* (SARV 003), to de-escalate the conflict. This was the first time a PCG asset had been deployed so far from shore.[136] Aquino's decision was in part a response to Executive Order No. 57 of September 2011 that created the NCWS, an intelligence fusion center housed adjacent to the PCG headquarters, to integrate Philippine maritime security operations in one centralized location, in part to promote a "white to white, gray to gray" approach to dealing with foreign government vessels.[137]

By the time *Pampanga* replaced *Pilar,* China had deployed *Yuzheng 310*—a 2,500-ton fisheries-surveillance cutter—initiating a tense standoff.[138] At that point, the PCG was outnumbered three to one by its CCG counterpart, not to mention three Chinese fishing vessels in the area.[139] A few weeks later *Pampanga* was replaced by BRP *EDSA II,* similar in size to *Pampanga*—a move apparently made out of necessity to replenish *Pampanga,* which was not accustomed to such long-distance operations.[140] Another, smaller (hundred-ton) BFAR patrol vessel was deployed to the scene around this time.[141] At one point in May, China had increased the number of its vessels near the shoal to ninety-seven—five CCG and ninety-two fishing and auxiliary vessels.[142]

The standoff continued for over three months, with diplomats of the two countries trading many acrimonious statements, until the U.S. State Department reportedly stepped in to mediate a resolution to the standoff under which both parties agreed to pull back from the shoal.[143] On June 4, both sides initiated various stages of withdrawal, but each maintained a presence just over the horizon. After just a few days—claiming that a deal to withdraw had never been reached—China returned its vessels to the shoal.[144] A few months later it was revealed that China had tied across the entrance to the shoal a rope that blocked entry.[145] The Chinese coast guard presence—along with the rope—remains today.

The Philippine government was shocked at the result of the standoff, not only having lost a rich fishing ground on which the Philippine fishing industry had relied for decades, but also having placed false hope in China honoring its commitment to the U.S.-brokered agreement to depart the area. The incident forced Philippine national security policy makers to reassess both the use of naval assets to conduct MLE duties, such as boardings of foreign civilian fishing vessels,

and the appropriateness of confronting CCG vessels with naval vessels. In many regards, the incident was a watershed moment for the PCG. From that point onward—notwithstanding the Philippines and the PCG coming away from the incident with a sense of defeat—the PCG has taken on a primary role as enforcer of Philippine maritime interests in the South China Sea.

The incident also confirmed for the Philippines a new trend in CCG behavior, starting in 2011: that of CCG vessels practicing more-aggressive tactics and of Chinese government and fishing vessels being more willing to challenge Philippine territorial claims in the South China Sea. Such behavior was on display not only during the Scarborough Shoal incident but also when Chinese vessels for the first time blocked two attempts by PCG ships to resupply their garrison of troops on Second Thomas Shoal on March 9, 2014, during China's brief seizure of Jackson Atoll in March 2016, and when CCG vessels reportedly rammed a Philippine fishing vessel near Scarborough Shoal in March 2016.[146] According to Philippine officials interviewed, China now appears intent on disrupting Philippine resupply missions to its garrison on Thitu Island (known in the Philippines as Pag-asa Island), the largest Philippine-occupied island in the South China Sea and home to over three hundred Philippine citizens.[147]

On the basis of the above analysis and examination of the specific case studies, China's increasingly aggressive employment of its coast guard as an instrument of state power and its use of tactics that blur lines between acts of armed aggression and acts of law enforcement are reshaping fundamentally the maritime security environment in East and Southeast Asia. In contrast to its actions in the East China Sea, where China appears to have routinized its activities to avoid unnecessary escalation with Japan, China's adoption of tactics such as shouldering, ramming, and the use of water cannon to intimidate smaller claimants in the South China Sea, in conjunction with its increasing reliance on civilian fishing vessels as proxies, greatly challenges the responses of other actors in the region.

China's use of civilian vessels provides plausible deniability against claims of assertive state-sanctioned tactics. The use of fishing, coast guard, and navy vessels in proximity to each other in disputed waters presents an interdependent web of possible escalation dynamics that are too little studied, yet potentially destabilizing to Southeast Asia. It will be incumbent on maritime states to continue to exercise restraint if situations involving such a plethora of actors are to be contained at a manageable level.

China's desire to consolidate administrative control over the vast majority of maritime zones in the South China Sea and its unprecedented level of investment in its coast guard fleet have prompted other regional states to turn to coast guards to counter the threat they perceive to their maritime environment and to

bolster administrative control over disputed territory. For several of the states examined in this study, however, chronic underfunding, insufficient training, underresourced facilities, and legacies of naval jurisdiction over maritime areas all hinder the proper development of their coast guards and all but ensure a significant quantitative gap in coast guard fleets between China and others in the region. Among the four coast guards in this study, Japan's stands out as the most professional and well organized force, one that has been able to overcome many of the bureaucratic impediments from which other coast guards in the region suffer.

Furthermore, the existence of unresolved territorial disputes in the South China Sea makes it somewhat of an anomaly with regard to coast guard missions. In an environment of competing territorial claims, any exercise of domestic authority in disputed waters by one coast guard has the potential to be contested by another nation as a violation of its sovereignty.[148] Thus, for the foreseeable future, the budgetary battle will continue to play out among certain countries in Southeast Asia over whether navies or coast guards should be deployed as the primary asset to combat nontraditional maritime security threats.

In the near term, the disputants should consider two approaches to mitigate tensions. First, a code of conduct (CoC) negotiated among the claimants in the East and South China Seas should be pursued, as some have proposed.[149] While efficiencies might be derived from pursuing such agreements within larger, existing, multilateral groupings, such as ASEAN, the author believes a CoC should be pursued directly by the claimants themselves, either bilaterally or multilaterally.

Second, confidence-building and information-sharing mechanisms may offer another alternative that seeks to build relationships among coast guard commanders.[150] The creation of the U.S.-initiated North Pacific Coast Guard Forum (NPCGF) in 2000 stands out as an important success story with potential applicability to Southeast Asia. NPCGF brings together the coast guards of Canada, China, Japan, Russia, South Korea, and the United States for annual meetings, information sharing, and multilateral multimission exercises. NPCGF provides joint-operations components such as a U.S.-Chinese joint fisheries shiprider agreement and a combined operations manual, in addition to building trust and permitting information sharing, including law-enforcement best practices, among partner nations more generally.[151] A regional forum patterned after NPCGF but among the coast guards of Southeast Asia and China—to include both information-sharing and operational components—should be considered as a prescription to reduce tension and build trust.[152] Such a forum could go a long way toward promoting professionalism across coast guard fleets and perhaps lessen the use of some of the destabilizing tactics those coast guards have been employing.

NOTES

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1. The People's Liberation Army Navy, for example, was involved in an incident with the Philippines in February 2011 that involved the firing of warning shots against Philippine fishing vessels. Tessa Jamandre, "China Fired at Filipino Fisherman in Jackson Atoll," *VERA Files,* June 3, 2011, available at news.abs-cbn.com/.

2. States traditionally have employed navies as the primary instrument to assert sovereignty claims. The exception appears to be the recent employment of coast guards to assert territorial claims over the Senkaku/Diaoyu Islands, by China and Japan; to assert claims over the Dokdo/Takeshima Islands, by South Korea and Japan; to assert claims over maritime features in the South China Sea, by China, Vietnam, the Philippines, Taiwan, and Malaysia; and to assert claims over Pedra Branca features, by Singapore and Malaysia. For a general overview of navy and coast guard roles in conflict, see Bruce Mitchell, "Politics, Fish, and International Resource Management: The British-Icelandic Cod War," *Geographical Review* 66, no. 2 (April 1976), pp. 127–38; Robert L. Scheina, *Latin America: A Naval History, 1810–1987* (Annapolis, MD: Naval Institute Press, 1987); David Brown, *The Royal Navy and the Falklands War* (Barnsley, U.K.: Pen and Sword, 1987); Ivan Shearer, "The Development of International Law with Respect to the Law Enforcement Roles of Navies and Coast Guards in Peacetime," in *The Law of Armed Conflict: Into the Next Millennium,* ed. Michael N. Schmitt and Leslie C. Green, International Law Studies 71 (Newport, RI: Naval War College, 1998); Arnfinn Jorgensen-Dahl, "The Soviet-Norwegian Maritime Disputes in the Arctic: Law and Politics," *Ocean Development & International Law* 21, no. 4 (1990), pp. 411–29; Jonathan I. Charney and Lewis M. Alexander, eds., *International Maritime Boundaries* (Leiden, Neth.: Martinus Nijhoff, 1991); and U.S. Navy, U.S. Marine Corps, and U.S. Coast Guard, *The Commander's Handbook on the Law of Naval Operations* (Newport, RI: Navy Warfare Development Command, 2007).

3. Patricia Jimenez Kwast, "Maritime Law Enforcement and the Use of Force: Reflections on the Categorisation of Forcible Action at Sea in the Light of the *Guyana/Suriname* Award," *Journal of Conflict & Security Law* 13, no. 1 (2008), pp. 49–91; Derek Lutterbeck, "Between Police and Military: The New Security Agenda and the Rise of Gendarmeries," *Cooperation and Conflict* 39, no. 1 (March 2004), pp. 45–68; Christian Le Mière, "Policing the Waves: Maritime Paramilitaries in the Asia-Pacific," *Survival* 53, no. 1 (February 2011), pp. 133–46.

4. Lyle J. Morris, "Taming the Five Dragons? China Consolidates Its Maritime Law Enforcement Agencies," Jamestown Foundation *China Brief* 13, no. 7 (March 28, 2013); Nong Hong, "China's Newly Formed Coast Guard and Its Implication for Regional Maritime Disputes," *Ocean Yearbook* 28 (2014), pp. 611–30; Ryan D. Martinson, "From Words to Actions: The Creation of the China Coast Guard" (paper, "China as a 'Maritime Power' Conference," CNA Corporation, Arlington, VA, July 28–29, 2015); Lyle J. Goldstein, *Five Dragons Stirring Up the Sea: Challenge and Opportunity in China's Improving Maritime Enforcement Capabilities,* China Maritime Studies 5 (Newport, RI: Naval War College Press, 2010).

5. See "Malaysia Summons China Ambassador over Alleged South China Sea Encroachment," *Straits Times,* March 31, 2016; "Indonesia to Summon Chinese Ambassador over Natuna Islands Standoff," *Jakarta Globe,* March 21, 2016; Allan Macatuno, "Chinese Vessels Ram PH Fishers' Boat at Panatag," Inquirer.net, March 20, 2016, globalnation

.inquirer.net/ and "Border Guard Report Chinese Aggression in Vietnamese Waters through 2015," *Thanh Nien News,* January 8, 2016, www.thanhniennews.com/.

6. Other countries in the region not mentioned here, such as Indonesia, Malaysia, Singapore, and Taiwan, are also undertaking reforms or investing in coast guard fleets. Sam Bateman's landmark study on regional coast guard developments in Southeast Asia provides an important basis of analysis for this study. See Sam Bateman, *Coast Guards: New Forces for Regional Order and Security,* Asia Pacific Issues 65 (Honolulu, HI: East-West Center, 2003).
7. United Nations Convention on the Law of the Sea, 1982 [hereafter UNCLOS], pt. V, p. 40, available at www.un.org/.
8. A "'warship' means a ship belonging to the armed forces of a State bearing the external marks distinguishing such ships of its nationality, under the command of an officer duly commissioned by the government of the State and whose name appears in the appropriate service list or its equivalent, and manned by a crew which is under regular armed forces discipline." Ibid., art. 29, pp. 35–36; Harold J. Kearsley, *Maritime Power and the Twenty-First Century* (Aldershot, U.K.: Dartmouth, 1992), p. 46. See also Raymond D. Bland [Capt., USCG], "Controlling the EEZ: Implications for Naval Force Planning," *Naval War College Review* 32, no. 4 (July/August 1984), pp. 23–30.
9. Bateman's analysis of the history and distinction between constabulary missions of coast guards and navies, or what he calls "lawships and warships," is important in this regard. See Sam Bateman, "Regional Navies and Coastguards: Striking a Balance between 'Lawships' and Warships," *University of Wollongong: Research Online,* 2014, ro.uow.edu.au/. Geoffrey Till provides a useful theoretical model for understanding the areas of jurisdictional divergence and convergence for navies and coast guards. See Geoffrey Till, *Seapower: A Guide for the Twenty-First Century,* 3rd ed. (London: Routledge, 2013), pp. 314–16.
10. Bagus B. T. Saragih, "New Maritime Body Ready to Set Sail," *Jakarta Post,* December 12, 2014, www.thejakartapost.com/.
11. Lyle J. Morris, "Indonesia-China Tensions in the Natuna Sea: Evidence of Naval Efficacy over Coast Guards?," *The Diplomat,* June 28, 2016, thediplomat.com/.
12. Coast guard and government officials and academics in the Philippines, Vietnam, and Japan, interviews by author, September 2015.
13. With the exception of the U.S. Coast Guard, which deployed and fought alongside the U.S. Navy during World War I, World War II, and the Vietnam War, coast guards around the world traditionally have been deployed in a more limited MLE capacity to patrol ports, waterways, and territorial seas that fall under the clear jurisdiction of maritime states. See Stephen Hadley Evans, *The United States Coast Guard, 1790–1915: A Definitive History* (Annapolis, MD: Naval Institute Press, 1949), and Michael R. Adams, *Ocean Station: Operations of the U.S. Coast Guard, 1940–1977* (Eastport, ME: Nor'easter, 2010).
14. "Good seamanship" generally refers to efforts by government and civilian vessels to abide by internationally recognized rules of the road and standards of navigation that seek to avoid accidents at sea and close encounters that could lead to accidents. The Convention on the International Regulations for Preventing Collisions at Sea, October 20, 1972, U.N.T.S. 1050 [hereafter COLREGS], published by the International Maritime Organization in 1976, is the most widely accepted and relied-on set of guidelines in this regard. See U.S. Homeland Security Dept., *Navigation Rules: International—Inland,* COMDTINST M16672.2D (Washington, DC: U.S. Coast Guard, 1972), available at www.navcen.uscg.gov/.
15. This could be changing, however, as regional states bolster their domestic legal systems to incentivize the arresting and jailing of foreign fishermen in violation of domestic laws. See Laura Zhou, "China to Jail Foreign Fishermen Who Ply Trade in Sovereign Waters," *South China Morning Post,* August 3, 2016, www.scmp.com/.
16. UNCLOS, pt. XVI, "General Provisions," art. 301, "Peaceful Uses of the Sea," p. 138.
17. Guyana v. Suriname, ICGJ 370 (PCA 2007) at "Award," p. 142.
18. Ibid., p. 145.

19. Ibid., p. 132. The tribunal referred to previous rulings bearing on the matter, including the M/V *Saiga No. 2 (Saint Vincent and the Grenadines v. Guinea)* judgment, ITLOS Reports, 1999.
20. Guyana v. Suriname, p. 147.
21. Lyle J. Morris, "The Crucial South China Sea Ruling No One Is Talking About," *The Diplomat,* September 9, 2016, thediplomat.com/.
22. In the Matter of the South China Sea Arbitration before an Arbitral Tribunal Constituted under Annex VII to the 1982 United Nations Convention on the Law of the Sea between the Republic of the Philippines and the People's Republic of China (PCA 2013-19), at "Operation of Law Enforcement Vessels in a Dangerous Manner," sect. VII(F), p. 434.
23. Ibid., pp. 424, 435.
24. Chinese maritime affairs scholars, interviews by author, September 28, 2015.
25. The large gap between U.S. Coast Guard (USCG) spending and equivalent spending by other countries may be explained partially by the fact that the U.S. Coast Guard includes outlays in its budget that other countries do not—for example, personnel salaries, retirement benefits, health care costs, and vessel maintenance costs.
26. U.S. Navy, *The PLA Navy: New Capabilities and Missions for the 21st Century* (Washington, DC: Office of Naval Intelligence, 2015), p. 45, available at www.oni.navy.mil/. For CCG personnel estimates, see "State Council Circular on the Main Functions, Internal Bureaucracy and Staffing Provisions of the State Oceanic Administration" [in Chinese], *Central People's Government of the PRC,* June 9, 2013, www.gov.cn/. In all likelihood, these represent conservative estimates for the numbers of vessels and personnel.
27. Ryan D. Martinson, "East Asian Security in the Age of the Chinese Mega-cutter," *Center for International Maritime Security,* July 3, 2015, cimsec.org/. See also Huang Jin, "China Builds Second Mega Coast Guard Ship," *People's Daily Online,* January 11, 2016, en.people.cn/.
28. Ryan D. Martinson, "Curing China's Elephantiasis of the Fleet," Jamestown Foundation *China Brief* 15, no. 10 (May 15, 2015). See also Bradley Perrett, "Avic's AG600 Amphibious Aircraft to South China Sea," *Aviation Week & Space Technology,* July 29, 2016, aviationweek.com/.
29. "State Council Circular."
30. "Hu Calls for Efforts to Build China into Maritime Power," *Xinhua News,* November 8, 2012, news.xinhuanet.com/.
31. "Xi Advocates Efforts to Boost Maritime Power," *Xinhua News,* July 31, 2013.
32. Goldstein, *Five Dragons Stirring Up the Sea.*
33. "Ma Kai Briefs on State Council's Institutional Reform, Functions, Transformation" [in Chinese], *Xinhua News,* March 12, 2013, news.cntv.cn/. The four reorganized were (1) China Marine Surveillance, previously administered by the SOA; (2) the Maritime Police and Border Control, previously administered by the Ministry of Public Security; (3) the Fisheries Law Enforcement Command, previously administered by the Ministry of Agriculture; and (4) the Maritime Antismuggling Police, previously administered by the General Administration of Customs. The Maritime Safety Administration, under the Ministry of Transportation, was not included in the overhaul because its mission is oriented more toward SAR, less toward protecting Chinese territorial sovereignty. See also Morris, "Taming the Five Dragons?"
34. "Ma Kai Briefs."
35. Ibid.
36. "State Council Circular."
37. Morris, "Taming the Five Dragons?"
38. David Tweed, "China's Giant New Coast Guard Ship to Carry Machine Guns, Shells," *Bloomberg Technology,* January 12, 2016, www.bloomberg.com/. For example, CCG 31239 is a decommissioned PLAN frigate with four 37 mm deck-mounted guns, two in the forward part and two in the after part of the vessel. No other coast guard fleet in the region boasts a vessel with such a large array of armaments.
39. Ryan D. Martinson, "Deciphering China's Armed Intrusion near the Senkaku Islands," *The Diplomat,* January 11, 2016, thediplomat.com/. See also Martinson, "From Words to Actions."

40. "The Reconstituted SOA and the China Coast Guard Have Been Set Up" [Zhongzu Hou De Guojia Haiyangju Guapai Zhongguo Haijingju Tongshi Guapai], *Central People's Government of the PRC,* July 22, 2013, www.gov.cn/.
41. USCG official, phone interview by author, September 17, 2015.
42. CCG official, interview by author, September 17, 2015.
43. "China Coast Guard Cracks Down on Extremely Serious Case of Illegal Red Coral Reef Hunting Valued over One Hundred Million RMB" [in Chinese], *People's Daily Online,* May 25, 2015, legal.people.com.cn/.
44. CCG official interview.
45. Ibid.
46. One database that examined forty-five major incidents in the South China Sea between 2010 and 2016 found that "at least one CCG (or other Chinese maritime law enforcement) vessel was involved in 71 percent of incidents." See Center for Strategic and International Studies, "Are Maritime Law Enforcement Forces Destabilizing Asia?," *ChinaPower,* chinapower.csis.org/.
47. Elements of the CCG's rules of engagement (ROEs) were outlined in a recent Chinese television series covering the South China Sea. See "Blue Border Guards" [Lanjiang Weishi], *Traveling around China* [Zoubian Zhongguo], *South China Sea Travel Notes* [Nanhai Jixing] series, episode 8, aired December 31, 2013, by China Central Television (CCTV), available at news.cntv.cn/. For more on changes to China's ROEs, see Lyle J. Morris and Michael S. Chase, "The Tip of the Spear: China's Coast Guard Takes the Lead in East and South China Sea Disputes," in *China, Inside and Out: A Collection of Essays on Domestic and Foreign Policy in the Xi Jinping Era,* ed. Stephan Kistler (Santa Monica, CA: RAND, 2015).
48. "China Coast Guard Trained with Water Cannons near Ayungin—PHL Marine," *GMA News Online,* March 30, 2014, www.gmanetwork.com/; "Vietnamese Boat Sunk in South China Sea," *Sky News,* July 11, 2016, www.skynews.com.au/.
49. "Vietnam Says Chinese Boat Harassed Survey Ship; China Disputes," *Bloomberg News,* June 9, 2011, www.bloomberg.com/.
50. Philippine and Vietnamese naval, coast guard, and government officials, interviews by author, September 15–17, 21, 2015.
51. Ibid. See also Hein Cu, "Vietnamese Fishermen Say Robbed, Injured by Chinese off Paracels," *Thanh Nien News,* June 14, 2015, www.thanhniennews.com/; "Vietnamese Boat Sunk in South China Sea."
52. Sun Li and Fang Lihua, "China Successfully Conducts 'East China Sea Cooperation—2012' Military-Civilian Joint Exercise at Sea for the Protection of Rights," *China National Radio Online,* October 19, 2012, mil.cnr.cn/.
53. Gao Yi, "PLAN South Sea Fleet Normalizes War Readiness Patrols of Nansha, Shapes Effective Interaction Mechanisms with the Fisheries Law Enforcement Command and the China Coast Guard" [Nanhai Jiandui Changtaihua Zhanlue Xunhang Nansha], *Renmin Haijun,* May 17, 2013.
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55. "Chinese Warship Soldiers Point Guns at Vietnamese Supply Boat in Vietnam's Waters," *Tuoi Tre News,* November 27, 2015, www.tuoitrenews.com/.
56. Agreement Between the United States of America and Japan, December 12, 1986, T.I.A.S. 12986, available at www.state.gov/.
57. U.S. Navy, *The PLA Navy,* p. 45. See also Japan Coast Guard, *Vessels and Craft/Aircraft*, (March 2015), pp. 5–6, available at www.kaiho.mlit.go.jp/.
58. Japan Coast Guard, *Vessels and Craft/Aircraft,* pp. 5–6.
59. "Large Patrol Vessel *Akitsushima* (PLH-32) Enters Japan's Coast Guard Service," *Naval Force News—Japan,* November 30, 2013, www.navyrecognition.com/.
60. Japan Coast Guard, *Aircraft* (Tokyo: March 2015), pp. 7–8.
61. Japan Coast Guard, *Organizational Structure* (March 2015), p. 3.

62. Japan Coast Guard, *Aircraft.*

63. Richard J. Samuels, "'New Fighting Power!': Japan's Growing Maritime Capabilities and East Asian Security," *International Security* 32, no. 3 (Winter 2007/2008), p. 95.

64. Japan Coast Guard Law, Law No. 28 (1948), art. 25, trans. Eibun-Horei-Sha Inc. (Tokyo: 2014).

65. Ibid., arts. 18, 20.

66. James Brooke, "Japan Says a Mystery Boat Fired Rockets at Its Ships," *New York Times,* December 25, 2001.

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69. "'Gray Zone Situation' Joint Training MSDF and the JCG for the First Time" [in Japanese], *Asahi News Channel,* July 11, 2015, news.tv-asahi.co.jp/.

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72. "Japan Coast Guard to Create 600-Strong Senkaku Unit," *Yomiuri Shimbun,* January 30, 2013.

73. Christopher P. Cavas, "Japan Extends East China Sea Surveillance," *Defense News,* March 17, 2016, www.defensenews.com/. According to Yamamoto, Phase Zero is the deployment of intelligence, surveillance, and reconnaissance assets near the Senkakus. Phase One would be the establishment of a Japan Ground Self-Defense Force rapid-deployment regiment consisting of infantry, mortar, and mechanized companies equipped with new maneuver combat vehicles. Phase Two would be activated should the islands be seized by an enemy, and would consist of an amphibious brigade deployed on naval ships to retake the territory.

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80. Hugh White, "Asia's Nightmare Scenario: A War in the East China Sea over the Senkakus," *National Interest,* July 5, 2014, nationalinterest.org/.

81. Japan Coast Guard officials interview.

82. The one exception has been some instances of CCG vessels attempting to arrest Chinese-flagged fishing vessels near the Senkakus. See 尖閣諸島沖に中国公船、漁船に立ち入り検査か ["China Coast Guard Vessel Performs On-Site Inspection of Chinese-Flagged Fishing Boat near Senkaku Islands"], *Asahi News,* August 1, 2015.

83. "Japan on Guard after 'Peculiar' Chinese Naval Ship Sails near Islets," *Nikkei Asian Review,* November 24, 2015, asia.nikkei.com/.

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mobilize the JMSDF following a phone conference, should such a contingency arise.

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86. Japan Coast Guard, "Status of Activities by Chinese Government Vessels and Chinese Fishing Vessels in Waters Surrounding the Senkaku Islands," August 26, 2016, available at www.mofa.go.jp/.

87. Kiyoshi Takenaka and Kaori Kaneko, "Japan Fires Water Cannon to Turn Away Taiwan Boats," *Reuters,* September 25, 2012, www.reuters.com/.

88. JCG officials expressed confidence that their coast guard would have enough vessels and personnel to respond to such a Chinese incursion. Japan Coast Guard officials interview.

89. Vietnamese government official in charge of maritime affairs, interview by author, September 21, 2015; Vietnam Ministry of National Defense official, interview by author, November 24, 2015.

90. Socialist Republic of Vietnam, "Joint Circular on Ministry of Defense and Ministry of Transportation," no. 17 (2008).

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92. Vietnamese government official in charge of maritime affairs interview; Vietnam Ministry of National Defense official interview.

93. Vietnamese government official in charge of maritime affairs interview; Vietnam Ministry of National Defense official interview.

94. *Ordinance on the Vietnam Coast Guard,* no. 03/2008/UBTVQH12 (2008).

95. Author calculations, based in part on U.S. Navy, *The PLA Navy,* p. 45; "Vietnam Coast Guard—Equipment," GlobalSecurity.org.

96. Anh Vu-Huu Tra, "Vietnam to Spend $750 Mil Upgrading Coast Guard and Fishing Fleet," *Thanh Nien News,* July 4, 2014, www.thanhniennews.com/.

97. Mai Nguyen and My Pham, "Japan Pledges Boats to Vietnam as China Dispute Simmers," *Reuters,* January 16, 2017, www.reuters.com/; Ridzwan Rahmat, "Vietnam Coast Guard Receives Two TT400TP-Class Patrol Boats," *IHS Jane's Navy International,* January 26, 2016, www.janes.com/.

98. See "Ảnh hỏa lực đáng gờm trên tàu Cảnh sát biển Việt Nam" ["Photos of Formidable Firepower on board Vietnam Coast Guard Vessels"], *Kiến Thức* [*Knowledge*], April 27, 2016. The source provides photos of the newest and largest cutters in the VCG fleet—CSB 8004, CSB 4038, and CSB 4039—mounted with 23 mm cannon, which are smaller in caliber than those mounted on other coast guard cutters in the region.

99. "Vietnam Coast Guard—Modernization," GlobalSecurity.org.

100. "Vietnam Debuts Fisheries Surveillance Force," *Tuoi Tre News,* April 16, 2014, www.tuoitrenews.com/.

101. Vietnam Ministry of National Defense official interview. The official also pointed out that the VCG does not arrest and transport fishing vessels back to the Vietnamese mainland. The VCG does, however, arrest vessels in violation of other maritime laws, such as those dealing with customs, narcotics, and immigration.

102. "Vietnam Puts Most Advanced Fisheries Surveillance Ship into Operation amid Sea Tension," *Tuoi Tre News,* July 1, 2014, www.tuoitrenews.com/.

103. Vietnamese government official in charge of maritime affairs interview; Vietnam Ministry of National Defense official interview.

104. "Chinese Boats Ready to Raid Vietnamese Ships in Vietnam's Waters," *Tuoi Tre News,* June 25, 2014, www.tuoitrenews.com/.

105. One YouTube video taken by Vietnamese sailors appears to show a Chinese tugboat, *Binhai 285,* ramming a Vietnamese vessel, inflicting heavy damage on the vessel. See "7 tàu Trung Quốc vây ép và đâm tàu Kiểm ngư 951 Việt Nam," YouTube video, June 23, 2014, www.youtube.com/.

106. China, for its part, claims it was acting in self-defense and that Vietnam initiated conflict by "trying to interfere with China's normal operations" and "ramming and laying underwater fishing nets and other debris in the water to sabotage Chinese lawful operations." China also claims Vietnamese vessels had "rammed Chinese vessels 1,547 times." See Ministry of Foreign Affairs of the People's Republic of

China, "Transcript of Special Briefing by PRC Foreign Ministry on June 13, 2014," hosted by Yi Xianliang, deputy director general of the Department of Boundary and Ocean Affairs of the Foreign Ministry, June 14, 2014.

107. A Reuters report speculated that a Chinese trawler caught on video ramming and sinking a Vietnamese fishing boat was owned by the Chinese fishing company Shandong Homey Aquatic Development Co. Ltd. See John Ruwitch, "Satellites and Seafood: China Keeps Fishing Fleet Connected in Disputed Waters," *Reuters,* July 27, 2014, www.reuters.com/. For video footage of the incident, see "Exposed: Chinese Ship Chases, Rams and Sinks Vietnamese Fishing Boat," YouTube video, June 4, 2014, www.youtube.com/.
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115. Ibid.
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124. Philippine Fisheries Code, Republic Act 8550 (1998), available at www.da.gov.ph/.
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126. Wally Santana, "Taiwan Military Holds Drills amid Row with Manila," *philstar GLOBAL,* May 16, 2013, www.philstar.com/.
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128. "Taiwan Flexes Muscles; OFWs Barred from Markets," *Philippine Star,* May 17, 2013, www.philstar.com/.
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133. Roel Landingin and Kathrin Hille, "Philippines and China in Naval Standoff," *Financial Times,* April 11, 2012, www.ft.com/.
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135. Philippine academics and naval and coast guard officials, interviews by author, September 16–18, 2015.

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137. Republic of the Philippines, Department of Energy, "On the Establishment of a National Coast Watch System," Executive Order No. 57 (2011), available at www.doe.gov.ph/; PCG officials interview.

138. "Chinese Patrol Ship Yuzheng-310 Reaches Waters off Scarborough Shoal," *China Times,* April 20, 2012, thechinatimes.com/.

139. When asked why the Philippine government did not send more coast guard assets to assist, one Philippine academic revealed that authoritative sources within the government had informed him that the PCG had no more medium-endurance vessels to send into the area. Philippine academic interview.

140. PCG officials interview.

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147. According to officials, most resupply missions to Thitu no longer can be carried out by sea and must be accomplished by airdrop. Philippine Navy officials, interviews by author, September 17, 2015.

148. The author thanks Cdr. Anthony Russell, USCG, for his insight on this matter.

149. Frances Mangosing, "PH Proposes to Expand Agreement on Air, Naval Encounters," Inquirer.net, May 27, 2016, globalnation.inquirer.net/.

150. For some interesting ideas on bilateral and multilateral confidence-building and information-sharing measures in the South China Sea, see Nicholas Monacelli [Lt., USCG], "Opportunity for U.S.-Chinese Partnership?," U.S. Naval Institute *Proceedings* 142/7/1,361 (July 2016); Van Jackson et al., "Networked Transparency: Constructing a Common Operational Picture of the South China Sea," *Center for a New American Security,* March 21, 2016, www.cnas.org/; Kuan-Hsiung Wang, "Peaceful Settlement of Disputes in the South China Sea through Fisheries Resources Cooperation and Management," *Maryland Series in Contemporary Asian Studies,* no. 3 (2015); and Yanmei Xie and Shuxian Luo, "Fishing for Ways to De-escalate South China Sea Tensions," *The Diplomat,* August 3, 2015, thediplomat.com/.

151. "North Pacific Coast Guard Forum," *Canadian Coast Guard,* www.ccg-gcc.gc.ca/. See also "The North Pacific Forum: Shaping an Infrastructure for Collaboration," *Second Line of Defense,* April 2, 2011, www.sldinfo.com/.

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COMING FULL CIRCLE

The Renaissance of Anzac Amphibiosity

Steven Paget

> *Australia and New Zealand should look for opportunities to rebuild our historical capacity to integrate Australian and New Zealand force elements in the Anzac tradition.*
>
> AUSTRALIAN GOVERNMENT, *DEFENDING AUSTRALIA IN THE ASIA PACIFIC CENTURY: FORCE 2030*

In 2010, Rod Lyon of the Australian Strategic Policy Institute wrote: "With the return of the more strategically-extroverted Kiwi, it is a good time for Australia and New Zealand to be putting more meat on the bones of their Closer Defence Relationship."[1] Various areas of the "closer defence relations" between Australia and New Zealand are ripe for cooperative enhancement, but one of the most obvious is amphibious operations. Both nations have recognized that their amphibious forces provide a means to further jointness among national service branches, but the current international interest in amphibiosity means they are also a tool for effective engagement and for enhancing interoperability.[2]

Australia and New Zealand are in the unique position of developing their own amphibious capabilities concurrently, albeit with major differences in size and scope. The process seems particularly apt, given that the Anzac (originally, the Australian and New Zealand Army Corps) relationship was forged during the course of one of the most notorious amphibious operations in history. The New Zealand Ministry of Foreign Affairs and Trade has expressly stated: "Since fighting side by side as 'ANZACs' in the Gallipoli campaign of World War I, New Zealand and Australian defence forces have forged a close relationship."[3] While it would be easy to dismiss Gallipoli as an anachronism—which, in many ways, it is, in the context of amphibious operations—the reality is that a shared interest in the South Pacific and the close defense ties that Australia and

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New Zealand maintain ensure that cooperation in the area of amphibiosity is extremely important.[4]

Since interoperability is a critical concern for the Australian amphibious force, the requirement to operate alongside the New Zealand Defence Force (NZDF) must be considered. As Australia is New Zealand's closest ally, the former's development of an amphibious force has been a source of great interest to the latter, especially given the NZDF's concurrent development of what was referred to originally as the Joint Amphibious Task Force (JATF), but now is known simply as the Joint Task Force (JTF). A number of measures have been enacted to facilitate the interoperability of the two amphibious forces, but there is room for further progress.

This article will consider the utility of amphibious capability in Australia and New Zealand's strategic environment and trace the development of both countries' forces, including the historical influences on Australian Defence Force (ADF) and NZDF planning. The achievement of interoperability between the ADF and the NZDF, as well as with other likely multinational partners, which has been developed through various means, will be assessed. Ultimately, the article will contend that, while the ADF and NZDF maintain a relatively high level of interoperability, further enhancements in the area of amphibious capability could be achieved through greater integration, specifically through emulating the model adopted by the United Kingdom / Netherlands Amphibious Force (UKNLAF).

THE REQUIREMENT FOR AMPHIBIOUS CAPABILITY: THE STRATEGIC ENVIRONMENT

The Australian government has established that the nation's primary operating environment "extends from the eastern Indian Ocean to the island states of Polynesia, and from the equator to the Southern Ocean."[5] In their comprehensive and far-reaching assessment of Australia's approach to amphibious warfare, *Beyond 2017,* Ken Gleiman and Peter Dean noted that most of the population centers and strategic infrastructure in Australia's primary operating environment are situated within twenty-five kilometers of the coastline. Although just 5 percent (approximately) of that coastline can be used to unload large ships, 75 percent can be accessed by hovercraft and 95 percent can be used by small boats. Moreover, approximately 25 percent of the beaches can accommodate landing craft.[6] In short, the ADF's primary operating environment is "maritime and archipelagic in nature" and, as a result, is tailor-made for amphibious operations.[7]

While Australia's primary operating environment is larger in scope than that of New Zealand, it is notable that their overlapping areas in the South Pacific are characterized by "complex riverine systems and archipelagos."[8] When the assortment of unstable countries along the Pacific Rim and the potential for

natural disasters are considered, it is not hard to envision that Australia and New Zealand increasingly may be required to respond to events in the region. Indeed, Professor Paul Dibb of the Australian National University has observed that there is likely to be an ongoing requirement for "humanitarian assistance and disaster relief, capacity building and governance, potential peacekeeping operations, and military intervention" in the South Pacific.[9] The 2016 Australian *Defence White Paper* acknowledged: "To help countries in our immediate neighbourhood respond to the challenges they face, Australia will continue to play an important regional leadership role. Our strategic weight, proximity, and resources place high expectations on us to respond to instability or natural disasters, and climate change means we will be called on to do so more often. We will continue to play that role in close collaboration with New Zealand, France, the United States, Japan, and other partners."[10]

The necessary responses to these challenges are likely to require, at least in part, a commitment of an amphibious nature. Indeed, recent experience has borne out the utility of amphibious capability, in both domestic and regional contexts. Both Australia and New Zealand contributed to the Australian-led regional assistance mission in the Solomon Islands in 2003. After Australian forces had been deployed by landing craft and Sea King helicopters from the amphibious platform (LPA) Her Majesty's Australian Ship (HMAS) *Manoora* (L 52), it was observed that the presence of the ship, in concert with land and air power, "signalled to criminals and law-abiding citizens alike that the intervention in the Solomon Islands was to be taken seriously."[11] However, while Australia's amphibious assets were sufficient for operations in the Solomon Islands, the ADF proved to be "significantly constrained in what it could offer" to relief operations in the Aceh region of Indonesia following the 2004 tsunami, largely "because of the limitations of the amphibious vessels at its disposal."[12]

Just a year later, the utility of amphibious capability was demonstrated by operations in both East Timor and Fiji. Following tension between the Fijian military and the civilian government, the ADF deployed three vessels, including the LPA HMAS *Kanimbla* (L 51), for a potential permissive withdrawal of Australian citizens and approved foreign nationals as part of Operation QUICKSTEP. In the end, the successful coup proved to be bloodless, but QUICKSTEP "reinforced the potential benefits expected to accrue with the acquisition of more highly capable helicopter-carrying amphibious ships in the years ahead."[13] During Operation ASTUTE, which was designed to restore stability to East Timor, *Kanimbla* and *Manoora* formed part of an amphibious ready group (ARG) that managed to land an infantry battalion and supporting vehicles in three days, even without the use of Dili harbor.[14]

Closer to home, the significance of amphibious capability was demonstrated when Tropical Cyclone Yasi hit northern Queensland on February 3, 2011. Unfortunately, the heavy landing craft (LCH) HMAS *Tobruk* (L 50) was unavailable, as were *Kanimbla* and *Manoora*. Two *Balikpapan*-class heavy landing craft were available, but they lacked vital capabilities such as enhanced communications, hospital facilities, and helicopter support.[15] Following the Christchurch earthquake in the same year, Her Majesty's New Zealand Ship (HMNZS) *Canterbury* (L 421), the sealift and amphibious support vessel of the Royal New Zealand Navy (RNZN), transported personnel, vehicles, fuel, generators, and stores across a range of supply voyages.[16]

Whether one views the South Pacific as an "arc of instability" or an "arc of opportunity," it is clear that amphibious capability is inherently useful in that operating environment, as has been discussed repeatedly in Australian and New Zealand policy and strategy documents.[17] In *Future 35: Our Strategy to 2035,* the NZDF asserted that the "JATF will be able to conduct a wide range of tasks and meet the key requirements expected of it in the Southwest Pacific."[18] Equally, the 2013 Australian *Defence White Paper* noted that the nation's amphibious force will be the "central plank" in Australia's "ability to conduct security and stabilisation missions in the region."[19]

Amphibious forces also provide an inherently useful tool for regional engagement.[20] Australia and New Zealand both have contributed to Pacific Partnership, a U.S.-led humanitarian and civic assistance initiative that has been supported by Canada, France, Japan, and Malaysia as well. Tellingly, both nations have contributed amphibious assets to Pacific Partnership. In 2010, *Tobruk,* one of three deployed Royal Australian Navy (RAN) ships, served as the command vessel for Pacific Partnership.[21] During the 2011 iteration, *Canterbury* served as the headquarters for Pacific Partnership and was assisted by HMAS *Betano* (L 133) and HMAS *Balikpapan* (L 126), which provided ship-to-shore logistic and personnel transport.[22] In 2013, Australia took charge of the Papua New Guinea segment, with *Tobruk* taking the lead, while New Zealand later led the phases in the Republic of Kiribati and the Solomon Islands. *Canterbury* also served as the flagship for the Solomon Islands phase of the operation. During those phases, Australian and New Zealand personnel, as well as those from other nations, provided medical and dental care, conducted engineering and building projects, led community-engagement initiatives, and cleared remaining Second World War ordnance.[23] However, Pacific Partnership is just one opportunity to generate goodwill and enhance interoperability.

Given Australia's stated desire to increase engagement with a range of regional nations, including Singapore, Malaysia, Thailand, Vietnam, the Philippines, and Japan, amphibious forces offer a platform for increased interaction.[24] Notably, the

concurrent interest in amphibious operations in those nations presents a convenient and relevant avenue for engagement for both Australia and New Zealand. Ultimately, the nature of Australia and New Zealand's primary operating environments and the tasks the ADF and NZDF are likely to be required to undertake provide an obvious use for amphibious forces. Thus, national interests combine with the renaissance of amphibious capability in the Asia-Pacific region to drive the development of robust amphibious forces.

A "DISTINCTLY AUSTRALIAN" FORCE: AUSTRALIAN AMPHIBIOUS CAPABILITY

Progress toward the validation of the new Australian amphibious force is well under way and is scheduled to be completed in 2017. The centerpieces of the force are the two *Canberra*-class helicopter landing docks (LHDs), HMAS *Canberra* (L 02) and HMAS *Adelaide* (L 01), which are 27,000-ton vessels that can land over one thousand personnel, their vehicles, and other logistic support by either helicopter or watercraft.[25] As part of Plan BEERSHEBA, the projected landing force will be drawn from 2nd Battalion, Royal Australian Regiment (2RAR).[26] The amphibious force will be supported by Aegis-fitted all-purpose *Hobart*-class air-warfare destroyers.[27]

Importantly, Australia has developed a scalable force that will constitute an amphibious ready element (ARE) or an ARG. The ARG is the more capable force structure, as it will comprise both LHDs, which will embark an amphibious battle group and the requisite enablers, and be supported by the Bay-class landing ship HMAS *Choules* (L 100). It is anticipated that the ARG would be an element of a joint task force made up of afloat-support ships, escorts, and mine-countermeasure (MCM) assets. The ARE most likely will be deployed for humanitarian assistance and disaster relief (HA/DR) and stabilization operations, as well as noncombatant evacuations. The ARE will be based on a single LHD and deploy a combined-arms combat team plus medical, aviation, logistic, and prelanding force elements. Although war fighting is not the intended purpose of the ARE, it can perform that function in a limited way.[28] Australia already has certified the ARE, during the SEA SERIES exercises that were conducted off the coast of northern Queensland between August 17 and October 6, 2015.[29] The certification process will be completed when the ARG is validated in 2017.

In recognition of the importance of interoperability and to develop the most effective force possible, the ADF has sought input from both the United Kingdom and the United States. In addition to the lateral transfer of a number of senior Royal Navy and Royal Marines personnel, the ADF has benefited from the input of liaison officers.[30] In fact, a Royal Marines colonel subsequently transferred to the RAN after completion of his liaison position in the amphibious task force

headquarters. Most notably, the U.S. Marine Corps (USMC) has assigned a colonel with amphibious experience to serve as "Colonel, Amphibious," which involves acting as the amphibious capability development lead within Deployable Joint Force Headquarters.[31]

In view of the fact that Australia and New Zealand share an immediate region and that the defense relationship between the two nations is "built on deep mutual security interests" and "a willingness to make positive contributions to regional and global security and stability operations," efforts have been made to enhance the interoperability of the amphibious forces of the ADF and NZDF.[32] Specifically, the ADF has taken active steps to ensure that integration is possible with the NZDF's JTF. Most notably, an NZDF officer is permanently present in the ADF's deployable joint headquarters through the J35 position, which involves transitioning plans into operations. Consequently, the ADF and NZDF are "linked together" in the development of their amphibious forces and for the planning of amphibious operations.[33] Importantly, New Zealand, and particularly U.K. and U.S., input has been refined for the Australian context to ensure that, rather than replicating the force of another nation, the Australian one is, in the words of Major General Stuart Smith, Commander, Deployable Joint Force Headquarters, a "distinctly Australian amphibious force."[34]

FROM JATF TO JTF: NEW ZEALAND AMPHIBIOUS CAPABILITY

In September 2015, Captain Mark Worsfold, RNZN, opined that the NZDF "must conduct and lead missions in the South Pacific and it must also enable New Zealand to contribute meaningfully to regional and international security with partners and friends."[35] An effective amphibious capability provides an important means to respond to and shape events in the South Pacific. That notion was evident in the 2011 New Zealand *Defence Capability Plan,* which was centered on the intention to develop a JATF.[36] It was expected that the JATF would be operational by 2015 and would be "able to conduct a wide range of tasks and meet the key requirements expected of it in the Southwest Pacific."[37] In 2013, the NZDF explicitly stated as follows:

> By 2020, with the JATF at its core, the Defence Force will be capable of conducting amphibious military operations and responding to emergencies at home and abroad, and projecting and sustaining land or maritime forces with increased combat utility, either on its own or as part of a wider coalition. This combat capability will act as an effective and credible deterrent for any challenge to New Zealand's sovereignty and to stability in the wider Southwest Pacific region.[38]

Although it was anticipated that the JATF would be combat capable, it was acknowledged that the likely tasks required of the force would be much more diverse. It was considered that the JATF would be involved more regularly in

noncombat missions in New Zealand and overseas, including "search and rescue; humanitarian assistance and disaster relief; resource protection in the EEZ [exclusive economic zone]; maritime border security; and evacuating New Zealand and approved foreign nationals from high-risk environments."[39]

Although the label *JATF* has been dropped, the NZDF has continued the drive to generate an effective amphibious force. The JTF will be mission specific and its composition will vary, depending on the likely requirements of the force. It is intended that the NZDF will be able to deploy a company-sized force into a low-threat environment and that the force should be self-sufficient for up to thirty days. Although the JTF is capable of undertaking a range of roles, it is likely to be used in three scenarios: in HA/DR operations, in security operations, or as a component of a multinational force.

Canterbury is the central platform for the NZDF's JTF. Commander Andrew Law, Naval Support, Amphibious Lead in the NZDF's Capability Branch, emphasizes: "There is more to amphibious operations than just *Canterbury,* but without *Canterbury* you don't really have an amphibious force."[40] The ship is notable for incorporating the roll-on/roll-off (RO/RO) designs of commercial ferries. *Canterbury* has been the subject of vociferous criticism on occasion and even was labeled the RNZN's "problem ship" in the media.[41] However, while its features differ from those of traditional amphibious vessels, *Canterbury* is actually a capable and flexible ship.

The ship can transport approximately 250 personnel (in addition to the crew) and has "the ability to land personnel, vehicles, and cargo by landing craft, helicopter, or ramps, as well as conventional port infrastructure."[42] The ship possesses important command-and-control (C2) facilities and also has a self-contained hospital with surgical capability.[43] *Canterbury* will be supported by a range of other surface vessels. The RNZN's two *Anzac*-class frigates, HMNZS *Te Kaha* (F 77) and HMNZS *Te Mana* (F 111), are entrusted with a range of tasks, which include a force-protection role for the JTF.[44] Some support also can be provided by HMNZS *Endeavour* (A 11), a replenishment tanker, but the capability will be enhanced when the ship is replaced.[45] Currently, HMNZS *Manawanui* (A 09), the RNZN's diving and MCM support ship, can provide limited littoral warfare support, but its replacement will offer a range of additional capabilities.[46]

The landing force will be provided by the New Zealand Army, but it will not be a standing force. The composition of the force will depend on the nature of the operation. For example, a force consisting predominantly of medics and engineers could be deployed for HA/DR activities, but for security operations an infantry company could be used. Although the landing force will be combat capable, it is not expected to conduct opposed landings. Indeed, in 2015, Rear Admiral Jack R. Steer, then New Zealand's chief of navy, affirmed: "You'll never

see *Canterbury* storming onto a hostile beach; that's not what we do."[47] Inevitably, there is a limit to what the initial landing force can achieve, and it is likely to be set a limited objective, such as opening an airport or seaport.

In addition to capability decisions, the generation of an amphibious mind-set within the NZDF also has been an important focus and has been driven by the conduct of a range of activities, including the biennial SOUTHERN KATIPO exercises (2013 and 2015) and the JOINT WAKA exercises that commenced in 2016.[48] Given the design of *Canterbury,* a shift in mentality away from sealift and toward amphibiosity was required. Lieutenant Commander Kathryn Hill, RNZN, the amphibious operations (maritime) staff officer in the Capability Branch, has acknowledged that there has been a "culture change" over time as the army has become more accustomed to operating on *Canterbury*.[49] Rather than just bringing together single-service skills, the JTF needs to be a joint force characterized by cooperation and cohesion. Practice in the joint environment is essential to developing an amphibious mentality. Equally, the capacity for the JTF to "plug and play" in a multinational environment is extremely important.[50]

Although New Zealand has not followed the Australian approach of using liaison officers from other amphibious forces, the NZDF has been involved in extensive knowledge sharing with potential overseas partners and nations with amphibious experience. Discussions have been held with representatives from a wide range of nations and organizations, including the Netherlands, the United Kingdom, the United States, and NATO. Australia, as New Zealand's most likely multinational partner, has been the subject of a wider range of discussions and agreements. Initial doctrine for the development of the new JTF was based on Australian standards and an interoperability framework was agreed for other areas, such as equipment. In reference to discussions with representatives from other amphibious forces, Commodore John Campbell, the NZDF's maritime component commander, has asserted that the information is invaluable, as there is "no point in re-learning their lessons." However, at the same time, he acknowledged that there is a need to apply those lessons to the New Zealand context, as not all their experience is relevant to the NZDF, given the variances in capability.[51]

A PROBLEM SHARED IS A PROBLEM HALVED: THE LEGACY OF ANZAC AMPHIBIOUS CAPABILITY

As Gallipoli reminds us, amphibious operations are not a new concept for either Australia or New Zealand. For the sake of accuracy, it should be remembered that, while Gallipoli has captured the historical consciousness of Australia and New Zealand, both nations conducted amphibious operations prior to the Dardanelles campaign. The amphibious expeditionary operations conducted in

1914 in German New Guinea and Samoa by Australians and New Zealanders, respectively, often are overlooked in the public discourse, but they represent important markers in the development of Anzac amphibiosity.[52] While Australia has accumulated a more extensive amphibious history since then, both nations have been involved in operations of an amphibious nature. During the Second World War, the Australians conducted a range of amphibious operations in the Southwest Pacific Area, most notably at New Guinea in 1943 and Borneo in 1945.[53] New Zealand had less experience with amphibious warfare in that war, but did participate in some notable operations, not least GOODTIME, which took place in the Treasury Islands in 1943.[54]

An examination of all the amphibious operations Australia and New Zealand have conducted is beyond the scope of this article, especially given that the composition and purpose of the contemporary amphibious forces differ widely from those of the Second World War. However, recent events have demonstrated an ongoing requirement for collective amphibious capability. Indeed, contemporary Anzac military cooperation is far from a novel idea. During the 1990s, the idea that Australia and New Zealand should be considered a single strategic entity was floated.[55] In retrospect, such a notion may seem excessive, but the nations undoubtedly continue to share strategic interests. The push to establish an Anzac Ready Response Force / Anzac Ready Reaction Force in 2011, to provide a joint response to emergencies in the South Pacific, demonstrated an increasing alignment in outlooks. This had been shaped by the involvement of the ADF and NZDF in a range of operations, particularly in East Timor.[56]

Australia's commitment to the International Force for East Timor (INTERFET) in 1999, to restore peace and security following increasing violence after the independence vote, prompted General Peter Cosgrove to describe the ADF's amphibious capability as one of "first resort."[57] However, from an amphibious perspective, INTERFET provided a number of lessons about the adequacy of the ADF's capability and the importance of having reliable and competent allies. In his overarching analysis of Australian amphibious operations between 1901 and 2001, Russell Parkin, then a major in the Australian Army, asserted that without the naval contributions from New Zealand, Singapore, and the United States, the RAN "would have been unable to cope with the complexities of the operation because of its limited amphibious and sea lift capability, especially in the areas of force protection, mobility, and logistics."[58]

The determination of which NZDF force elements would be committed was conducted, in part, through consultation between the Australian and New Zealand chiefs of defense forces.[59] From a New Zealand viewpoint, Paul Sinclair of Victoria University of Wellington has summarized:

> For the first phase of the initial intervention mission in Timor known as INTERFET, Australia had the full range of military capabilities, the will, and the funding to assume leadership of the multinational coalition. New Zealand could not have done so, but we did provide a wider range of capabilities than any of the 15 other countries which participated. We also brought to the table a common doctrinal basis for operations and command and control.[60]

RNZN ships were placed under Australian control and played varied roles in operations. The capacity to use Dili harbor was crucial for the conduct of operations, but it did not diminish the importance of amphibious capability or the contribution of the surface vessels.

Coalition ships performed escort and close-protection functions, monitored and identified surface and air contacts, provided logistic support for forces ashore, and delivered humanitarian aid.[61] The initial amphibious operations necessitated protection operations, which were conducted by a range of vessels from Australia, New Zealand, the United Kingdom, and the United States, including HMNZS *Te Kaha*.[62] Even when the initial operations were completed, the requirement for escorts remained. For example, HMNZS *Canterbury* (a *Leander*-class frigate that was decommissioned in 2005) was involved in escorting thirty amphibious and supply ships safely into Dili.[63]

Australian naval historian David Stevens concluded that "close cooperation proved crucial to getting the best out of scarce assets," which perhaps was characterized best by the assertion of *Canterbury*'s commanding officer, Commander Warren Cummins, that his ship effectively "became an Australian frigate."[64] Tellingly, New Zealand strategic expert Robert Ayson has reflected, "New Zealand's largest military deployment since the Korean War helped to underscore the value of trans-Tasman defence cooperation in the nearer neighbourhood—not on the basis of a formal agreement but, rather, in terms of real-time cooperation in regional crisis management."[65] Operations in the region after INTERFET, particularly those of a HA/DR nature, demonstrated the ever-increasing relevance of amphibious capability.

More recently, the deployment of ADF and NZDF elements to support the HA/DR operation in Fiji following Tropical Cyclone Winston, which struck on February 20, 2016, has demonstrated an ongoing commitment to amphibious operations. From an ADF perspective, Operation FIJI ASSIST (as the Australians named it) was notable as the first deployment of HMAS *Canberra* on a HA/DR operation.[66] Robert Farley of the University of Kentucky has posited: "Relief of Fiji is precisely the kind of operation that Australia envisioned for *Canberra* and her sister [*Adelaide*]."[67] The vessel transported three MRH-90 helicopters and an army engineering element, as well as sixty tons of emergency relief supplies, which served as a supplement to the preexisting Australian relief effort.[68] The

ship was stationed off Koro Island on arrival and commenced operations on March 2, following beach-clearance activities being conducted by elements of 2RAR. The landing sites were described as "hives of activity" as "all manner of berthing and mechanised capabilities came ashore."[69]

With almost five hundred personnel being deployed, the operation constituted "one of the NZDF's largest peacetime deployments to the Pacific."[70] *Canterbury* was deployed with 293 personnel, two NH90 helicopters, an SH-2 Seasprite helicopter, and forty-five vehicles, as well as 106 tons of relief supplies.[71] The vessel served as the "maritime base" for the NZDF's HA/DR efforts in Fiji's northern outer islands.[72] HMNZS *Wellington* (P 55), an offshore patrol vessel, not only delivered sixty tons of aid and transported seventy-one military personnel; as the advance force, it also surveyed the entrances into the reef and anchorages to ensure that *Canterbury* could operate safely. The ship also identified beaches for *Canterbury*'s landing craft to use.[73]

The assistance the ADF and NZDF provided was invaluable to residents in disaster-struck areas and demonstrated the logic of enhancing amphibious capability in the Pacific. The potential for cooperation between the ADF and NZDF is particularly pertinent, given the opportunity to operate two different response groups, with one Australian LHD working with *Choules,* the other with *Canterbury*.

INTEROPERABILITY

In 2005, Lieutenant General James Mattis, USMC, declared, "You cannot do anything today without being part of a coalition. . . . This is a military consideration, not a political one. Coalition warfare is a reality and a fact."[74] Mattis was right to emphasize the significance of coalition warfare, but the truth is that multinational cooperation is a reality to be reckoned with across the entire spectrum of operations. Amphibious forces are certainly no exception to this rule.

Given the likelihood of Australia and New Zealand operating alongside each other, it is essential that their amphibious forces be capable of working together as effectively as possible. In September 2015, Australia's then minister for defense Kevin J. Andrews asserted, "The bilateral relationship with New Zealand is one of Australia's most enduring and important defence partnerships. We are committed to deepening our strategic dialogue, practical cooperation, and enhancing our interoperability with New Zealand."[75]

Equally, interoperability with other likely multinational partners in the region is a foremost consideration for both the ADF and NZDF. Historically, the United States has stood out as an important multinational partner for both nations, as they were "united by a common language, similar cultures and institutions, and the experience of the Second World War."[76] While those factors are still relevant,

the trilateral relationship among Australia, New Zealand, and the United States (ANZUS) has undergone turbulent times. Nevertheless, the three nations remain united by a common interest in the Pacific.

Australia and the United States have taken a number of noteworthy steps to improve cohesion between their militaries and to enhance amphibious capability. The 2014 Force Posture Agreement, signed by Australia and the United States, provided for the rotation of 2,500 U.S. Marines through Darwin and an increase in air cooperation.[77] The subsequent announcement by the U.S. Navy's then Chief of Naval Operations Admiral Jonathan Greenert that the United States would elevate the Marine Rotational Force Darwin to Marine expeditionary unit status and provide amphibious ships to create a U.S. ARG by the end of the decade demonstrated the significance attached to amphibious capability in the region and the importance of interoperability.[78] With the rotation of U.S. Marines through Darwin, it has been suggested that the area could become a "hub for training" alongside the amphibious forces of other nations, including New Zealand.[79]

While similar advancements in relation to amphibious capability have not occurred in New Zealand, significant developments have taken place in defense cooperation with the United States more broadly, which are particularly noteworthy in the wake of the 1980s ANZUS crisis. Following the New Zealand government's decision to reject a visit from USS *Buchanan* (DDG 14) in 1985, in line with its policy of preventing nuclear-powered or -armed ships from entering the nation's ports, the United States broke off military cooperation and withdrew its security guarantee.[80] Subsequently, George P. Shultz, Secretary of State, declared: "We part as friends, but we part company."[81]

Recent developments have suggested that the United States and New Zealand are moving closer together again, cautiously. The Wellington (2010) and Washington (2012) Declarations provided for increased security cooperation (including in HA/DR operations) and greater defense collaboration in the Asia-Pacific (with a particular focus on maritime operations), respectively. The "warming of ties," which culminated in Condoleezza Rice describing New Zealand as "a friend and an ally," has been viewed as a reflection of New Zealand's commitment of forces to Afghanistan and the nation's willingness to "participate more widely in the post-9/11 counter-terrorism agenda."[82]

New Zealand's return to the Rim of the Pacific (RIMPAC) exercise in 2012 and the NZDF's participation in a range of other exercises have provided a platform for increased cooperation with the United States. In fact, the analyst Jack Georgieff has gone so far as to suggest that "the best in bilateral defense relations may be yet to come."[83] Ayson has surmised that, while a "formal alliance relationship (including a return to full ANZUS relations) still seems most unlikely," it is "no exaggeration to say that New Zealand is now an informal ally of the United

States."[84] Given the deepening defense relations with the United States and the increasing American commitment to amphibious capability in the Asia-Pacific, it would be logical for Australia and New Zealand to consider increased cooperation in the area of amphibious operations.

Furthermore, although the U.S. Pacific Command includes over two hundred vessels, questions have been raised over whether there is sufficient amphibious shipping capacity to support the rebalance toward the Pacific.[85] Fitted with advanced C2 suites, flight decks for rotary-wing operations, a well dock for waterborne craft, and storage for vehicles and logistics materials, the RAN's LHDs could alleviate some of the pressure on the United States to deploy amphibious ships to the Pacific.[86] The recent suggestion that USMC personnel might be deployed aboard foreign vessels provided further indication that capable and reliable allies with amphibious capacity are of great value to the United States.[87] Although *Canterbury* does not provide the same range of capabilities as the LHDs, it is still a useful asset, and multinational partners are likely to value highly any increase in sealift. The increased focus on amphibious capability in the Asia-Pacific means that any capacity to contribute meaningfully in that area is of great significance.

France represents another potential focus of cooperation in amphibious operations, given shared interests in the Pacific. In reference to the Pacific, France's 2013 *White Paper on Defence and National Security* contended: "The stakes of our sovereignty have to be defended there, just as the security of our citizens exposed to climate hazards needs to be guaranteed, notably through the FRANZ arrangements (France–Australia–New Zealand)."[88] The FRANZ arrangements, which rest on a 1992 exchange of letters, make provision for regional disaster-relief coordination. The significance of these arrangements has been demonstrated during a number of operations, including relief efforts in the Solomon Islands after the 2007 tsunami.[89]

The Australian Department of Foreign Affairs and Trade recognized the importance of the tripartite relationship with France and New Zealand, as well as the complementary liaison with the United States, when it stated an ambition to "[p]romote long-term strategic cooperation in the Pacific region, drawing on the Quadrilateral Defense Coordinating Group exchanges between Australia and France in liaison with New Zealand and the United States, and on preparation and implementation of joint action under the FRANZ Agreement in response to natural disasters in the Pacific."[90]

Ultimately, the nature of Australia and New Zealand's primary operating environment means that an attentiveness to amphibious capability is entirely logical, and an ability to interoperate with friendly nations that also maintain interests in the region is a practical necessity.

MULTINATIONAL COOPERATION: THE BENEFITS OF EXERCISING

In addition to providing important opportunities for engagement, multinational exercises provide essential avenues for enhancing interoperability. The ADF and NZDF actively engage in exercises based in Australia and New Zealand, as well as farther afield. TALISMAN SABRE, a biennial exercise conducted by Australian and U.S. forces to enhance capability and improve interoperability across the spectrum of operations up to high-end combat, is a particularly important endeavor, given the ADF's expanding interest in amphibious operations.

Over thirty thousand Australian and U.S. personnel participated in TALISMAN SABRE 2015, in conjunction with forces from Japan and New Zealand.[91] Interestingly, NZDF forces participated as part of the ADF element, while Japanese elements were embedded with U.S. units.[92] Large-scale amphibious operations took center stage, and one focal point of the exercise was the amphibious landing of 250 2RAR soldiers and large numbers of U.S. Marines at Fog Bay near Darwin.[93] However, it is worth noting that, owing to the unavailability of *Canberra,* the ADF's amphibious contribution to the landings was somewhat more limited than would have been ideal.[94] Within the NZDF, it was acknowledged that TALISMAN SABRE 2015 had the potential to be a formative exercise. In particular, the involvement of the two NH90 helicopters was seen to be extremely significant, as it was the first time they had been deployed overseas and led to them being validated for "operations throughout the Southwest Pacific."[95] Given the shared interest in amphibious operations, the three nations were cognizant of the inherent value of the exercise. Ultimately, Commander Michael Posey, the lead USN planner, noted, "During TS15 we demonstrated our Pacific partnership with the Australians and Kiwis."[96]

Exercises hosted in New Zealand also have provided worthwhile opportunities for the regular interaction of amphibious forces. During SOUTHERN KATIPO 2013, forces from New Zealand and nine other nations (Australia, Canada, France, Malaysia, Papua New Guinea, Singapore, Tonga, the United Kingdom, and the United States) responded to a request from a fictional South Pacific nation to restore law and order, which resulted in *Canterbury* evacuating citizens.[97] The exercise was designed to assess the NZDF's ability to conduct a joint amphibious operation alongside a range of multinational partners. Colonel John Howard, New Zealand Army, exercise commander, stressed the importance of amphibious operations: "We have great opportunities here to train for beach assaults and to conduct non-opposed amphibious landings, to parachute in, and to spread out for a whole range of tactical tasks."[98]

The scenario for SOUTHERN KATIPO 2015 envisioned that New Zealand was required to deploy a task force to evacuate foreign nationals and assist police in restoring security and stability. The exercise consisted of 2,500 personnel,

including from Australia, Canada, Fiji, New Caledonia, Papua New Guinea, Tonga, the United Kingdom, and the United States, conducting HA/DR and stabilization operations.[99] As part of the exercise, *Canterbury,* with support from *Wellington,* conducted an amphibious landing of NZDF and multinational personnel and equipment, including MAN-produced medium and heavy operational vehicles, at Okiwi Bay in the Marlborough Sounds, located in the northern part of the South Island of New Zealand.[100] Aside from the generic benefits obtained from exercising with multinational partners, the exercise was particularly valuable in that it provided an opportunity to test the Anzac Ready Reaction Force.

While nationally based exercises such as SOUTHERN KATIPO and TALISMAN SABRE remain the principal focus of the ADF and NZDF, participation in various internationally hosted multinational exercises provides a range of benefits. The U.S. Navy and U.S. Marine Corps host a multinational exercise that focuses on enhancing amphibious tactics, techniques, and procedures known as BOLD ALLIGATOR. The 2012 iteration, in which both Australia and New Zealand participated, involved a Marine expeditionary brigade–sized amphibious assault from a sea base in a medium-threat environment. BOLD ALLIGATOR 2014 was centered on strengthening amphibious cooperation in the areas of HA/DR operations, theater security, and noncombatant evacuations. Participants came from all over the world, including Australia, Canada, France, Germany, the Netherlands, and the United Kingdom.[101] The benefits to participation in BOLD ALLIGATOR are twofold. First, both nations have the opportunity to observe the development of cooperation between their more experienced USN and USMC counterparts. Second, the multinational nature of the exercise provides an opportunity to enhance interoperability with a range of nations, including a number of potential partners in operations in their primary operating environment.

The U.S.-hosted DAWN BLITZ exercise offers another avenue for cooperation. DAWN BLITZ 2013 involved exercising core U.S. amphibious capabilities alongside forces from Canada, Japan, and New Zealand. The event culminated with an amphibious landing (at Red Beach, Camp Pendleton, California) by seventy amphibious assault vehicles and six landing craft, air-cushion vehicles. DAWN BLITZ 2015 incorporated forces from Japan, Mexico, New Zealand, and the United States. New Zealand's contribution consisted of 102 personnel from the Royal New Zealand Infantry Regiment. In addition, logistics personnel operated on board the ships. Notably, NZDF personnel conducted a beach assault in eight amphibious assault vehicles. The ADF did not participate in either exercise, but Australian observers were present to glean lessons for their own amphibious force. Rear Admiral Daniel H. Fillion, USN, commented, "It's a chance for our partners to teach us how they do amphibious operations, and hopefully, they'll learn from us how we conduct them."[102] Given New Zealand's comparatively

limited resources and the likelihood of the NZDF operating as part of a multinational force, the experience obtained from participation in DAWN BLITZ is invaluable.

RIMPAC, which is conducted in and around the Hawaiian Islands, is the largest multinational maritime exercise in the world. During RIMPAC 2012, the ADF was placed in command of the maritime component—the first time a nation other than the United States had been responsible for planning and commanding the maritime aspects of the exercise.[103] Throughout the exercise, the Australian Army worked closely with the U.S. Marine Corps to "further develop" the ADF's amphibious capability.[104] Notably, Captain Ken Semmens, Australian Army, was embedded with the Amphibious Assault Vehicle Platoon, Combat Assault Company, 3rd Marine Regiment (USMC) during the conduct of amphibious operations at Kaneohe Bay. The experience was considered invaluable for the exposure it provided him to mission planning and amphibious capabilities.[105] New Zealand also participated in RIMPAC for the first time in twenty-five years by contributing a range of assets, including two ships and a rifle platoon from the Royal New Zealand Infantry Regiment, which was integrated with the U.S. Marine Corps aboard USS *Essex* (LHD 2), as were various headquarters staff members.[106] Major General A. David Gawn, New Zealand Army, described RIMPAC as a "unique training opportunity," particularly given the ability of the infantry platoon to "embed in a U.S. Marine Corps company and conduct amphibious taskings."[107]

The theme of RIMPAC 2014 was "capable, adaptive partners."[108] ADF elements engaged in a range of activities, including contributing to an amphibious landing. The Australian amphibious task group, which had its headquarters aboard USS *Peleliu* (LHA 5), was afforded command of an expeditionary strike group comprising thirteen warships and a multinational landing force of soldiers and marines from ten nations, including New Zealand and the United States. Ten amphibious missions were undertaken in total, including amphibious assaults, amphibious raids, and noncombatant evacuations. During those missions, Australian soldiers conducted amphibious training with U.S. forces, as well as soldiers and marines from various other nations.[109] Commodore Peter Leavy, RAN, reflected that the exercise provided "an exciting opportunity to prepare for the new amphibious capabilities being introduced for the Australian Defence Force over the next few years."[110]

The NZDF deployed over 250 personnel and assets from all three service branches. The most relevant activity, from an amphibious perspective, was *Canterbury*'s contribution to the HA/DR element of the exercise, which involved transporting vehicles and supplies to shore via landing craft. The ship also was used to transport U.S. Army and USMC personnel. A light infantry platoon from the Royal New Zealand Infantry Regiment also assisted in a noncombatant

evacuation operation.[111] In addition, it is worth noting that *Canterbury* transported in excess of one hundred Australian Army soldiers and their kit to the exercise.[112] The fact that an RNZN ship docked at Pearl Harbor for the first time in over thirty years was viewed by the White House as a symbol of "renewed engagement on mutual defense and security, especially in the Asia-Pacific region."[113]

Ultimately, the combination of the various exercises is fundamental to improvements in interoperability between the ADF and NZDF, as well as a range of other militaries, which is a central concern for the amphibious forces of both Australia and New Zealand.

GOING DUTCH? THE U.K.-NETHERLANDS MODEL

Australia has taken a pragmatic approach to drawing lessons from likely multinational partners, but there is an opportunity for the nation to go one step further by considering a model adopted by the United Kingdom and the Netherlands. The UKNLAF, which was established by the signing of a memorandum of understanding (MOU) on May 9, 1973, is an exemplar of European force integration. As Europe's oldest integrated force, the UKNLAF has been labeled an example of defense *avant la lettre*.[114] The UKNLAF was established to "create a combined force capable of operating together across the full spectrum of military operations from benign peacekeeping operations right up to sustained, high intensity war fighting."[115]

More recently, its importance has been affirmed by agreement on a new MOU designed to enhance the UKNLAF, in line with the European Amphibious Initiative at the turn of the twenty-first century and the signing, on the fortieth anniversary of the combined force, of a new letter of intent on future cooperation.[116] The UKNLAF emphasizes complete integration, with training, exercises, and operations being conducted under a unified command structure. Importantly, the UKNLAF uses common doctrine and compatible equipment and C2 facilities. Recent deployments to the Balkans, Afghanistan, and Iraq have demonstrated the capacity of the force to engage in operations "ranging from low-level intervention and peacekeeping to high-intensity warfighting."[117]

Inevitably, assets available for the UKNLAF have changed over time. Initially designed with the intention of integrating a single troop of the Royal Netherlands Marine Corps (Korps Mariniers) and a (British) Royal Marine Commando unit, the UKNLAF now can call on a brigade-sized force. In total, the Dutch manpower contribution is approximately 1,000–1,100 personnel. In addition to increases in personnel, there also have been improvements in the platforms available for the force. Since 1998, the landing platform dock (LPD) His Netherlands Majesty's Ship (HNLMS) *Rotterdam* (L 800) has been available to the UKNLAF. The ship is fitted with a helicopter deck and a submergible dock and is capable of deploying

approximately six hundred marines.[118] A newer LPD, HNLMS *Johan de Witt* (L 801), offers a range of capabilities, including the capacity to act as a command ship, with facilities for a one-star joint headquarters aboard.[119] Notably, HNLMS *Karel Doorman* (A 833), a multifunction support ship, was commissioned in 2014; it possesses both a RO/RO dock and a helicopter deck. The ship will support the *Rotterdam*-class LPDs during amphibious operations.[120]

The UKNLAF model is particularly relevant for New Zealand, as the NZDF is a comparatively small force. Naval historian and strategist Geoffrey Till has appraised that small navies can "reasonably compensate for their smallness, if they feel the need to, by banding together."[121] However, they also, of course, can seek to enhance cooperation with larger militaries to generate a more effective force. In that regard, the Netherlands provides a pertinent example for New Zealand. U.K. defense strategist Sir Michael E. Quinlan assessed that the UKNLAF was created "primarily because the Netherlands could not readily afford its own specialist shipping."[122] A RAND study on the strengths and weaknesses of the Netherlands armed forces noted that "[t]hey cannot maintain a full suite of capabilities across the board, when you consider the scale of the country, the resources they have, and manpower required," before observing that they were "canny" in "pooling assets" when "it suits them."[123] The Netherlands approach should resonate with New Zealand, given the existence of the Anzac Ready Reaction Force, and there certainly is scope for greater cooperation with Australia in the area of amphibious capability. In reality, New Zealand's amphibious capability is limited compared with that of the ADF and other regional militaries, so the country must consider how to maximize the effectiveness of NZDF assets.

The capacity of the UKNLAF to "nip a crisis in the bud" parallels the likely immediate requirements of the Australian and New Zealand amphibious forces.[124] Given the existence of the UKNLAF and subsequent examples of defense cooperation, an Anzac amphibious force would not prove quite so novel, but it would be just as, if not more, relevant, given Australia and New Zealand's contemporary strategic environment.

MAXIMIZING THE STRATEGIC PARTNERSHIP

With the recent centenary commemoration of the amphibious landings at Gallipoli that forged the basis of the Anzac relationship, it would seem an apt time to endeavor to foster interoperability in amphibious operations. Both Australia and New Zealand have recognized the importance of amphibious capability in the Pacific. Although the scale and scope of the amphibious forces being developed differ widely, the impetus for amphibiosity is the same. Cooperation between Australia and New Zealand is important for both practical and political reasons. The same is true for cooperation with other Pacific players, particularly France

and the United States. Shared interests and the requirement to operate in a region that may require more amphibious capability than either nation can provide individually mean that cooperation is essential. Equally, the capacity to plug into wider multinational operations is an important driver.

If Australia is to play a leadership role in the region, it will require willing and competent partners.[125] New Zealand is a natural and logical partner for Australia. New Zealand defense analyst Peter Greener observed in 2011: "Whilst there are significant differences in the level of capability each country enjoys, and that gap is likely to become larger over time, it is clear that Australia values the contribution that New Zealand makes to combined operations."[126] For New Zealand, operating in a coalition provides "legitimacy and capacity."[127] Equally, since the New Zealand military is comparatively small, its enactment of interoperability with larger forces can act as a force multiplier. Indeed, Tim Wood of the Centre for Defence and Security Studies at Massey University has emphasized that "the NZDF is often described as 'punching above its weight.' . . . Nevertheless, the simple fact remains that the NZDF is expected to do a great deal with comparatively little."[128] When interests align, operations alongside the ADF provide the opportunity to do a good deal more with significantly greater resources.

While there are numerous aspects of the "closer defence relations" that it would be logical to strengthen, priority should be accorded to the development of interoperability between the amphibious forces of the ADF and NZDF. Progress clearly has been made, but there is still some way to go to maximize the effectiveness of Australian and New Zealand forces during the conduct of bilateral and multilateral operations. The fact that the Anzac relationship was founded on an amphibious operation is symbolic, but in a practical sense is irrelevant. That said, the nature of Australia and New Zealand's primary operating environment and the contemporary utility of amphibious capability ensure that the prioritization of amphibiosity is not only a neat bookend but an entirely logical course of action. With that in mind, consideration could and should be given to the concept of an Anzac amphibious force that would operate analogously to the UKNLAF.

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STRATEGIC CULTURE AND WAYS OF WAR ELUSIVE FICTION OR ESSENTIAL CONCEPT?

Frank Hoffman

Reconsidering the American Way of War: US Military Practice from the Revolution to Afghanistan, by Antulio J. Echevarria II. Washington, DC: Georgetown Univ. Press, 2014. 232 pages. $54.95 (paperback $29.95, e-book $29.95).

Is there such a thing as "strategic culture" and a distinctive "American way of war"? What defines this supposedly unique approach to warfare? What elements or habits comprise this approach, and how has it been applied over the course of time? Do other countries have strategic cultures that shape how they plan and conduct strategy, and how they plan to conduct war? In this provocative and aggressively argued book, the author explores these critical questions.

Frank Hoffman is a distinguished research fellow at the Institute for National Strategic Studies at the National Defense University (NDU). His research focuses on national security strategies, defense policy, military theory, the future of conflict, and joint force development. He worked for over thirty years with the U.S. Marines and the Department of the Navy.

Dr. Hoffman was the Distinguished Military Graduate of the University of Pennsylvania in 1978, graduating from the Wharton School with a BS in economics. His military service included tours with the 2nd and 3rd Marine Divisions as an infantry officer. He retired from the Marine Corps Reserve in 2001 as a lieutenant colonel. He also holds master's degrees from George Mason University and the Naval War College. He earned an MPhil and a PhD from the Department of War Studies, King's College London.

He is a frequent contributor to professional military and foreign policy journals. His latest work appeared in Lessons Encountered: Learning from the Long War *(NDU Press, 2015).*

Dr. Antulio Echevarria brings impressive intellectual credentials to this project. He has been a leading scholar in German military thinking of the nineteenth century, and his *After Clausewitz: German Military Thinkers before the Great War* (Univ. Press of Kansas, 2001) is deservedly praised. He also penned a superb book on the contemporary relevance of Clausewitz.

Reconsidering the American Way of War has two central and related arguments. First, Echevarria argues that the very concept of a strategic culture

is flawed and that an American strategic culture—a culturally framed way of war—is not historically founded. To the author, the entire concept of a "strategic culture" is built entirely around vague generalities and caricatures. "The search for a distinctly American approach to strategy and its core determinants," he argues, "was based more on myth and conventional wisdom than fact."

Echevarria's second argument involves the purported existence of a proverbial American way of war. He argues that many criticisms of the American way of war—namely, its alleged apolitical orientation, its astrategic character, and its emphasis on overwhelming force to obtain decisive results—cannot stand up to historical scrutiny. Here, over several chapters, Echevarria seeks to demonstrate that this characterization is inaccurate over the breadth of America's history.

This argument runs counter to the central thrust of Russell F. Weigley's writings and my own narrower book on U.S. military culture.[1] While both of the author's main contentions are argued aggressively, they remain unbalanced and less than compelling.

STRATEGIC CULTURE'S UTILITY

Echevarria devotes an initial chapter to debunking strategic culture's analytical value. He concludes that the entire concept is little more than an elusive fiction. But the U.S. strategic culture he depicts is an enduring, monolithic, and exceptionally American construct applicable across all the national security institutions, and such a depiction is too rigid—a caricature of how most scholars look at the role of cultural factors. The author's narrow interpretation fails to account for historical influences that impact strategic culture over long and climactic periods. Surely, the U.S. Civil War, World War II, and the Vietnam War emphatically impacted the way Americans looked at war and the utility of force. Other scholars, including Sir Lawrence Freedman, accept this view: "Culture, and the cognition which it influences[,] is rarely fixed but [is] in a process of development and adaptation."[2]

The notion of strategic culture as a frame of reference for beginning to understand one's adversary and the distinctive (but not predictive) approaches to conducting war clearly has some analytical value.[3] A number of scholars in the strategic studies community are advocates of the concept's utility.[4] The role of strategic culture on strategic performance is a staple in the literature.[5] A review of strategic culture often has been an element in net assessments. Historian Williamson Murray concludes that grand strategy—at the highest level of the expression of strategic culture—must "rest on a realistic assessment and understanding not only of one's opponents but also of oneself."[6] Michael Howard's warning is perhaps the most trenchant: "Wars are . . . conflicts of societies, and can be fully understood only if one understands the nature of the society fighting them. The

roots of victory or defeat often have to be sought far from the battlefield, in political, social, or economic factors."[7] Colin Gray posits that strategic culture is not determinant, but does cue problem recognition and the search for solutions.[8]

Thus, Echevarria is pushing back against a body of scholars who contend that any nation's approach to strategy and its way of fighting are framed by its culture and experiences.

Other scholars warn that ideas concerning ways of war tend to be used prescriptively—as if adversary leaders were completely constrained by them.[9] Surely, strategic culture can be taken too far if we presume it to be predictive. The paradoxical nature of strategy must be considered, and a government may take steps that are out of character (culture) to generate a surprise advantage.[10]

However, the reverse side of the argument is equally disconcerting. If strategists, while drawing up a strategy, took Echevarria's concerns to a logical end, they would not concern themselves with studying the nature of the government, values, experiences, geography, or technological focus of a potential adversary. I doubt the author intended to create that impression. However, intelligence shortfalls and acultural thinking about the Other are classic shortcomings in U.S. strategic culture. A flawed conception of Iraqi sociology and the multiethnic divisions found in Iraq in 2003 certainly reinforces Gray's depiction of the American way of war as "culturally challenged."[11] Lacking a deep understanding of an adversary's history, culture, sociology, and government decision-making structures certainly blinds one to possibilities, if not probabilities.

Dismissing the study of other cultures and their ways of war will only perpetuate a lack of understanding of both adversary culture and the larger context it offers. Instead of ignoring these elements, we should make them fundamental considerations in the development of strategy. This conclusion is a key, indeed a central, insight from recent conflicts.

HISTORICAL SCOPE AND RESEARCH

The book's scope raises several concerns. First, the author has bitten off quite a project on which to chew. His overview covers a sweeping range of the nation's history. America's strategic performance over two hundred years, from the defense of Boston to the march on Baghdad, is covered in fewer than two hundred pages. American strategic planning and execution from World War I through World War II and the Korean conflict are connected cohesively, but are covered in a chapter of only twenty-two pages. Even when done by a talented historian such as Echevarria, it is impossible to address the conduct of U.S. strategy comprehensively in such a compressed manner. Far too much depth and relevant scholarship were sacrificed for breadth.

Much of that breadth is irrelevant to today's debate. The bulk of *Reconsidering the American Way of War* deals with the first 150 years of the history of the United States, during which its strategic position and interests were different than in the post–World War II era. Most of the criticisms of the American way of war (including Weigley's classic) were written at the end of the Vietnam War and generally were critical of the contemporary U.S. military, especially its kinetic focus and emphasis on conventional application of force.[12] It is with regard to this period that consistently limited strategic performance is blamed on U.S. strategic culture, military culture, or both.

Even when the more modern sections are examined, the research base is limited; a lot of relevant scholarship was overlooked. For example, the author's section on Vietnam lays the blame on Secretary of Defense Robert S. McNamara for the strategy of attrition on which the United States based its operations, but Echevarria admits the U.S. Army maintained its focus on "search and destroy" operations far too long. Neither Robert Komer's famous book on U.S. military culture nor Andrew Krepinevich's critique of the Army nor Lewis Sorley's dissection of Westmoreland's strategy is cited.[13]

Echevarria's section on the 1989–90 American intervention in Panama, Operation JUST CAUSE, overlooks shortfalls in planning for what was intended to be Phase IV of that operation and the subsequent difficulties in establishing order.[14]

The brief discussion of the first Persian Gulf War and the most recent phase of U.S. operations inside Iraq also avoids well-documented military shortfalls, particularly poor war-termination planning that reflected a desire to avoid politics. As the British historian Hew Strachan has observed, the apolitical nature of the U.S. military is demonstrated by its strong preference for concentration on the operational level of war, as a "politics-free zone."[15] The U.S. strategy in Iraq for 2003 was far too focused on the initial conventional battle, and again was devoid of political context. This was demonstrated when Commander, U.S. Central Command General Tommy Franks told senior Defense Department officials that he would focus on the day of battle and they could deal "with the day after." Such attitudes reflect shortcomings in our understanding of what constitutes war, as well as in the leadership development of U.S. generals.[16] But General Franks's comment and memoirs are not cited in the three pages this book devotes to America's longest war.

Echevarria concludes that the purported habits that characterize the American way of war are simply erroneous. In his interpretation, American strategy in practice has been flexible and appropriately crafted for both irregular conflicts and major wars. He finds (pp. 164, 174) that "the American way of war has been nothing less than political in every respect and in every period of its history. . . . It is clear that both policy and politics have influenced U.S. military practice." If

there is a consistent mental frame, it is the mistaken belief that "tactical victory redounds in favor of strategic success."

This assessment is hard to square with any objective evaluation of the last fifteen years. The American way of war has influenced profoundly U.S. war planning and strategic performance in Iraq and Afghanistan. During Operations ENDURING FREEDOM and IRAQI FREEDOM, success was elusive. Some of these failures may be attributed to senior civilian leaders, while others relate to flaws in strategy or implementation that can be laid at the feet of U.S. military commanders; both represent components of strategic culture. But Echevarria never examines subcomponents of a national culture nor alters his level of analysis. The Joint Chiefs of Staff's own conclusions about operational lessons from those conflicts suggest that U.S. military campaigns were limited by a lack of understanding about adversaries and by a "Big War" mind-set. These lessons, including the Joint Chiefs of Staff's own lessons-learned product, *Enduring Lessons from the Past Decade of Operations,* are absent from Echevarria's history and bibliography.[17] Those candid evaluations found that U.S. experiences in Iraq and Afghanistan reflected apolitical thinking, astrategic logic, and ahistorical reasoning. These attributes were not just evident but conspicuous, both at the national level and within the U.S. military's plans. They were key contributors to failure, if one objectively assesses our shortfalls. Others have noted these elements, but the author does not counter their arguments.[18] To contend that flaws in the American conceptual approach to war and strategy do not exist and do not help to account for the limited success the United States has obtained in two protracted contests over the last fifteen years may be the biggest hole in Echevarria's argument. This perspective, should it become the revealed wisdom of the last two wars, would perpetuate shortfalls in how strategists think about war, how the U.S. military prepares for warfare across the range of military operations, and how students are taught about their profession.

Dr. Echevarria's two major arguments are presented cogently, but fall short of convincing. The author is correct that examining strategic culture offers limited predictability, but he is wrong to claim that it offers neither insights nor explanatory power. If we ignore a deep grasp of strategic culture—our own as much as others'—we will ensure that the lessons encountered during the last fifteen years will have to be dealt with again in our next war(s). Policy makers and military planners should want to know more about the strategic culture of potential opponents and how it influences their decision making, not less.[19]

Reconsidering the American Way of War makes a material contribution to the long-standing debate about strategic culture, especially by highlighting limits to the construct and its usage. But embracing Echevarria's perspective about

strategic culture in general or the American way of war in particular overlooks extensive evidence and criticism about U.S. strategic competence.[20] If you want to understand why tactical brilliance is undone by slipshod strategic thinking, you will not find the answer here; those who seek a better American way of war must look elsewhere.[21] There are no arguments here for overcoming, by education or process, America's penchant for deficient strategy. Despite an increasingly disordered world, Echevarria apparently perceives neither need nor grounds for altering a paradigm that is skewed heavily toward kinetic solutions and conventional fighting, regardless of our enemies.[22]

This book should stimulate a necessary debate as today's generation of veterans on both sides of the Atlantic steps back to examine the last two wars. Learning from and modifying entrenched behaviors after major wars are not easy feats.[23] With Britain's Chilcot inquiry there has been at least one serious effort to do so by one of our allies, but there is little appetite in the United States for such reviews. Yet tomorrow's leaders should recognize the limitations strategic culture offers in predicting how our adversary's strategy will be formulated, how another actor may think about war and warfare, and how we should understand our opponent's approach to warfare. Just as importantly, we must better understand ourselves.[24]

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BOOK REVIEWS

CAPITAL THINKING

American Sea Power and the Obsolescence of Capital Ship Theory, by Robert B. Watts. Jefferson, NC: McFarland, 2016. 232 pages. $45 (paperback).

Even though this book is arguably not a comprehensive study, it deserves to be read by all naval professionals and anyone with a casual interest in the U.S. Navy and how it historically has defined its mission. I say this up front because, although this review will be critical in some areas, such observations must never be allowed to diminish the intrinsic value of works such as this: advocacy pieces that set out to challenge the prevailing (twentieth-century) naval orthodoxy, with all its emphasis on platforms and technology. This orthodoxy is the proverbial elephant in the room that is rarely challenged in naval circles—and yet it should be. In this reviewer's mind, therefore, it is absolutely healthy for naval professionals to be exposed constantly to such variations in thinking and to be pressed continually to justify their long-standing beliefs, even if only to force a more coherent exposition of the prevailing service position. For this reason alone, authors such as Watts provide immense value to the service.

Watts writes in an engaging and readable style that makes this slim paperback an easy and enjoyable read. The book breaks down naturally into three distinct sections: a short, theoretical analysis of Mahan and his effect on U.S. naval thought a century ago; an examination of how the U.S. Navy has evolved this thinking to meet the momentous events of the twentieth century, specifically the two world wars and the Cold War; and finally a look at how the Navy has fared in the post–Cold War era, a period characterized by increasingly complex irregular conflicts on land. The second section is the largest, forming the backbone of the book and containing a very useful summation of the various iterations of naval thinking and all the official strategic utterances since 1945, right up to the modern-day "air-sea battle." Throughout it all, Watts's premise is that the U.S. Navy, for a variety of bureaucratic and cultural reasons, has remained overinvested in what he calls the "capital ship theory," a focus on high-end, expensive platforms. While these may offer flexibility in a variety of scenarios, they may in fact be something of a liability in this new age of irregular warfare.

Watts himself is eminently qualified for this work. A retired captain in the Coast Guard and an acknowledged author on naval topics, he can call on some thirty years of observing how the services have grappled with the strategic changes in the post-Vietnam era, not to mention his firsthand experience with what some would call the more "irregular" missions of naval life. Not surprisingly, he is at his best in describing the difficulties facing the naval services in the post–September 11th era.

This is not to say there is no awkwardness in the logic Watts employs. For one thing, he is rather nebulous when it comes to the actual meaning of the term "capital ship." In the text he variously refers to battleships and aircraft carriers but also on occasion to "cruisers and destroyers" (p. 110) and, even more specifically, the DDG-51 class (and equivalent) (pp. 120, 171) as being capital ships. While in terms of raw combat power this may be somewhat understandable, this is not a trivial matter in this case. The normally accepted definition of a capital ship would be "one of the largest and most heavily armed ships in a fleet, usually understood to be battleships, battle cruisers, and aircraft carriers," or words to that effect. The problem: including everything from the DDG-51 on up in the definition means there are precious few USN vessels today that are not capital ships! While superficially this may seem to strengthen Watts's case, it actually weakens his argument in a number of important ways. Most obviously, it might be construed that it is the very notion of a "capital" ship, as distinct from any other, that is obsolete in this case, not the U.S. Navy's long adherence to the principles of a theorist writing in an era in which there was a clear distinction. If the capital ship idea is truly dead and the distinction is no longer valid or recognized today, where would Watts's argument be then? It also weakens the assertion he makes later on that other navies have done a better job of letting go of the capital ship than the U.S. Navy. While I can think of a number of navies that have abandoned aircraft carriers and battleships, on account of the expenses involved, very few, I think, have abandoned the DDG or the advanced FFG as the prime movers of global influence. If, using his logic, these are in fact capital ships, then most navies would seem to be following a trajectory remarkably similar to that of the United States. Interestingly too, Watts seems not to include nuclear submarines in this mix, yet I know of at least one navy—the United Kingdom's Royal Navy—that has often equated these vessels to the capital ships of yore on account of their immense power-projection and antifleet capabilities.

The second difficulty is the author's assumption that Mahan's theories on decisive battle and his capital ship theory are synonymous and interchangeable. Mahan, of course, was writing about the preindustrial age and in an era when the only threat to that determinant of naval power, the battleship, was another battleship. Under those circumstances, the possession of the most up-to-date and powerful fleet of battleships that one could afford made a lot of sense, as did the exhortation to keep the fleet concentrated. The advent of the industrial age changed all this, however, in two important ways. First, the extreme mobility conferred on smaller ships by turbine propulsion and the development of new weapons such as the Whitehead torpedo made the battleships vulnerable to smaller platforms that cost a fraction of a battleship's cost. This was perhaps

the first time in naval history when a third-rate navy might threaten the largest fleets in the world effectively. Second, the industrial powers' need for resources and markets on a global scale widened the scope of naval strategic responsibilities immeasurably. This navies were slow to appreciate, but (to cut a long story very short) the likes of Admiral Fisher in Britain with his battle cruiser ideas in 1905 and Admiral Fournier in France with his general-purpose cruisers (*"bon à tout faire"*—able to do anything) a few years earlier slowly but inexorably moved the focus away from a defensive clash of battle fleets around the point of decision toward the use of offensive power-projection fleets around the periphery to ensure protection of these wider strategic interests. This offensive approach was taken up most notably by the carrier power-projection fleets of the U.S. Navy in the post–World War II era. In other words, the "capital ship theory" that the U.S. Navy has held dear through all these years is this offensive power-projection version, not the original Mahanian ideas of a half-century earlier. Watts does not make this distinction clear.

Watts's third discontinuity, which is more of an omission than anything else, is his lack of consideration of network-centric warfare (NCW) as a possible alternative to his capital ship theory. While he mentions the concept very briefly in passing (p. 129), he chooses not to explain that it actually argues against capital ship theory by maintaining that, in this era of reliable and near-instantaneous data sharing, it is the integrity of the network among the various platforms that is vital, not the security of any individual unit attached to it. No one ship needs to have all the "sensors and shooters" in a discrete package if each can draw what it lacks from the others in the network. This again makes it something of an antithesis of capital ship theory, considering the latter's focus on the platforms involved. As such, the NCW concept is worthy of inclusion here, if only to explore why the U.S. Navy supposedly rejected it (although aspects of it have survived in the current "distributed lethality" idea).

In the end, this reviewer was not persuaded by the arguments as presented, but this in no way should be taken as a rejection of the book's core idea itself. Watts's volume is valuable insofar as it encourages the reader to think of alternative organizational strategies for the U.S. Navy; it is, however, incomplete, in that formulating a comprehensive conclusion requires the three objections discussed above to be addressed at some point. The book also does not offer any defense for the generalist position and the many virtues of capable, multipurpose ships across the range of military operations, nor any alternative to this force, which presumably would have to include a larger number of specialist platforms. One hopes this will form a new point of departure for future work in this area.

ANGUS ROSS

Underestimated: Our Not So Peaceful Nuclear Future, by Henry D. Sokolski. 2nd ed. Carlisle Barracks, PA: U.S. Army War College Press, 2015. 159 pages. Free.

Henry Sokolski has been a fixture of Washington's nuclear nonproliferation community for several decades and in

various roles, including as practitioner, analyst, educator, and advocate. This short volume represents his second effort, after more than a decade and a half, at encapsulating a holistic understanding of the long-standing U.S. nuclear proliferation prevention project. Sokolski takes up the challenge of tackling this vast and complex subject in a monograph-length treatment with confidence and aplomb. He does so in a way that is approachable by those who may not have extensive knowledge of the subject but is likely to offer new insights to experts in the field. In doing so, he succeeds on many levels, though not all.

The greatest strength of *Underestimated* is its ability to bridge issues and perspectives that are all too rarely bridged. For example, Sokolski displays a rare combination of an insider's applied knowledge of what is practical in the real world of technology, bureaucracy, and diplomacy with an outsider's ability to think creatively outside the box of official logic. Indeed, over the years he developed a reputation as a disruptive —in a useful way—insider. He also makes a conscious effort to bridge the policy and academic divide, as well as what he sees as the loosely associated ideological divisions between nuclear hawks and doves. Further, he seeks to bridge the long-standing conceptual cleavages among the cognate nuclear areas of arms control, disarmament, nonproliferation, counterproliferation, deterrence, and war fighting, as well as to treat nuclear weapons and missiles as two sides of the same coin across all these areas. Finally, he approaches all this ranging across geographic regions, and both casting back in history and looking out to the future. In doing so, he helps the reader to consider all these areas together, as aspects of and tools for understanding the same, larger picture: namely, the enduring and systematic U.S. interest in curtailing the threats posed by the spread of strategic weapons. This alone is an invaluable contribution to the literature that should enrich the perspectives of all types of readers, expert and otherwise.

Unfortunately, the work suffers from failing to deliver consistently on its ambition to cast a wide historical, geographic, and conceptual net. In part this is owing to the constraints of trying to cover a great deal within a very constrained space. Put simply, this is a very small book taking an expansive look at a big topic.

However, there are also some specific weaknesses. Sokolski is not an academic, and his attempts to engage international relations theory are unlikely to impress scholarly readers. For example, while offering intriguing insights about competing perspectives that have emerged within strands of structural realism—notably, contrasting the differing perspectives epitomized by Kenneth Waltz and John Mueller—he offers nothing whatsoever on any applicable insights from neoliberal institutionalism, social constructivism, or neoclassical or liberal (English school) realism. This represents a serious omission when one considers that the seminal English school scholar Hedley Bull is one of the giants in theorizing about the differences between arms control and disarmament; the constructivist lens has been used extensively to explicate nuclear proliferation dynamics; and liberal institutionalism underpins much of the current thinking about disarmament in its contemporary incarnation in the "global zero" movement. Likewise, in the end the author's real focus narrows down to his obvious true

passion, nonproliferation, as becomes clear when the book concludes with a series of policy recommendations. While there are a few ideas involving nuclear force posture or arms limitation, such as a ban on forward nuclear deployments, the thrust of the package is on preventive nonproliferation.

These are real weaknesses. But they do not detract from the real strengths here that commend this as a worthy addition to the nuclear weapons literature. At its best, *Underestimated* succeeds admirably in synthesizing the swirling policy debates surrounding these complex and interrelated issues, framing them in a wider context that is also widely accessible.

DAVID COOPER

Justice and the Just War Tradition: Human Worth, Moral Formation, and Armed Conflict, by Christopher Eberle. New York: Routledge, 2016. 252 pages. $140.

War presents many opportunities and temptations to do wrong and to choose injustice and evil over good. How are we to know how to act when situations are not black-and-white, or when emotions cloud our judgment? These questions are not new, and the discussion surrounding them has been going on since Saint Augustine of Hippo penned the first recognizable form of just war theory in the fifth century. Philosopher Christopher Eberle brings his clear thought and humble wit to the discussion using his particular viewpoint as both a professor at the U.S. Naval Academy and a Christian.

Viewing the just war tradition as the best available framework for reflecting on the morality of war, Eberle aims to "provide a conceptual and propositional resource that citizens, soldiers, and statesmen can employ as an aid to moral formation." This book is a natural outgrowth of his weighty responsibility to form the morals of the nation's future warrior-leaders. What makes his voice particularly worth listening to about this topic is that, while he is a philosopher interested in discussing ideas, he translates these ideas into practical wisdom using historical and generic examples that are easy to follow for anyone interested in the topic. This book is valuable to a range of people, from undergraduates through adult learners who have a basic familiarity with just war theory to seasoned experts in the field. Dr. Eberle brings a Christian element into a discussion that is often bereft of it, as well as an examination of the interior mind and intent, which also are often ignored.

Eberle's Christian faith is valuable in that he presents just war theory from the perspective out of which it was created: the heart of Western Christianity. This brings us to his second aim: "to provide an understanding of the morality of war that is open to religious contributions both to the justification and limitation of military violence." This is particularly important given how Osama Bin Laden framed the events of September 11, 2001—as religious "just war." It is only by considering a just war theory reunited with religion that one can meet these claims accurately and reveal them as false. This reunification of just war theory and religion is the raw material that forms the core of what Eberle uses to guide all decision making with regard to right action in war.

In his discussion, Eberle focuses narrowly on the justificatory and

motivational core of just war theory. These are the main concepts that draw the boundaries or build the framework for any discussion about whether a war is just. Their purpose is to shape the way we perceive and discipline our minds and hearts about violent communal conflict so as to conduct ourselves justly when we find ourselves involved.

One of the basic elements of Eberle's application of just war theory is the idea that every human life has great and equal worth. Human beings are created as moral agents who naturally want to be good and to do good in their moral relations with others. However, every human being is also a sinner who at times chooses evil as a "good"—resulting in acts of violence around the world. Morally speaking, any violence that kills a human being deprives him or her of this inherent worth and must be seen as a moral wrong. And just as violence by one human being against another is morally wrong, organized violence by one human community against another is morally impermissible.

There are times, however, when this can be overridden, including when one community commits an act or a series of egregious acts that seriously injures another community. According to Eberle, the victimized community can incur an obligation for war to correct the moral injustice. This obligation can be overridden, however, when the evils the war would cause or create exceed the moral good sought.

Eberle shows how just war theory can be used to determine the threshold for egregious action that gives justification for war; what constitutes a proportional response; what actions, thoughts, and emotions in warfare are and are not morally permissible; and when warfare must be stopped. His discussion of each of these topics is tidy, conversational, and a delight to read—fulfilling the book's goal of being a practical handbook to guide citizens, statesmen, and soldiers in making right moral decisions when it comes to war.

The book's most controversial aspect is its conclusion. After artfully building the case for a just war theory, Eberle muddies the waters by writing: "Reliance on the [theory] tempts its adherents to amplify the destructiveness of war in morally troubling respects. When . . . human beings are caught up in violent communal conflict, their adherence to the just war theory can render them less likely to fight in accord with the demands of justice than would otherwise be the case." He continues, writing that "this deficiency is not merely a contingent fact about the uses to which some bad actors happen to put the just war theory. Rather, it derives partly from enduring facts about the human condition and partly from the just war theory's core justificatory requirements." Eberle does allow that a just war could be escalated by adding additional war aims. However, given human nature, this also becomes a temptation to misuse the theory to seem to justify escalated warfare and carnage under the guise of avenging the now-exaggerated precipitating moral wrongs.

Here I believe Dr. Eberle overburdens his analysis of just war theory with the problem of human nature. According to traditional Christian doctrine, humans are sinful beings who often choose apparent "goods" over actual goods. As such, people can choose to misuse or abuse any doctrine, theory, or instruction, no matter how ironclad. Still, I do not consider a just war theory that is

open to abuse to be a defective theory; if anything, because of that potential it is a realistic one. I highly recommend this work as a useful resource for practical moral formation in just war theory.

ALI GHAFFARI

Rockets and People, by Boris Chertok, ed. Asif Siddiqi. Vol. 3, *Hot Days of the Cold War.* Washington, DC: National Aeronautics and Space Administration, History Office, 2010. 796 pages. $65.

In this third volume of his memoirs, ably edited by acclaimed space historian Asif Siddiqi, Boris Yevseyevich Chertok, who was the most senior surviving Soviet space engineer until his death at age ninety-nine in 2011, offers a unique, firsthand window into Cold War history as he lived it over his six-decade career. He spent most of it at the uppermost level of the OKB-1 design bureau (now S. P. Korolev Rocket and Space Corporation Energia), where he participated in every major project though 1991.

In this series, volume 1 details Chertok's rise from aviation factory electrician to official in charge of extracting Nazi rocket expertise, volume 2 the post-1946 emergence of the Soviet missile program. In volume 3, Chertok recounts and reflects on the golden age of Soviet cosmonautics, from Yury Gagarin's historic orbital flight in 1961 to the death of key figures in the Soviet space program in and around 1967. Volume 4, released in early 2012, covers the U.S.-Soviet moon race. Chertok's personable, technically informed, and somewhat politically detached perspective, as well as his frankness regarding credibility of sources and where he lacks information, makes for an accessible, historically useful account.

From his perch in the Soviet missile bureaucracy, Chertok observed the Cold War as a scientific-technological-military competition. Manned spaceflight was regarded as an indicator of national prestige—and socialist superiority: "There was an ongoing battle at the front line of the Cold War's scientific-technical front. Rather than soldiers, it was scientists, engineers, the 'generals' of industry, and workers who determined the battle's outcome. And warriors of another sort came on the scene—cosmonauts" (p. 61). Each side fed off the other in constant one-upmanship, Chertok stresses: "American operations had a very strong effect on our plans. American historians of aeronautics assert that our successes were the primary reason why the United States converted its space programs into a top-priority, nationwide challenge" (p. 246).

Central to this competition, for some time, was a race to land a man on the moon. On August 3, 1964, Central Committee and USSR Council of Ministers Resolution 655-268, "On Work for Lunar and Space Research," recommitted Moscow to "land a man on the moon and return him to Earth by 1967–68" (p. 397). This goal was restated in a similar decree of October 25, 1965 (p. 568). This competition was very real, and there was no substitute: "[N]o matter how successful [other] programs might be, they could not compensate for our loss of superiority if the Americans were to become the first to fly around the moon" (p. 523).

Then, despite suffering a major setback in the Apollo 1 fire of 1967, the United States started pulling ahead. The Soviet

program was held back by a year of time-consuming yet inadequate ground testing and the tragic death of Vladimir Komarov when Soyuz 1 crashed in 1967.

In retrospect, there were larger reasons for these results. The Soviet defense industry that Chertok depicts suffered from both direct involvement by party organizations throughout the production process and limited government capacity, ruinous bureaucratic and interpersonal struggles and finger-pointing, overly ambitious deadlines, lack of systematic review of decisions, and lack of politicians who understood the benefits of a comprehensive military-civilian approach. So much depended on a single individual. Chief Designer Sergey Korolyov was a microcosm of Soviet society, having both suffered significant repression and marshaled significant technical resources. His untimely death in 1966, itself partly a result of medical malpractice, devastated the Soviet space program. Korolyov's successor Vasily Mishin would prove far less effective at cultivating the Kremlin bureaucracy. Obsessive secrecy reigned. The Central Committee maintained a categorical prohibition on acknowledging space failures, even when detected by foreigners. Inefficient use of limited resources imposed additional burdens: "For a long time during the post-Khrushchev period, we continued to develop and produce several *parallel* lines of strategic missiles, allowing unjustified redundancy" (p. 155), their overproduction camouflaged by creative budgeting (p. 146).

The United States led significantly in missile numbers, accuracy, and nuclear weapons—a tremendous disparity during the Cuban missile crisis, although subsequently the Soviets worked to reduce the gap. Spaceflights served propaganda purposes, in part to cover up missile limitations. Risky space spectaculars were attempted, including —on Khrushchev's personal orders via telephone to Korolyov—the 1964 cramming of three cosmonauts without space suits and with only limited life support into a Voskhod capsule whose "new landing system had only been tested once" (p. 237). Soviet mission-control facilities were less advanced: "[T]he mission control centers at Cape Canaveral and Houston seemed like a fantasy to us" (p. 599). The USSR fell behind in integrated circuits, microchips, and computers, in part because of a lack of civilian applications. Quantity reflected lack of technological integration: "[T]he first Soyuzes had so much varied radio technology on board that they required twenty antennas" (p. 580).

Looking to the present and beyond, Chertok condemns the present Russian government's "crime" of dismantling the nation's great technological infrastructure (p. 331). He makes fascinating future projections: by 2015, "China (and perhaps India) will become superpowers, surpassing Russia in terms of military-strategic might." Future conflict may center on resource access; the United States, Europe, and China may covet Russia's unparalleled reserves of oil and gas, China its fresh water and eastern territory as well. "Under those conditions, it appears that the strategic significance of high-precision, nonnuclear weaponry together with intermediate and even short-range tactical nuclear weapons might become a factor in deterring a large war just as ICBMs were in the 20th century" (pp. 156–57). Chertok judges further that "Chinese rocket and space technology will overtake the

Russian space program in ten to twelve years; and perhaps it will overtake the American program as well" (p. 585).

As in previous volumes in the series, Chertok documents the toils of Soviet designers, who were remunerated poorly, subjected to difficult working conditions, and hidden from foreign sight and contact. Chertok learned of his nation's deployment of missiles to Cuba, for instance, from Kennedy's speech (p. 95)! Driven in part by heartfelt ideals tempered by knowledge of the horrors of the Stalin era, these designers achieved so much, so quickly, under such formidable constraints—truly amazing accomplishments. Theirs is not only a Soviet legacy, rooted now in a bygone era, but a part of a larger human legacy that will inspire further exploration as mankind moves farther into space.

ANDREW S. ERICKSON

America's War for the Greater Middle East: A Military History, by Andrew J. Bacevich. New York: Random House, 2016. 453 pages. $30.

The most recent book by Andrew Bacevich—a retired U.S. Army colonel and now-retired professor of history and international relations at Boston University—details the history of the four-decade U.S. involvement in "the Greater Middle East," a region Bacevich defines as encompassing areas of the Persian Gulf, North Africa, and the Balkans.

The book starts with the formulation of the Carter Doctrine: how the OPEC oil embargo, the Iranian Revolution, and the Soviet Union's invasion of Afghanistan, combined with America's need for oil and the fact that most of the world's oil at the time came from this area, led then-president Jimmy Carter to declare the security and stability of this region to be a vital national interest. Bacevich believes the doctrine created a broad, open-ended commitment that expanded with time. Early in the book he describes the decision making, strategy and policy development, and organizational changes that positioned the United States as the guarantor of regional security. This was the context for the formation of U.S. Central Command, which included in its geographic area of responsibility not only the Persian Gulf states but a total of nineteen countries, including Egypt, Ethiopia, Somalia, Kenya, and Pakistan. Bacevich argues that this new combatant command created both an expectation of and the pretext for future military intervention in the Central Command region. The "Soviet threat of the 1980s served as a placeholder, providing a handy rationale for developing capabilities subsequently put to other purposes"; that "posture justified by the need to defend the Persian Gulf from outside intrusion positioned the United States itself to intrude."

Bacevich offers a broad overview of significant events in this area of the world over the last thirty-five years. In addition to the Soviet invasion and occupation of Afghanistan and America's support of the mujahideen "freedom fighters," Bacevich discusses the Marine Corps barracks bombing in Lebanon, the U.S. attack against Muʿammar Gadhafi in Libya, and the war between Iraq and Iran. His broad synthesis similarly includes Somalia, Saddam Hussein's invasion of Kuwait and the ensuing Gulf War, the conflict in the Balkans, and, of course, the attacks of

September 11 and the subsequent wars in Afghanistan and Iraq, as well as the current fight against Al Qaeda and ISIS. One of the great strengths of this book is the way Bacevich brings all these events together in sufficient detail to enable the reader to take in "the whole picture." It allows one to put these events into greater context and see the patterns that have developed. In short, it performs a very complete assessment of where we have been, what assumptions the leaders of the United States have made, what policy decisions were made on the basis of those assumptions, and what the outcomes have been to this time.

Toward the book's end, Bacevich asks two very pointed questions. First, why "has the world's mightiest military achieved so little even while itself absorbing very considerable losses and inflicting even greater damage on the subjects of America's supposed beneficence?" Second, why, "in the face of such unsatisfactory outcomes[,] has the United States refused to chart a different course?" Bacevich goes on to offer what he believes are the answers to these questions, then ends by arguing that, in light of new technology that allows more oil reserves to become accessible in the Western Hemisphere, the United States would be better served by securing its "own neighborhood rather than vainly attempting to police the Greater Middle East." The question that comes to mind—one with which I'm sure our national leaders wrestle—is this: What will happen to this region, and subsequently the world, if the United States stops its involvement in the Greater Middle East?

This well-researched book is a must-read for all of us who study, plan, and execute the military arm of national power—and especially for those who make decisions about national policy.

ROGER DUCEY

Lessons Encountered: Learning from the Long War, ed. Richard D. Hooker Jr. and Joseph J. Collins. Washington, DC: National Defense Univ. Press, 2015. 486 pages. $21.95.

Augmenting the literature of firsthand accounts by senior leaders such as General Stanley McChrystal and Ambassador Christopher Hill, National Defense University faculty members Richard Hooker and Joseph Collins assembled a strong team to make sense of the last fifteen years of war. The editors appreciate the challenges of writing current history, but offer the book as "an assessment of two unfinished campaigns, written for future senior officers, their key advisors, and other national security professionals." With more than three million U.S. and coalition veterans of Iraq and Afghanistan, few undertakings are more important. Veterans of today will shape the future of defense over the next twenty years, just as their forebears, such as Anthony Zinni, Colin Powell, and Richard Holbrooke, were shaped by their Vietnam experiences.

The chapters are at their best when they leverage insights from both senior military and civilian leaders to reach important conclusions, such as the following: "Civilian national security decisionmakers need a better understanding of the complexity of military strategy and the military's need for planning guidance. Senior military officers for their part require a deep understanding of the interagency decisionmaking

process, an appreciation for the perspectives and frames of reference of civilian counterparts, and a willingness to embrace and not resist the complexities and challenges inherent in the system of civilian control" (p. 71). On this point, it would be important to learn from the productive relationships of Lieutenant General David Barno and Ambassador Zalmay Khalilzad in Kabul during 2003, and General David Petraeus and Ambassador Ryan Crocker in Baghdad during 2007. The editors capture the important civil-military relations discussion in their conclusion, writing that "there is no 'purely military' question . . . [yet the advice of senior military personnel as experts] was not used in full" (p. 407).

The book raises—and sometimes challenges—persistent myths, such as the belief that the presence of an additional battalion at Tora Bora, Afghanistan, in 2001 would have enabled the capture of Osama Bin Laden. Others addressed include the belief that Kabul could have stood on its own in the early part of last decade, and that a post-Saddam Iraq would be lawless. Further, the book reminds us that these two wars did not begin as insurgencies; that military gains were disconnected from political goals; and that the U.S. government has neither the capacity nor the disposition to promote political and economic development on par with its capacity to develop foreign military forces. Neither U.S. presidential administration could agree on the scope of the problem nor could either generate the unity of effort that we see—in hindsight—would have been needed to stabilize either country. Consequently, the United States abandoned its grandiose national objectives and shifted its emphasis to training Iraqis and Afghans to fight their own civil wars.

Among the volume's contributors and chapters, the reviewer particularly notes the following:

- Thomas X. Hammes explores well the challenges of security force assistance, concluding that "the personnel system never really adjusted . . . [and advisers and trainers were] working against incredible handicaps" (p. 335).
- Collins's chapter on initial planning for the wars lays out the assumptions made and the ill-conceived expectations that developed. At times he reconciles Beltway and theater perspectives; for instance, "DOD civilian leadership did not want to admit—perhaps for public relations or legal reasons—that by mid-summer 2003, there was an insurgency going on" (p. 65).
- Frank G. Hoffman and G. Alexander Crowther follow with an important assessment of the Iraq and Afghan surges, providing a rich narrative that illustrates strategic adaptation. They conclude that "war is an audit of how well states have formulated policies and strategies, and how well prepared their armed forces and other tools are" (p. 146).
- To examine the political context of strategy formulation during the wars, the chapter by Christopher J. Lamb and Megan Franco analyzes senior leaders' decisions. The authors "conclude that critical strategy handicaps, insufficient unity of effort, and, to a lesser extent, missing or late-to-need capabilities for irregular warfighting offer a compelling explanation for why the United States was not able to fully achieve its goals in Afghanistan and Iraq" (p. 168).
- Nicholas Rostow and Harvey Rishikof identify legal lessons from the wars, noting that "lawyers should be regarded as essential participants in the planning process" (p. 378).

To be sure, there are limits to how much we should draw from these two conflicts, especially since they have not ended yet. Furthermore, the editors acknowledge that whatever lessons might be learned will not necessarily prevent future failures. While the two conflicts are linked temporally, differing rationales for beginning them, different presidential administrations, and different adversaries limit the value of larger comparisons. Inputs from our allies and erstwhile partners—absent here—also would be beneficial to study. Yet the book is rich in detail and analysis, all underscoring the lesson of a decade-plus: that, while the United States might be able to support and enable its international partners, it cannot solve all their problems by itself.

DEREK S. REVERON

Regional Missile Defense from a Global Perspective, ed. Catherine McArdle Kelleher and Peter Dombrowski. Stanford, CA: Stanford Univ. Press, 2015. 328 pages. $29.95.

As a collective voice on the topic, *Regional Missile Defense from a Global Perspective* offers a comprehensive discussion of the history, development, and present state of ballistic missile defense (BMD), infused with a distinctive blend of technical aspects and analysis of the geopolitical forces that shaped it. Using the Reagan administration's Strategic Defense Initiative (SDI) as an initial framework for discussion, the works of several notable experts in the fields of international studies, nuclear policy, national defense, foreign affairs, and political science are combined to yield a nuanced overview of the subject, expertly delineating the parallel development of technological advances and ongoing political realities for participating nations. Threaded throughout the book are significant discussions on the implications of a regionally based missile-defense system having more than just a regional impact.

On the basis of operational concepts developed to protect London from V-2 rockets during World War II, U.S. efforts initially were envisioned to protect select cities from Soviet or Chinese intercontinental ballistic missile (ICBM) attacks. When this proved to be technically and financially prohibitive, scaled-back systems designed primarily to defend ICBM sites and their capabilities for strategic offensive operations were constructed. Arms-limitation talks between the superpowers during the early seventies further reduced the scope of this capability. However, because of President Reagan's concern during his presidency about the lack of an effective BMD for the country and his preference for a strategic alternative to mutually assured destruction, SDI was developed. With the overall goal of eliminating the threat posed by Soviet ICBMs, all aspects of ongoing research were combined under one program.

This point in history is the starting point for the book; from there it begins to construct the foundation for an examination of the technological challenges of developing a missile defense and the political realities these developments foster. Part 1, "U.S. Policies and Programs" (p. 17), starts with an examination of BMD policies as they evolved during the Ronald Reagan, George H. W. Bush, Bill Clinton, and George W. Bush administrations and some of the documents that defined the actual threat, examined technical controversies, and captured

congressional debates. This section concludes by documenting succinctly the Obama administration's challenges in developing a limited missile-defense capability while effectively integrating with our NATO allies in implementing missile defense in Europe.

Part 2, "Regional Dynamics" (p. 105), begins an engaging discussion by experts on the development, deployment, and subsequent policy impacts of BMD in the European, Levantine, and Middle East theaters. Contributing authors then examine issues such as the weakening of stability and a proliferation of additional BMD systems and associated counterefforts, which at times have led to a "one-upmanship" competition among regional players. The collection of essays builds the appropriate situational awareness for students of missile defense, and in 313 pages provides the reader, whether actively engaged in BMD responsibilities or merely interested, with an extensive and focused analysis by experts in their respective fields. The absence of an overemphasis on technological details enhances a welcome breadth of viewpoints that makes this volume a valuable addition to the curriculum of any BMD course of study.

The book also would serve well as the basis for an annual review and update of the complex issues surrounding missile defense, thereby providing a valuable resource as other, associated defense concepts mature. Its comprehensive scope could leave the reader questioning the appropriateness of a regionally based missile-defense system mind-set, given the global strategic impacts evident in not only the main players conceiving, constructing, and operating such systems but the interconnectivity that comes with the existence of partner nations, the reality of international military-industrial complexes, and the difficulty in limiting the effects of any BMD mission on the stability of cooperative security agreements. As a whole that is greater than the sum of its parts, Ms. Kelleher and Mr. Dombrowski's effort clearly delineates the blurring of lines between regional and strategic missile defense on many levels. As the United States continues to evolve existing systems, enhancing integrated capabilities and international cooperation becomes even more important.

A convincing case for this is made evident beginning in part 3, "Critiquing Global Analyses" (p. 239). The editors' summation of the future of BMD describes the challenges facing future U.S. administrations as they endeavor to keep pace with rapidly evolving views on the effectiveness of BMD with regard to strategic defensive postures. Given the public scrutiny that continues to focus more closely on the consequences of major military applications of capabilities such as BMD, it will be difficult to act regionally without immediately considering global stability and strategic partnerships, as well as to work within the financial constraints existing in any national economy.

Although not a focal point of this book, perhaps the next edition could address the consequences of nonstate actors acquiring some limited BMD capability and the security challenges that would come with this development.

Regional Missile Defense from a Global Perspective yields a comprehensive set of knowledgeable viewpoints and constructs the appropriate framework for ongoing discussions on a timely and complex defense issue.

LLOYD A. MALONE JR.

The Russian Army in the Great War: The Eastern Front, 1914–1917, by David R. Stone. Lawrence: Univ. Press of Kansas, 2015. 368 pages. $34.95 (Kindle $19.99).

With the centennial of World War I, interested readers can choose from among a surging wave of new books about the World War I experience and its impact on modern history. Most of these have focused on the western front, but a small number reexamine the war in Eastern Europe. Among these, David Stone's *The Russian Army in the Great War* is the first new historical overview of the Russian military on the eastern front since Norman Stone's *The Eastern Front, 1914–1917* was published forty years ago. With the fall of the Soviet Union, historians have enjoyed more access to Russian archives and accounts of the war. While this new research is already familiar to specialists, Stone sets out to make it accessible to the general reader. He is clear from the outset that his work is a military history, so while social and economic factors frame military operations, they are not the focus of the volume.

Most general histories of World War I describe the Russian army in a narrative of failure. The "Russian steamroller," feared by its adversaries for its huge but slow-to-mobilize peasant armies, fails owing to poor leadership and equipment, setting the stage for chaos and revolution. While conceding the Russian army's failings, Stone asserts that focusing solely on the negative ignores essential historical context. Four empires (Germany, Austria-Hungary, Russia, and the Ottoman Empire) went to war in Eastern Europe—and none of their royal houses survived the experience. All four empires experienced military failure, hunger, economic and social collapse, and loss of territory. The Russian experience was unique only in that the subsequent civil war led to an enduring Communist regime. On the battlefield, Russian troops generally performed as well as the Austro-Hungarian units that were their primary adversaries in the first half of the war. Only when fighting German troops were Russian units clearly outclassed. Stone observes, however, that no nation consistently matched the quality of the German army on a unit-against-unit basis. The Russian army was plagued by a lack of artillery, machine guns, and ammunition—as was every army in the war. No military had anticipated fully the requirements of modern industrial warfare, and entire societies were mobilized to meet these sudden demands, with varying degrees of success. Russia's industrial mobilization was less successful than some, but what success it achieved was notable considering the country's relatively backward starting point.

The Russian army's first moves in the war are remembered for the defeat of two Russian armies at the battle of Tannenberg—often the only eastern front battle nonspecialists can name. Tannenberg has been remembered in part because the two victorious German commanders, Hindenburg and Ludendorff, later emerged to lead the overall German war effort. Less appreciated is that at the same time the Russian army achieved significant initial success against Austria-Hungary. These territorial gains were reversed in 1915, as the Russian army endured the series of defeats known as "the long retreat." Despite this reversal, however, the Russian army remained intact and effective. In 1916, it

launched major offensives, coordinated with its allies, to divert German forces from combat on the western front. In the process, the Russian army pushed deep into Austria-Hungary and essentially removed the Austro-Hungarian army from the war as an effective fighting force. Subsequent Austrian resistance would continue only because of direct support by German army units.

Readers generally familiar with the war on the eastern front will enjoy Stone's coverage of campaigns in the Carpathian Mountains and on the Turkish front, as well as the disastrous impact on Russia of Romanian entry into the war on the Allied side. Stone's previous research on the early Soviet military allows him to identify continuity between the imperial and Soviet militaries and frame how the new Soviet army drew lessons from World War I combat. Combat on the eastern front was more mobile than the trench warfare in the west. This is a story in which terrain matters, and most of it is not familiar. In this context, the book suffers from the generally low quality of its maps.

For the reader already versed in the events of late imperial Russian history, *The Russian Army in the Great War* fills a gap by explaining the nuances of military events. If, however, these events are unfamiliar, or if the reader is more interested in the interplay of military, economic, and social factors, a broader history of Russia in World War I, such as W. Bruce Lincoln's *Passage through Armageddon,* would be a better starting point.

DALE C. RIELAGE

OUR REVIEWERS

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REFLECTIONS ON READING

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

We could try scrying with an orbuculum . . . or, in the current vernacular, we could attempt to see into the future using a crystal ball. This form of pseudoscience traces its roots back to the earliest days of recorded history, when soothsayers made a living predicting the future. The veracity of their projections was always suspect, but even so there was some value in thinking about the world to come. But perhaps there is a better way to consider possible futures.

In the Spring 2016 issue of the *Naval War College Review,* we shared some thoughts about the power of fiction to energize thinking. We also provided a link to download *War Stories from the Future* from the Atlantic Council's Art of Future Warfare project. We return to the subject in this issue to expand on the role that reading (and writing) fiction can play in a sailor's professional development, and to provide a link to more great think pieces.

In early 2016, the Marine Corps Warfighting Laboratory (MCWL) teamed three acclaimed science fiction authors with seventeen service members to create compelling and credible narratives of what the world might look like thirty years in the future. The results of this effort can be accessed at www.mcwl.marines.mil/Divisions/Futures-Assessment/. The fascinating and strikingly illustrated sixty-two-page publication is a worthy read for all maritime professionals. Brigadier General Julian Dale Alford, the MCWL Futures Directorate commanding general, noted that the Science Fiction Futures Project offers "possible tactical- and operational-level vignettes of the distant future through the medium of science fiction. We proceed with full knowledge that we will not get it perfectly right; tempered with the understanding that we cannot afford to ignore possibilities that may come sooner than anticipated." Alford continued, "Open your mind and enjoy. The future is coming, ready or not."

The preface to the publication states, "Good futuring is about projection, not prediction. It stimulates thought and debate. The best futures are the ones which prompt the reader to say, 'That will *never* happen.' It makes the reader consider

the possible (and plausible) and apply rational thought to what events may or may not enable that world to come to pass. We don't have to get it right; we just can't afford to get it too wrong." The *Science Fiction Futures: Marine Corps Security Environment Forecast 2013–2045* project developed three short stories, each dealing with conflict in a future—and troubled—world.

- The first story, "Water Is a Fightin' Word," postulates a world in which a scarcity of fresh water has resulted in massive domestic and international migration. A platoon of Marines goes ashore in North Africa to assist an international aid agency that has been attacked. Alongside "leatherneck Marines" we are introduced to "metalneck Marines"—combat robots that fight at the side of their human partners.
- In the second story, "Double Ten Day," Marines are deployed to an Asian island following a massive earthquake. They find themselves in a fight in and around megacities in which tens of thousands of people live in towering skyscrapers. Robots, drones, and high-tech communications help them deal with adversaries that include bioengineered special operations troops who are bred and trained from birth to be powerful killing machines.
- In the third story, "The Montgomery Crisis," Marines seek to destroy an enemy who caused a global crisis ("The Great Panic") by using a biological weapon to infect America's crops. As more and more food became inedible, food riots occurred in major cities. Attempts to import grains from the Balkans were hindered by the closure of the Strait of Gibraltar by a caliphate in West Africa. The Marines are put ashore to reopen the strait and help feed America.

Each of these stories provides a vivid depiction of conditions that might arise, in a visceral way that neither analytical reports nor scripted scenarios can match. A similar project with an Army focus has been launched by the Modern War Institute at West Point, and preliminary plans are being formulated to get sailors to think about possible futures that might lie somewhere between the Fleet Forces Command of today and the Starfleet Command of the future!

JOHN E. JACKSON