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Joint Force Quarterly

Issue 103, 4th Quarter 2021

Achieving Overmatch by Solving Joint Problems

Educating Future Leaders
on Emerging Technologies

2021 Essay Competition
Winners



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Cover 2 images (top to bottom): Airman Staci Lewis stands watch as forward spotter in primary flight control aboard aircraft carrier USS *Dwight D. Eisenhower*, March 17, 2020, Arabian Sea (U.S. Navy/Brianna Thompson); Staff Sergeant James Shephard, assigned to Marine Medium Tilt-Rotor Squadron (VMM) 165, 11th Marine Expeditionary Unit, conducts maintenance on AH-1Z Super Cobra on flight deck of amphibious assault ship USS *Essex*, April 16, 2021, Pacific Ocean (U.S. Navy/Sang Kim); Senior Airman Janice Williams, 932nd Maintenance Squadron crew chief, performs preflight inspection and launches aircraft, June 30, 2021, at Scott Air Force Base, Illinois (U.S. Air Force/Christopher Parr)



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U.S. Marines and United Kingdom and Turkish coalition forces assist child during evacuation at Hamid Karzai International Airport, Kabul, Afghanistan, August 20, 2021 (U.S. Marine Corps/Victor Mancilla)



Executive Summary

As each day passes in the pandemic, we seem to have to embrace a world that continues to bring additional concerns that soak up any emotional bandwidth we have left. Dealing with the personal impact of COVID-19, natural disasters, domestic and international economic troubles, and the chilling moments of January 6th at the Capitol and its political fallout may seem more than we should have to bear. We saw a man who clearly had issues with the government hold a five-hour standoff with police at the Library of Congress just yesterday.

But a single event brought home a 20-year war to our collective doorsteps: Afghanistan, graveyard of empires. The place where our response to the terrorists of 9/11 first experienced the power of

the United States and its allies. A place that stirs the complete range of emotions for anyone who has been touched by that war. Many will ask was it worth it. Others want to know why we stayed so long, and others why we left. Everyone will be interested in knowing what comes next. The United States may be done with Afghanistan this time around, but that is not the end of the story for Americans or anyone else, especially the Afghan people.

As I write, Kabul has fallen. A story and a place that received no attention a year ago is now getting wall-to-wall media coverage. One interesting and needed set of messages I saw was for Afghanistan veterans to reach out to any number of services for them to cope with the memories that the end of this war has stirred. I am not sure I ever saw such

offers before. Perhaps this is an indicator of our improving capabilities to treat the invisible scars of war. A classic book by Fred Iklé titled *Every War Must End* is always close to my mind in moments such as this. One of the many ideas Iklé offered was that “governments tend to lose sight of the ending of wars and the nation’s interests that lie beyond it.” While the cost is ultimately born by many, national leadership of wars between nations will always own the responsibility for the decisions to start, continue, and end war. Our hope is that they have the wisdom to know what to do.

At the global level, the ability of various nations to deal with the chaos in Afghanistan is being tested. By now, you and I can see a bit better what lies ahead as the literal smoke clears and Hamid

Karzai International Airport stops being the focus of the exit of U.S. and other personnel. In the moment, much pointing of precise or not-so-precise fingers at the person, persons, organization, nation, or group that “lost” that war is ubiquitous. But perspective is difficult to frame in such moments. Even if one is correct in his or her assessment of blame, what if anything should be done? As many of us often wonder, “If I were king . . .” What is the end of that sentence?

With the turning of a page in our experiences in Afghanistan and Iraq, our Forum helps us look forward to what we might expect in the global arena. The U.S. Army’s Futures Command Commanding General John Michael “Mike” Murray and Richard Hagner provide an update on Project Convergence, which is the Army’s effort to achieve “the full integration of effects across all domains to reach overmatch on the battlefield.” As a longtime proponent of the use of the term *effects* to best describe how the military and other elements of power are applied, I find their discussion edifying. (Maybe *battlespace* will come back in vogue, too.) We next welcome the return of T.X. Hammes, my colleague here at NDU, who surveys the always shifting balance of offense versus defense in military operations and in doing so points out several important vulnerabilities for the joint force to consider. The shift in policy focus toward Great Power competition began a few years ago and is now taking stride as Thomas Lynch, another of my teammates and editor of the recent NDU Press book on the subject, *Strategic Assessment 2020: Into a New Era of Great Power Competition*, outlines the patterns and principles to focus our attention looking ahead.

This year’s Secretary of Defense and Chairman of the Joint Chiefs of Staff Essay Competitions was completed virtually in May of this year with a record number of entrants at more than 110 submissions from across joint professional military education institutions. My thanks to Dr. Jeffrey Smotherman both for his leadership and for stewarding the 27 judges in this great effort. Once again, we had a tie in one of the categories, so

we are publishing four winning essays. Winning the Secretary of Defense Essay Competition, from the U.S. Army War College (second year in a row for Carlisle), Charles Carter describes how we should decode China’s deterrence moves. This year’s Chairman of the Joint Chiefs of Staff Essay Competition, Strategic Research Paper category, resulted in two winners from the Marine Corps University. Aaron Smith describes how the Marines could best defeat enemy armor formations with purpose-built teams. Douglas Verblauw next outlines how best to slow a Chinese maritime campaign. In the Chairman of the Joint Chiefs of Staff Essay Competition, Strategy Article category, Timothy Renahan, from the U.S. Army War College, helps us decide how to achieve energy independence at our home bases.

From one of our teammates at the National War College, our JPME Today article by Kelly Ward provides excellent insights on how to teach our rising senior leaders about cutting-edge and potentially disruptive technologies. In Features, Curtis Pinnix provides a proposed methodology to speed up targeting across all mediums, long a vexing problem at the beginning of campaign planning and while in execution. David Bickers discusses the radical reform that has taken place in the People’s Liberation Army over the past 5 years and points out vulnerabilities in this new PLA joint force. Mortuary affairs—often an afterthought in force deployment planning—is examined by Timothy Dwyer, who discusses the real lessons that will guide us in dealing with the dead on the battlefields in a future peer conflict.

We offer two excellent articles in Recall and an important Joint Doctrine article this issue. From the Joint Staff’s Joint History and Research Office, Christopher Holmes provides a concise and informative history of the Senior Enlisted Advisor to the Chairman of the Joint Chiefs of Staff. Adding to his already impressive catalog of writings in this journal and elsewhere, our teammate Frank Hoffman continues his efforts to help us understand how innovation and learning play out in wartime, especially

during Operation *Barney* in the Sea of Japan during World War II. In Joint Doctrine, looking back at the North Atlantic Treaty Organization’s (NATO’s) use of airpower in humanitarian interventions in Kosovo in 1999 and in Libya in 2011, Michael Clark, Erik Jorgensen, and Gordon Schriver recommend we take another look at what our doctrine has to offer. You will also find three important book reviews and the latest joint doctrine update.

Fred Iklé had one more appropriate thought on wars as his short book ended: “Those with power to start a war frequently come to discover that they lack the power to stop it.” He was writing at the height of the Cold War, when annihilation of humanity hung in the balance—at least, theoretically, if a nuclear exchange occurred between the Soviet Union and NATO. While our most recent wars did not involve such stakes, the cost to all involved is still being paid and will be long from now. Wars seem to linger in our collective memory and our involvement in Afghanistan will likely remain on the minds of those who lost, on all sides.

Let us know what questions and answers you might have about one of humanity’s most difficult issues—war. We are here to listen. JFQ

WILLIAM T. ELIASON
Editor in Chief

Extended range multipurpose unmanned aircraft system returns from functional testing during Project Convergence 20, at Yuma Proving Ground, Arizona, September 15, 2020 (U.S. Army/Jovian Siders)



Project Convergence

Achieving Overmatch by Solving Joint Problems

By John Michael Murray and Richard E. Hagner

As the United States confronts Great Power competition (GPC), incremental improvements to individual Service capabilities will not produce a military able to decisively win on the battlefield. Although important, the enhanced range, precision, and survivability of our weapons systems are just one part of achieving overmatch. When

General John Michael "Mike" Murray, USA, is Commander of Army Futures Command (AFC). Lieutenant Colonel Richard E. Hagner, USA, is assigned to the AFC Commander's Action Group.

employed effectively, advancements in artificial intelligence (AI) and machine learning, robotics, and autonomy improve our weapons systems' effectiveness by boosting the decision-making pace of our commanders and reducing the options for our adversaries. Success on the battlefield depends on whether we leverage these new technologies to create simultaneous dilemmas across multiple domains.

This article describes what Army Futures Command, in cooperation with the Air Force, Navy, Marine Corps, and coalition partners, is doing to advance

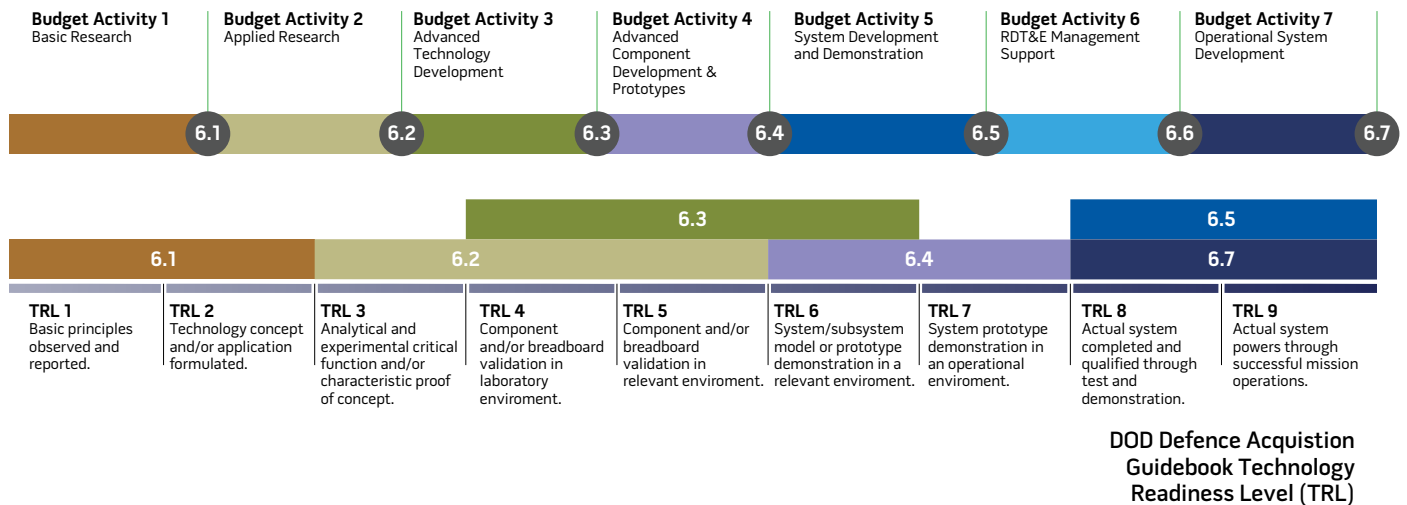
emerging technologies and ensure that we achieve *convergence*—that is, the full integration of effects across all domains to reach overmatch on the battlefield. Project Convergence is the Army's contribution to the *Combined Joint All-Domain Command and Control* (CJADC2) concept and will help inform the joint warfighting concept.

GPC and the Need for Overmatch

National security experts agree that gaps in military capability are closing. Better China-Russia relations and

Figure 1. Technology Readiness Stages

DOD Financial Management
Regulation Volume 2B, Chapter 5,
RDT&E Appropriations



accelerated innovations in defense are “eroding U.S. military advantage.”¹ Russia and China are quickly closing in on American military superiority. A Department of Defense report to Congress in 2020 describes China’s goal “to become a ‘world-class’ military by the end of 2049” and outlines the steps the People’s Liberation Army has taken to achieve that objective, including investments in emerging AI and cloud computing technologies.² This investment in emerging technologies could result in an asymmetric advantage—an ability to achieve an advantage in one domain through sheer speed of data processing.

The National Defense Strategy (NDS) and National Military Strategy (NMS) address the reemergence of GPC. The NDS points to “military modernization” by China and “use of emerging technologies” by Russia to achieve their respective regional goals.³ A summary of the NMS states that “the reemergence of Great Power competition with China and Russia represent[s] the most difficult challenges facing the Joint Force.”⁴ The NDS and NMS acknowledge and address what policy experts have stated: the military gap between the United States and its near-peers is closing. The result is a complex and dynamic environment the

likes of which the U.S. military has not faced since the end of World War II.

The challenge of GPC will likely persist for decades as countries develop and employ new systems and technologies, driving competition for information and military superiority. The goal of the United States is to deter through competition but, if needed, win in conflict. Overmatch is the key. Chairman of the Joint Chiefs of Staff General Mark Milley has called for a new modernization approach to deliver “capabilities that are 10 times more lethal than those they replace.”⁵ But achieving the 10 times overmatch in individual systems is cost-prohibitive and inefficient. Experts in defense modernization efforts and processes have rightly criticized the lack of integration of these systems—the lack of convergence to accelerate the kill chain.⁶

Army Futures Command leads persistent Army modernization and was created to “regain overmatch in MDO [multidomain operations]” and “provide the ‘10x’ capability with increased range, lethality, reliability and survivability.”⁷ To enable true overmatch, we must expand that concept of the kill chain and develop “sensor-to-shooter webs” via a new model that shifts away from postdelivery interdependence to prerequisite

integration.⁸ We will accomplish this overmatch, with our partners, through Project Convergence.

A Campaign of Learning

Project Convergence is a campaign of learning designed to inform how we fight, how we organize, what we fight with, and even who we are. It incorporates the Army’s modernization efforts and culminates in an annual capstone event. The approach monitors the progress of emerging technologies and science and technology investments, which allows us to assess those relatively immature technologies ripe for development and include them into the capstone event. It also shows us the technical challenges or problems we need to address to maximize the collective capability of our signature systems. In this sense, the 10 times overmatch requires only 4 times modernization for the signature programs—the remainder is accomplished through integration of emerging technologies and results in a capability greater than the sum of its parts. This assessment informs the technologies and objectives included in the capstone event. The first event, Project Convergence 20, was held at Yuma Proving Ground in August and September 2020.

Table. Project Convergence Strategy

	Aug–Sep 2020 Enhancing the Close Fight		Oct–Nov 2021 Driving Joint Integration		Aug–Sep 2022 Leveraging Joint and Allied Partners
Operational Theme	<ul style="list-style-type: none"> • MDO • Penetrate • Disintegrate • Exploit 		<ul style="list-style-type: none"> • CJADC2 • JWC • MDTF O&O Concept 		<ul style="list-style-type: none"> • CJADC2 • JWC • MDTF Roles & Responsibilities • Intelligence/Fires/Cyber: EW/IO Space Functional Concepts
Exercise	Defender Europe/ JWA 20	Project Convergence 20	Pacific Sentry/JWA 21	Project Convergence/ PNTAX 21	Defender 22 (Project Convergence + JWA)
Concepts Focus	<ul style="list-style-type: none"> • AI-enabled decision agents for overhead sensing to enable long-range fires • AI-enabled target recognition • Complex teaming and autonomous operations • Aerial retransmission to extend tactical mesh networks 		<ul style="list-style-type: none"> • Continued integration of “31 + 4” • Linkage to U.S. Air Force ABMS • Integrate fifth-generation fighters (as sensor and shooter) • Operations in contested/denied environments • Cloud technologies at the edge (validate) 		<ul style="list-style-type: none"> • Capture, assess, and disseminate targeting data across joint/multinational force • Exploit LEO capabilities at the lowest echelon • Directed energy • Cloud technologies at the edge (scale)
Formation Focus	<ul style="list-style-type: none"> • BCT • Combat Aviation Brigade • Expeditionary Signal Battalion–Enhanced 		<ul style="list-style-type: none"> • Division Headquarters • MDTF • BCT 		<ul style="list-style-type: none"> • CJTF (Corps/Division) • MDTF • BCT • Mission Partner Command Element
AFC Outputs	<ul style="list-style-type: none"> • Inform AimPoint 2035 development • Validate Army data strategy • Prioritize S&T investments • Generate/refine requirements 		<ul style="list-style-type: none"> • Inform JWC • Shared situational understanding • Inform joint architecture • Common data model • Capabilities and authorities at the edge • Generate/refine requirements 		<ul style="list-style-type: none"> • Inform JWC development • Inform force disposition; MDTF O&O • Integration with joint architectures • Evolve sensor-to-shooter operational processes to emerging technologies • Generate/refine requirements

Key: ABMS: antiballistic missile system; AI: artificial intelligence; BCT: Brigade Combat Team; CJADC2: Combined Joint All-Domain Command and Control; CJTF: combined joint task force; EW: electronic warfare; IO: information operations; JWA: Joint Warfighting Assessment; JWC: Joint Warfighting Concept; LEO: low-Earth orbit; MDO: multidomain operations; MDTF: multidomain task force; O&O: Operational and Organizational Concept; PNTAX: Positioning, Navigation, and Timing Assessment Exercise; S&T: science and technology.

Project Convergence 20 was designed as a proof of concept for a new way of advancing technologies. The value of Project Convergence 20, and the catalyst for its success, was the ability to bring together Soldiers and scientists from our various laboratories, program executive offices, and cross-functional teams. For 5 weeks, these teams worked together to solve interoperability problems and advance science and technology efforts, operating outside of the traditional stovepiped model. This collaboration included nightly revisions of code—an effort that would have taken months of back and forth between the engineers and scientists working on systems in our labs. The process of identifying integration barriers and immediately addressing them also highlighted the need for an open architecture design, an observation well documented by those with experience in the defense industrial complex and those in Congress.⁹

The result of this focused collaboration was the acceleration of certain programs along the technology readiness level (TRL) stages depicted in the figure. The most striking case may be that of a new capability, a government-owned target-deconfliction platform enabled by AI. This emerging capability not only deconflicts airspace but also recommends the best shooter for a given target by using AI and machine learning to assess the target and friendly capabilities and to determine the priority of the target. This example is significant for three reasons. First, from a technology-development perspective, it was able to advance from TRL 3 to TRL 6 because of the experimental conditions established at Yuma. Second, the AI aspect of this system reduced the time from sensor to shooter from minutes to seconds. Whereas a traditional call for a fire mission takes anywhere from 10 to 20 minutes, this AI-enabled capability accomplished it

in less than 30 seconds in Yuma. Such a reduction in time will have a significant operational impact.

Finally, and perhaps most important, the process of integrating sensors and shooters with emerging technologies allowed us to reassess objectives. By demonstrating our ability to connect sensors to shooters in a way that dramatically reduced the time from target identification to engagement, we were able to reevaluate what the joint kill web requires to be effective. We went into Project Convergence 20 with the objective of connecting “any sensor, any shooter, and any C2 node.” Through the weeks of resolving technical issues and contemplating the implications of what we had accomplished, we adjusted that objective to “all sensors, the best shooter, and the right C2 node.” Although we want to utilize all sensors available, convergence requires that we identify the best shooter and right C2 node at the speed of relevance.

We approach this AI-enabled objective attentive to the concerns policy experts have expressed about ensuring there is always a person making the decision—this is Army policy.¹⁰ Though the discussion of human-in-the-loop and human-on-the-loop is important for determining how we employ AI, robotics, and autonomy, we first need to prove that we can develop the loop. Future war will occur at machine speed. Militaries able to engage at that speed will have a decisive advantage. Project Convergence allows us to test our ability to employ these technologies across the joint force.

AI is just one emerging military technology the Army and its adversaries are pursuing. Policy experts advising Congress have identified autonomous weapons, hypersonics, directed energy, biotechnology, and quantum technology as areas of both opportunity and concern.¹¹ Project Convergence is a venue to test and conduct analysis on these technologies. Project Convergence 20 set the foundation for Army modernization efforts moving forward. Convergence, however, is not just about Army systems; a common concern among policymakers is how we integrate with joint and coalition partners.¹² We began to address this concern at Yuma, when the Marine Corps provided an opportunity to include an F-35B. Initially, the F-35B could not communicate with ground troops. By the end of the exercise, the F-35B integrated into the kill web as a sensor for ground shooters and a shooter for ground observers. This example presents just one type of problem that we want to work with the joint force to solve.

Informing Joint Concepts by Solving Joint Problems

The Army Modernization Strategy offers guidance on such matters as what we fight with, how we fight, and who we are.¹³ Project Convergence puts that guidance into action by establishing a systematic sequence of events designed to integrate the systems we fight with, inform how we fight, and develop the force required to win in the age of GPC. The table shows Army Futures Command's approach to executing the

Army Modernization Strategy through Project Convergence. Building on Project Convergence 20, next year's capstone event will focus on joint integration by using joint mission threads to test and evaluate emerging technologies. In 2022, the capstone event will include British and Australian technologies that we and coalition partners will begin to integrate.

Winning matters—but winning together matters more. As we turn to Project Convergence 21, we will focus specifically on the joint force. Project Convergence 21 will build on Convergence 20 in two substantial ways. First, it is set as a U.S. Indo-Pacific Command scenario and will incorporate the multidomain task force (MDTF), a division headquarters, and a brigade combat team. This scenario will better inform the joint warfighting concept as well as MDTF functions and requirements. The inclusion of the Air Force's Advanced Battle Management System and fifth-generation fighters provides opportunities to identify and resolve barriers to effective sensor-shooter connectivity at the joint level. This cooperation is the result of recent Army–Air Force talks and a signed memorandum of understanding between General Charles Brown, chief of staff of the Air Force, and General James McConville, chief of staff of the Army, and the need for both Services to inform the Joint Staff–led JADC2 effort.

There is also increased understanding that “JADC2 cannot be a single approach to achieving convergence but must be a composite of several solutions tailored to the several different environments comprising the expanded battlefield.”¹⁴ Therefore, Project Convergence is the Army's contribution to JADC2, providing a tailored solution for the land domain and a way to test integration into the “expanded battlefield.” This effort is similar to the Air Force approach for Advanced Battle Management System. Initially developed as an on-ramp model, the Air Force effort is now structured as “Architecture Evaluation Events” complementing Project Convergence. The Navy's integration endeavors, Project Overmatch and the Naval Introductory Flight

Evaluation program, take comparable approaches to informing JADC2 requirements. These Service-driven efforts, however, are not mutually exclusive. For example, to address the challenge of linking sensors and shooters across domains, Project Convergence 21 will include the Air Force's F-35 and Navy's Aegis systems. In addition to contributing to JADC2, this interservice cooperation in Project Convergence allows us to identify and address the technical hurdles spotted in the multidomain battle concept of General David Perkins, USA, and General James Holmes, USAF.¹⁵

Project Convergence 22 will build on the momentum gained in 2021, continuing to contribute to JADC2 and informing the joint warfighting concept. Coalition participation in Project Convergence 22 will further develop these concepts and expand the battlefield—and introduce the *Combined* JADC2 concept. Our position going in is that we will always fight with a coalition, and thus interoperability must be fundamental to our C2 systems. Given the significant data-sharing challenges among coalition units, we are already working with our British and Australian counterparts to identify the technical and policy barriers that must be addressed prior to and during the 2022 capstone event.

Learning from the Past

Project Convergence is an ambitious endeavor. Observers have already cautioned that including too many systems too quickly could derail the new modernization effort and lead the Army astray from its goals.¹⁶ These concerns are valid and should be kept in mind as we move forward. Fortunately, we have several historical examples to inform our approach. Some of these examples—for instance, Future Combat Systems (FCS) and Network Integration Evaluations (NIE)—illustrate how modernization efforts can become too ambitious, be ahead of emerging technology, and not meet the needs of Soldiers and commanders. Less often discussed are the success stories, such as the Louisiana and Tennessee maneuvers prior to World War II and more recent 9th



Luke Travisano, engineer with Robotic Research LLC, conducts test run of autonomous system Pegasus during Project Convergence 20 capstone event at Yuma Proving Ground, Arizona, August 24, 2020 (U.S. Army/Carlos Cuebas Fantauzzi)

Infantry Division (ID) and 4th ID modernization efforts prior to 9/11. The success and failures of these efforts not only have informed our approach but also provide a way ahead for joint force modernization.

It is natural to form opinions of a new initiative or approach by looking to past efforts meant to accomplish the same goals. When discussing Project Convergence, observers typically mention two predecessors: FCS and NIE. While both FCS and NIE ultimately failed to achieve their objectives of a modernized and network-centric force, both have critical lessons to teach us. Perhaps the most important takeaway deals with the requirements process. In the case of FCS, requirements were defined with the anticipation that promising technologies would mature along a predictable timeline. As the RAND autopsy of FCS found:

The Army's combat developers set out to design an entire brigade of networked systems

*and subsystems from the ground up, taking advantage of advanced technologies that were largely underdeveloped, untested, and unknown, but were assumed eventually to be capable of achieving revolutionary levels of interoperability and tactical coordination.*¹⁷

A key component of Project Convergence is to test emerging technologies *before* they become a requirement in a program of record. The experimentation conducted at Project Convergence then determines which promising technologies are “capable of achieving revolutionary levels of interoperability and tactical coordination”¹⁸ and which need more time to develop.

The Army’s NIE design likewise relied on preset requirements. At NIE, new systems were put in the hands of operational units to test interoperability and usability; unlike those at FCS, the technologies enabling these systems were already mature. The flaw resulted

from the requirements of each individual system being established prior to testing its interoperability or putting it in the hands of Soldiers. The result was multiple high-profile programs being identified as unable to either integrate into a system of systems or meet the needs of the Soldiers and commanders employing them.

Project Convergence tests interoperability and leverages the Army’s Soldier-centered design to inform the requirements process. This approach ensures delivery of a desirable capability able to seamlessly integrate with other systems.

Incorporating this two-pronged approach, assessing emerging technology and getting it in the hands of Soldiers and commanders, is critical to the success of Army and joint force modernization. As the RAND report on FCS astutely pointed out, “Any acquisition program faces the dual risks that the future capabilities envisioned today may not meet the actual operational needs of tomorrow and that technological progress simply may

not occur as quickly as anticipated.”¹⁹ Project Convergence addresses both threats by using real-world vignettes to inform future operational requirements and evaluating emerging technology to determine what is viable.

There are, of course, examples of successful military modernization efforts that properly considered the emerging technologies and forecasted operating environment. In the leadup to World War II, General George Marshall and General George Patton led the Louisiana and Tennessee maneuvers, respectively. At the time, the emerging technologies were aircraft, tanks, and radios, and the operating environment was Europe. These exercises not only tested the new capabilities but also identified scenarios that replicated the operational needs for war in Europe, to change how the Army fought. Today, the emerging technology is AI, robotics, and autonomy, and the future operating environment will be asymmetric, highly lethal, and hyperactive across all domains.

More recent examples of the 9th ID and 4th ID modernization reinforce the benefit of including Soldiers and command nodes in modernization efforts. Such inclusion informs how we fight and the force structure required to effectively use new systems. Incorporating headquarters at echelon (MDTF, Data and Information Viewpoint, and brigade) and Soldiers into the Project Convergence design allows us to do more than experiment with emerging technology; we can test how we employ that technology effectively through force structure, concepts, and doctrine across the joint force. At its core, Project Convergence is a process of “discovery experimentation”—that is, “a deliberately crafted and planned approach for addressing an issue long before it becomes a pressing problem” and one that “allows operators to interact with new or potential concepts and capabilities to explore their military utility.”²⁰ This tactic, built on lessons from past modernization efforts, provides a framework to identify joint warfighting problems; evaluate potential technological solutions; contribute to joint interoperability, via CJADC2; and inform the joint warfighting concept. Project

Convergence allows us to create our own “Yuma Maneuvers” to apply the pre–World War II objectives of the Louisiana maneuvers to today’s joint force.

Great Power competition requires overmatch—and thus a transformation of the joint force to ensure it. General McConville has stated, “In the face of determined adversaries and accelerating technological advances, we must transform today to meet tomorrow’s challenges.”²¹ Tomorrow’s challenges are rapidly approaching, and through Project Convergence, Army Futures Command is spearheading the required changes. By leveraging joint mission threads to test and evaluate emerging technology, Project Convergence establishes a process to identify and solve joint problems. This approach to persistent modernization ensures that all efforts build toward eventual and recurring demonstration of joint force capabilities and that we remain grounded in the operational problems we are trying to solve. Collaboration widens our view and expands the collective appreciation of the challenges ahead, specifically those that our respective Services cannot solve alone. Resolving these technical challenges together, and applying new technology to known mission sets, allows us to establish a common architecture (CJADC2) and approach the new joint warfighting concept with an understanding of how we fight, how we organize, and what we fight with. JFQ

Notes

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²⁰ Kevin M. Woods and Thomas C. Greenwood, “Multidomain Battle: Time for a Campaign of Joint Experimentation,” *Joint Force Quarterly* 88 (1st Quarter 2018), 14–21.

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AH-1Z Viper helicopter attached to Marine Medium Tiltrotor Squadron (VMM) 163 (Reinforced), 11th Marine Expeditionary Unit, takes off during strait transit aboard USS *Boxer*, Strait of Hormuz, August 12, 2019 (U.S. Marine Corps/Dalton S. Swanbeck)



The Tactical Defense Becomes Dominant Again

By T.X. Hammes

It has become widely accepted that the convergence of technological advances is leading to a revolution in military affairs or perhaps even a military revolution.¹ One of the unanswered questions concerning this shift is whether it will lead to continued dominance by the offense or a period of defensive dominance. Offense dominance means that battle requires

much greater resources to defend than attack. Defense dominance reverses that balance. Investing in the wrong side of the competition is a rich nation's game that the United States may no longer be able to afford. Against peer competition at scale, misguided investment could lead to strategic defeat. In fact, the answer to this question should guide force development and posture and

therefore must be a part of the national security discussion.

To examine this question, this article provides a couple of historical examples of the shift between offense and defense dominance at the tactical level. It then examines how the offense-defense balance is shifting in each of six warfighting (land, sea, air, space, cyber, and electromagnetic) domains. Next, it examines how interactions between the domains could further reinforce the defense and finally what the shift to defense dominance means for the Nation.

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The Shifting Balance in History

History records a constantly shifting balance between offense and defense, driven by a combination of social, economic, and political changes. Despite Americans' love for technology, it alone cannot drive major shifts. For instance, defense was dominant during much of the medieval period because of the cost and difficulty of reducing a castle. This was based not only on the technology of building a castle but also the political, social, and economic structures necessary to do so. Offense was not restored until a wide range of social, political, technological, and military changes necessary for the development of military establishments capable of rapidly reducing the castles occurred. While cannons provided a key technology, the society first had to develop the political, social, and economic systems to produce and sustain them.

A much later major shift of advantage to the defense was driven by the development of rifled muskets and the cannon, the mass production of these weapons, the tactical adaptation of field fortifications, mobilization of mass manpower, economies that could pay for them, and governments that could marshal those resources. The combination of these factors led to defense dominating the tactical battlefield from the late U.S. Civil War until near the end of World War I. Governments could field and arm forces that combined the tactics and technology, which meant any unit moving above ground could be quickly observed and taken under fire. The opposing armies were forced to go to ground in massive trench systems that could be held even against numerically superior attacking forces. Failure of military leaders to recognize these changes—despite the lessons of Crimea, the Boer War, and the Russo-Japanese war—led to repeated, bloody, futile attempts to cross World War I's "no-man's-lands."

It was not until the Germans applied new concepts and tactics to technology emerging from the second industrial revolution—first lightweight machine guns and mortars, then armor and aircraft—that movement was restored to

the battlefield. The transition was not completed before the end of World War I. During the interwar period, political, social, and economic systems had to evolve in parallel to produce the skilled engineers and operators, the financial backbone, and the will to conduct the global mechanized warfare of World War II. Since then, the offense has generally dominated tactically in conventional conflicts.

Today, convergence of 21st-century technologies is dramatically changing the battlefield environment. Commercial satellite networks tied to artificial intelligence (AI) processing tools mean that we are approaching a period of constant surveillance of the planet with visual, infrared, and electromagnetic sensors, as well as synthetic aperture radar. At the same time, nations are developing AI-assisted command and control systems that will allow them to absorb, understand, and act promptly on the resulting intelligence. This will enable them to coordinate attacks across all domains, including long-range precision attacks and swarms of autonomous hunters, informed by many sources and sensors, that will seek out their prey.

These co-evolving concepts, tactics, and commercial and military technologies are once again creating a battlespace in which movement becomes extremely dangerous. If a unit moves, it will create a signal and can be attacked at much greater ranges than in the past. At the same time, cyber, space, and electromagnetic domains will provide both reinforcement for and increasingly powerful alternatives to kinetic attacks.

Whether this convergence leads to offense or defense dominance is a complex question. In fact, the sheer complexity of interaction among the six domains requires that we consider the impact on each domain before we try to understand the overall impact on the character of war. (I have assigned electromagnetic spectrum as a domain. Although it is not yet considered one in U.S. doctrine, both China and Russia are dedicating great resources to dominating this domain.) This article focuses on major power conflict. Conflicts between states and nonstate actors play out in fundamentally different ways than state conflicts, and this article

does not attempt to address the impact of the interrelated societal and technological changes on those conflicts.

It is essential to understand the difference between offense domination and a temporary advantage gained by offensive action. Offense domination provides the aggressor a major advantage that can be pursued throughout the conflict. Thus, it is inherently escalatory because the side that attacks first is perceived to have a war-winning advantage. Attacking first has historically provided the advantage of selecting the time and place of the battle. But it has also often provided only a temporary advantage because the attack did not prove sustainable for several reasons. These can best be expressed by the attack reaching its culminating point before it attained its strategic goals. This has been particularly true when concepts, tactics, and technology combined to increase the inherent advantages of the defense.

It is essential to note that temporary advantage in one domain may also allow a much more powerful attack from another domain. An obvious example is a temporary advantage in the electromagnetic domain that neutralizes air defense, thus allowing a much more destructive attack from the air domain into other domains. It is also essential that leaders understand the balance between offense and defense. Failure to do so has often led leaders to start a war they are confident will be short, only to be bogged down in a long, brutal conflict. As noted by Cathal Nolan in *The Allure of Battle*, the confidence is too often an illusion based on false assumptions. The U.S. Civil War and World War I are examples of this hazard.

Land

The impact of the fourth industrial revolution on this oldest domain of war has already been dramatic. As noted, the balance between offense and defense in land combat has shifted through the ages. Since the last year of World War I, the offense has dominated conventional ground combat. (Irregular warfare has followed its own pattern.) However, emerging technologies are shifting the balance in conventional warfare back to the defense.

Since new systems allow units to remain passive and yet see the battlefield clearly, the defense will have a distinct advantage. Electro-optical and electronic warfare sensors can provide a great deal of information that, combined with external sensors such as satellites and drones, can allow the defenders to visualize the battlefield without revealing their own positions. The defenders will not have to emit signals until they choose to fire. And they will have the advantage of fighting from prepared positions. While most current systems must be manned to operate, autonomous and remote-control systems are being developed worldwide. As these systems mature, defenders can be located at a distance from their weapons and thus not be at risk even after firing. Recent events have shown ground forces will be subject to attack by the emerging families of swarming drones.² Inexpensive autonomous drones are flying now and can be mass produced using advanced manufacturing techniques. It is not unreasonable to expect a defender to be able to launch hundreds or even thousands of loitering munitions against each brigade-size attack.

In contrast, attackers will have to move if they intend to execute anything but strike missions against the defender. The very act of moving will create a signature. While attackers will retain the traditional advantage of selecting the time and place of attack, the advantage of physically massing either offensive or defensive forces is declining as weapons ranges increase dramatically. Mass can be achieved by assembling long-range fires rather than massing forces. This favors the defender since attackers may well be forced to pass through restrictive chokepoints, while defenders can disperse to the maximum effective range of their weapons. However, as the Azerbaijanis demonstrated against the Armenians, the offense can remain dominant if the attacker adopts modern concepts and weapons while the defender relies on 20th-century weapons and concepts.

Sea

Today, land-based antiship systems are dominating the surface of the sea out to ever increasing ranges. These

land- and air-launched ballistic and cruise missile systems, vertical takeoff and landing drones, and attack aircraft cued by ubiquitous surveillance systems have the enormous advantage of hiding in the cluttered land environment. Their surface ship targets must operate in much more open environments. Land-based systems also have the advantage of both range and magazine depth. And if emerging laser and microwave systems prove effective, land-based forces will have an enormous advantage in power generation capacity. The adage, attributed to Admiral Horatio Nelson, “A ship’s a fool to fight a fort,” remains true—but now extends to ever greater ranges from shore.

Geography as well as oceanography can enhance the power of land-based systems. The sea has chokepoints that have been major factors in conflicts between major powers since the Peloponnesian War. Even today, control of straits such as Hormuz or Malacca can allow a power to determine what resources flow to an opponent. In these confined waters, land-based defenses can gain an even greater advantage by employing many less expensive, shorter range antiship systems and smart sea mines (essentially tethered torpedoes).

Extended range land- and air-launched cruise missiles mean many naval fights will include land-based participants. As Captain Wayne Hughes, USN, demonstrated in his work, the first fleet to conduct successful pulse attacks against an opposing fleet gains a major advantage. Land-based systems can provide more missiles at less cost for each pulse attack.³ However, as fights move further from shore, the number of land-based systems that can range the fight decreases. At some point, the tactical advantage will shift back to the offense.

The subsurface fight will continue to favor offense in the deep ocean but the defense in the vicinity of chokepoints. Emerging technologies are making shallow water more transparent than ever. And fixed-sensor arrays can cover key passages between open seas. Rapid advances in autonomous submarine drones will thicken the sensor nets in restricted

waters as well as enable swarms of weapons to be launched against infiltrating submarines. In short, emerging technologies are making waters both more transparent and more congested.

Mining of enemy ports may well be the most effective and viable offensive naval action simply because autonomous drones with small signatures will be able to penetrate enemy defenses to lay mines. Smart mines can be programmed to attack specific classes of ships, thus giving the miner an ability to select targets for best effect without having to maintain forces in the vicinity of the port.

Air

With missile weapons outranging most manned aircraft, winning in the air will really be about the ability to sustain the fight logistically. The current generation of manned aircraft needs major operating facilities. Even the F-35B requires significant, easily identified, and targetable maintenance facilities. Nor is the threat limited to in-theater airbases. The advent of containerized long-range cruise missiles and drones deployed on a wide variety of shipping means that bases almost anywhere in the world can be struck. Thus, a key question is whether the joint force can defend its base facilities against swarms of missiles and drones. The United States is betting heavily on directed energy—lasers and microwave (electromagnetic pulse [EMP])—weapons to defeat swarm attacks. While these systems still face numerous challenges, they have promise.

While directed energy weapons could protect air bases from drones and missiles, they also can certainly engage manned aircraft. When they are deployed, these weapons will provide significant advantage to the defense for two reasons. First, they require large power systems to operate. Attackers must bring those power systems with them and thus the power available is limited by the ability to lift it by land, sea, or air. In contrast, the defenders can either tap directly into the national power grid for virtually unlimited power or use as many generators as they need. Second, the defender has



Senior Airman with 55th Aircraft Maintenance Squadron disconnects external power cord from extensively modified RC-135V/W Rivet Joint, with onboard sensor suite allowing mission crew to detect, identify, and geolocate signals throughout electromagnetic spectrum, August 5, 2018, at Offutt Air Force Base, Nebraska (U.S. Air Force/Drew Nystrom)

the enormous advantage of blending into the cluttered ground environment. The actual systems are relatively small and can thus be camouflaged as air conditioning units on tops of buildings or small sheds in the countryside. Again, the attacker must move toward the defended area and thus will generate signals, while the defenders need not generate a signal until they choose to engage. As directed energy weapons become operational, they will increase the advantage the defense holds over the offense in the air domain.

Space

Conventional wisdom has stated for years that war in space will be offense dominated because antisatellite systems are cheaper than satellites. An attacker could quickly destroy an enemy's key satellites, and it would take months, if not years, to replace these large, very expensive assets. Given the heavy

dependence of U.S. forces on space services, this is a truly alarming situation.

However, rapid developments in space launch and satellite miniaturization are changing that situation. The exponential increase in the number of satellites in orbit, the disaggregation of functions into many platforms, and the increasing ability to rapidly replace satellites in orbit mean that defense may now have the advantage. Disaggregating functions such as gathering intelligence and providing communications links mean that the attacker must engage many more targets to degrade space systems. In addition, vastly improved space awareness, the difficulty of acquiring these small targets, and their ability to maneuver to prevent interception increase the advantages accruing to the defense.

Part of successful defense will be restoring space functions damaged by an attack. In addition to the U.S. Space

Force's Space Rapid Capabilities Office, private firms are developing high-altitude drones as potential replacements.⁴

However, a major vulnerability remains the PNT (positioning-navigating-timing) information provided by the GPS constellation. Timing has become central to the functioning of a wide range of critical civilian systems—banking, communications, retail sales, and uncounted other applications all rely on precision timing. Systematic attacks on the GPS network will cause massive disruption of the U.S. economy as well as society in general. The key question is whether these critical functions can be quickly replaced by other systems in the event of an attack. Fortunately, both civilian and governmental organizations are developing alternatives to the GPS functions. However, until the United States can quickly replace this critical function, offensive action can provide a window of



Soldiers with 1st Battalion, 1st Air Defense Artillery Regiment, rehearse battle drills with Patriot long-range, all-altitude, all-weather air defense system to enhance crew-drill proficiency during bilateral exercise Keen Sword/Orient Shield 21, at Misawa Air Base, October 28, 2020 (U.S. Army/Raquel Birk)

opportunity to an attacker. Yet, as noted, the benefits of such an attack are likely to be fleeting and will almost certainly trigger a reply in kind. In short, space will become an arena of ongoing conflict with the advantage to the defense.

Cyber

In 2019, then-Secretary of Defense Mark Esper noted that winning in cyberspace requires offense. This continued the theme established in 2012 when then-Secretary Leon Panetta warned of a “cyber Pearl Harbor.”⁵ Yet there is a growing pushback against the idea that cyber is inherently offense dominated.

In their 2018 book, Brandon Valeriano, Benjamin Jensen, and Ryan Maness noted that cyber-offensive operations consist of espionage, disruption (temporarily reducing the capacity of an opponent’s system), and degradation (damaging of elements of the system).⁶ But in contrast to the two secretaries,

these authors do not see offense as dominant. Other scholars, including former cyber operators, agree with them. They see offense dominance as being overstated. The cost of “breaking into a particular network may be cheap after the tools and infrastructure are in place,” but “building and maintaining the infrastructure for a program of sustained operations requires targeting, research, hardware engineering, software development, and training. This is not cheap.”⁷

In short, we have well-informed experts with contradictory views on the value of cyber as an offensive weapon. This is consistent with the historical pattern of new technologies. Advocates did not really know the impact of emerging technologies until they were employed in open conflict. Thus, despite advocating defending persistently forward (which is essentially offensive), the U.S. Cyber Command Vision states, “Cyberspace is an active and contested operational space in which superiority is always at risk.”⁸

So how should we evaluate cyber as a weapon? Clearly, cyber espionage/theft works. It has allowed China, Iran, North Korea, Russia, and numerous criminal organizations to steal personal information, intellectual property, and money on a scale not seen before.

Cyber disruption also has a record of limited success as indicated by repeated attacks from the Love Bug virus to NotPetya malware. A significant number of these attacks have disrupted the targeted systems for a period ranging from hours to weeks. NotPetya also caused significant damage to numerous organizations that were not the target of its attack but were simply collateral damage. These incidents indicate that cyber disruption attacks can assist an offense but are inherently difficult to coordinate with real-time attacks—and to date have not reliably produced the desired effects.

Destructive attacks have also had limited success, the most famous being the Stuxnet attack on the Iranian centrifuges

attributed to the United States and Israel. This attack reportedly damaged about 20 percent of the centrifuges, yet the International Atomic Energy Agency reported that Iranian production increased during the period—perhaps in response to the attack.⁹ Increasing the uncertainty about the offense-defense balance in cyber, there have been other operations, such as SolarWinds/Holiday Bear, that have achieved widespread penetration of computer networks but whose objective remains unclear.¹⁰

There are two other major options, however, that have not been used to date in cyber attacks that require much deeper study—kinetic weapons and EMP. Kinetic attacks can damage the well-mapped networks of fiber optic cables, switches, downlink stations, and processing centers essential to an information network. The increasing availability of long-range, autonomous, precision weapons means cross-domain attacks from land, sea, and air platforms will be an integral part of counter-cyber operations. The potential to hit hundreds of key nodes either in theater or even in the United States is growing.

The fact that the Internet was initially designed to work even when under major attack will mitigate the impact of kinetic attacks, but the attacks will still cause significant disruptions. Fortunately, the Internet is a complex adaptive system and thus will show remarkable resilience when under attack. EMP attacks will be dealt with in the following section on electromagnetic domain.

Electromagnetic Spectrum

In January 2021, General John Hyten, Vice Chairman of the Joint Chiefs of Staff, stated, “We have to be able to effectively fight and win the electromagnetic spectrum fight right from the beginning—that is, electronic warfare in every domain.”¹¹ Given the increasing reliance on communications networks, highlighted by the Pentagon’s efforts to create the Joint All-Domain Command and Control system, the ability to use the electromagnetic spectrum or deny an opponent its use will be critical to success. Although it has not been offi-

cially designated a domain by the Pentagon, the electromagnetic spectrum requires the same level of thought and effort as the five named domains.

Once again, land-based defenders may well have an advantage in this domain; they can use fiber optic communications systems to avoid the electromagnetic domain. In addition, they have access to the national power grid to provide effectively unlimited power for jammers.

A potential gamechanger in the electromagnetic spectrum is an EMP weapon. These weapons represent a major threat from the tactical to the strategic levels. At the tactical level, the United States has demonstrated a drone that can create an EMP directed at specific targets. Since it is delivered by a drone, this type of attack is really a cross-domain attack but, like kinetic attacks, must be considered as part of any cyber offense-defense balance.

A defending unit can do more to harden its electronics against this kind of attack than an attacker can. However, EMP weapons can overturn the defender’s advantage if the defender has not exploited the inherent advantage of the defense. We know these attacks can cause major damage to unprotected electronics, and even the most basic systems today have embedded electronics. The attacker has one major advantage: he can attempt to employ his EMP weapon before any of his own systems are within range of the pulse. Yet if they cannot prevent a response in kind, the attacker loses the advantage when a retaliatory strike hits his forces.

For both offense and defense, building resilient, redundant systems can reduce the damage done by tactical EMP weapons but will be costly and require massive retrofits for existing weapons. Of course, the miniaturization necessary for offensive systems will make them significantly more expensive.

At the strategic level, a nuclear-generated high-altitude EMP could seriously damage the national infrastructure for a period of months. The fact that this type of attack currently requires a nuclear device to be detonated over the target area means that it must be discussed as part

of nuclear deterrence/warfare. At the same time, the cost of protecting civilian systems from large-scale EMP weapons will be extraordinarily high. Large-scale EMP weapons are truly weapons of mass destruction and thus should be treated as part of a nuclear deterrence program. Since all major powers can deploy large-scale EMP weapons, perhaps the best that can be hoped for is the stability inherent in mutually assured destruction.

A Caution

As always, perception is reality. Unfortunately, the perception that cyber and space are offense dominated is inherently escalatory. If political leaders believe they can achieve decisive dominance in these domains only by attacking first, crisis management becomes much more difficult. Therefore, it is critical to counter the idea that going first in cyber, space, or the electromagnetic spectrum provides unrecoverable advantages. This is not only necessary to prevent aggression but also to prevent escalation on the friendly side.

Interaction Between Domains

Understanding the relative strengths of the offense and defense in the various domains is essential to the joint warfighter. For instance, while degradation or destruction has proved to be a difficult challenge within the cyber domain, the use of precision weapons delivered from land, sea, air, or space can have a devastating effect on the cyber capabilities of an opponent. Unclassified sources provide maps of critical nodes and links (downlinks, fiber optics, and terrestrial switches) of many commercial networks that could allow massive attacks across the networks.¹²

The increasing range and number of autonomous precision-attack systems are steadily improving the ability of the land, sea, and air domains to conduct effective cross-domain attacks. Ground-based forces have the advantages of operating in complex terrain (whether rural or urban) and access to deep magazines and national power grids. The increasing ranges of ground force weapons will allow defenses to reach out much farther to target



Airman prepares spacer on intercontinental ballistic missile during Simulated Electronic Launch—Minuteman test, September 22, 2020, at launch facility near Great Falls, Montana (U.S. Air Force/Tristan Day)

land, sea, and air forces as well as critical infrastructure for space and cyber forces.

All-domain offensive operations are incredibly complex, not least because each domain operates on different execution timelines. Major land and naval operations take from weeks to years to execute. It can take weeks to position the forces for air operations, but they can be executed in hours with campaigns lasting days to weeks. Cyber, space, and electronic warfare operations can also take weeks to years to put forces in place but can measure execution in microseconds to days. Thus, coordinating the offensive operations of the separate domains is particularly challenging—yet cross-domain attacks may be the most effective. Space Development Agency Director Derek Tournear has stated that cyber is a greater threat to satellites than missiles.¹³ Air forces have stated for years that the most effective way to defeat an air force is to destroy its bases and its aircraft on the ground. Today, ground-based forces can do this from beyond the range of most aircraft delivered weapons.

Naval forces have historically been able to appear suddenly out of the vast expanses of the oceans but increasingly are being closely tracked by space assets. In short, cross-domain attacks will become more powerful but will be an order of magnitude more difficult than coordinating a defense.

What Does It Mean for the United States?

If the United States leads the shift to defense dominance in land, air, and sea domains while maintaining the ability to contest the space, cyber, and electromagnetic domains, it gains major strategic advantages. Perhaps the greatest advantage will lie in deterring aggression. MIT political scientist Stephen Van Evera argued that war is more likely to occur when the tactical offense dominates the battlefield because conquest is perceived to be easy. He listed 10 reasons leaders were more likely to take their nations to war under these conditions than during periods when the defense dominates tactically. During

periods of defense dominance, then, aggression becomes less likely simply because the probability the attacker succeeds decreases greatly.¹⁴ Fortunately, in the two current Great Power competitions, the United States is essentially on the tactical defensive. To achieve regional hegemony, both China and Russia will have to cross borders and seize territory; the United States and its allies only have to defend.

In Asia, China has worked hard to develop antiaccess/area-denial (A2/AD) capabilities for the region. Fortunately for the allies, A2/AD works both ways. As defense becomes dominant, the United States can cooperate with its allies and friends to take advantage of the fact that they are separated by water from China. They can create an A2/AD based on the First Island Chain. A family of smart and relatively inexpensive weapons on the First Island Chain can both deny China commercial use of the East and South China seas and prevent either China's navy or merchant ships from reaching the Pacific

Ocean. Already existing cruise missiles, drones, and smart sea mines can create a defense in depth. Japan, Australia, South Korea, and Singapore all have the capability to produce these systems. By applying advanced manufacturing techniques, they can produce them in large numbers. The United States can cooperate with them to co-produce these weapons and then train together to employ them in concert with existing land-, sea-, and air-based platforms. This strategy reinforces deterrence because it directly addresses three of China's strategists' greatest fears: being cut off from global trade (the Malacca Dilemma), the desire for certainty in military planning, and the impact of a long war on domestic stability.

While the tactical situation is dramatically different in Europe, the North Atlantic Treaty Organization (NATO) can also exploit the rising dominance of defense to deter and, if necessary, deny Russian incursions into Eastern Europe. The combination of inexpensive short-range drones, loitering munitions, cruise missiles, mines, and improvised explosive devices (which could easily include 50,000 pounds of explosives in a 20-foot container full of fertilizer) could immediately create responsive, thick belts for a defense in depth. This approach solves NATO's number one problem in defending Eastern Europe—the inability to deploy sufficient forces before Russia can mobilize its own forces for an invasion. While a Russian invasion is both highly unlikely and not in keeping with Russian doctrine, NATO planners have focused on the intractable problem of reinforcing Eastern European states.

Unfortunately, these plans are often conceived in terms of heavy armor units deploying from home stations to the battle front. The Alliance lacks the funding, the will, and the infrastructure to forward deploy the number of heavy armor units, aviation, and logistics support necessary to execute such a defense before the Russians can mobilize.¹⁵ By adopting a defense that reinforces selected existing systems with small, smart, and numerous systems, NATO can create an affordable force that can mobilize faster than the current Russian forces.

Today, the United States faces flat (effectively decreasing after inflation) defense budgets as well the need to modernize its nuclear triad while facing major maintenance backlogs in its air and naval inventories. Fortunately, the rising dominance of defense provides an opportunity to shift from the previous generation of few but exquisite weapons systems such as the F-35 and *Gerald R. Ford*-class carriers to the new generation of smart, small, and much less expensive systems that take advantage of the shift to defense.¹⁶ This approach meets America's need to support its allies and efficiently deter its enemies, even as its effective defense budget decreases. JFQ

Notes

¹ Military revolutions are rare and have a much greater impact than revolutions in military affairs. See MacGregor Knox and Williamson Murray, eds., *The Dynamics of Military Revolution, 1300–2050* (New York: Cambridge University Press, 2001).

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Field artillery cannoneer with 3rd Battalion, 12th Marines, 3rd Marine Division, emplaces M777A2 Howitzer during Artillery Relocation Training Program 21.1, at Combined Arms Training Center, Camp Fuji, Japan, April 26, 2021 (U.S. Marine Corps/ Michael Jefferson Estillomo)



The New Era of Great Power Competition and the Biden Administration

Emerging Patterns and Principles

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The administration of President Joseph Biden began in early 2021 amid daunting domestic challenges and an evolving era of Great Power competition (GPC). This era—

emerging since 2008, evident since 2014, and on full display since 2017—features a three-state GPC where the United States, China, and Russia joust for international status and power, and

where the trajectory of relative power from a long-dominant America to either rival remains incomplete and far from certain.¹ Russia and China now compete openly with the United States and often one another. In the case of Vladimir Putin's Russia, its contemporary power capabilities are mainly reimagined, repurposed military and reenabled propaganda implements from the days of the Soviet Union rather than anything new.² In the case of China, truly historic economic growth is catalyzing new wealth and imagination, generating an array of power capabilities that enable broad competition with the United States and growing influence with other states.³

Several recent articles in *Joint Force Quarterly* have explored the war planning, operational, and tactical implications of GPC for elements of the U.S. military.⁴ Moreover, a Secretary of Defense National Security Essay award winner published in *JFQ* 99 (4th Quarter 2020) sketches four strategic objectives for the budding competition with China.⁵ These articles took *the fact* of GPC as a jumping-off point for analysis—a worthy approach. An alternative starting point considers the critical dynamics of contemporary Great Power competition framed against historical GPC patterns, principles, and implications.

This article proceeds from that starting point. It offers a collection of observations about the evolving new era of Great Power competition that extend and expand on the insights about past and contemporary GPC found in *Strategic Assessment 2020: Into a New Era of Great Power Competition* (NDU Press, 2020).⁶ These extended observations include an assessment of the Biden administration's emerging approach to geostrategic competition among the three contemporary Great Powers, and particularly with China. The article frequently provides readers with note references from *Strategic Assessment 2020* that provide richer detail about the analysis and conclusions found throughout that edited volume.

The article situates major contemporary GPC dynamics in the context of

past periods of multilateral Great Power rivalry. It addresses the question of whether ongoing Great Power transition must result in direct military clash and analyzes the prospects for GPC to allow for patterns of collaboration and cooperation to develop.

The article then evaluates the trajectory of American strategic thinking about Great Power competition from the Trump into the Biden administrations. It concludes that the latter's early 2021 plans retain the former's national security strategy diagnosis that the geostrategic environment is now one of GPC, but with a different policy approach for American success therein. The final section summarizes and applies four historic GPC principles critical to Biden administration success in the competitive Great Power dyad with China:

- firmness with flexibility
- partnerships, alliances, and alternative geometries
- leaders vs. peoples and the poison of mass denigration
- playing for time.

The article concludes with a view that emerging Biden administration policy plans for Great Power competition generally align—and especially in its focus on the Sino-American competitive dyad—with the historical best practices for a multipolar GPC era, noting that the challenge now lies in the execution of the new administration's strategic approach.

Essential Outlines

Contemporary GPC is unique, but not unprecedented. Multipolar Great Power competitions have occurred throughout modern history, and frequently during the past 500 years.⁷ Each of these past eras contributes important insights about the dynamics of contemporary GPC. At the same time, contemporary dynamics exert their own pull on the choices and risks faced by the modern Great Powers: the United States, China, and Russia.⁸ These factors include but are not limited to the impact of modern economic advancements, the importance of new technologies as means of competition, and the influence of war-

fighting risks on contemporary societies.⁹ Finally, modern Great Power competition already is changing the major patterns of geostrategic interaction.

Essential Elements. The presence of three contemporary Great Powers makes today's international system a multipolar one. The United States stands atop the triumvirate, with China a rising competitor and Russia vying for top-level prestige while facing clear signs of decline. In the aggregate, the evolving strategic aims of China and Russia are incompatible with those established by American power in the post-World War II era; this has produced the return of a historically dominant pattern of Great Power competition. China is the Great Power best poised to displace America from its long-dominant power position.¹⁰ As Secretary of State Antony Blinken put it in his early March 2021 foreign policy speech:

*The challenge posed by China is different. China is the only country with the economic, diplomatic, military, and technological power to seriously challenge the stable and open international system—all the rules, values, and relationships that make the world work the way we want it to, because it ultimately serves the interests and reflects the values of the American people.*¹¹

Although China does not have a roadmap for global dominance as some Western analysts have wrongly asserted, Beijing has a proactive perspective on what a new global order might look like, one loosely captured in its concept of a “community of common destiny.”¹² While a net power comparison between the United States and China indicates that its power transition timeline is longer than some now fear, the Sino-American competitive dyad is likely to be the dominant Great Power rivalry into the future.¹³

Russia is an urgent, but transient, security risk for the United States and China with the potential to do enormous military damage to the world if miscalculation leads to military clash.¹⁴ Putin's Russia practices a reactive, disruptive

Map. First and Second Island Chains



Source: *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China* (Washington, DC: Department of Defense, 2012).

strategy aimed to pacify its immediate borders (a loosely formed “Eurasia focus”) and to question contemporary international institutions and processes that

it perceives as a threat to the power of President Putin and his kleptocrat-dominated illiberal democracy.¹⁵ Unlike its predecessor, the Soviet Union, with its

positivist strategic aim of promulgating global communism, contemporary Russia is a Great Power competitor without a viable vision for a truly global world

order or the necessary power to generate one.¹⁶ China and Russia may engage in tactical entente to erode American power, frustrate U.S. actions and preferred institutions, and question norms and rules they deem threatening. However, their long-term interests diverge too much for a durable partnership and Washington must not misunderstand their tactical cooperation against the United States on specific issues as some form of deeper, durable anti-American strategic alliance.¹⁷

Geostrategic Interactions. Russia and China present distinct competitive threats to the United States around the globe. In many regions, Russia often poses the more immediate challenge, whereas the repercussions from Chinese economic investments manifest themselves subtly and will likely undermine U.S. strategic interests more gradually.

The United States and China have primary interests in the Indo-Pacific region that conflict. The importance of those interests to both countries makes the region a central venue for Great Power competition. The U.S. Free and Open Indo-Pacific vision is not compatible with China's aspirations for increasing control within its First Island Chain and wider Chinese regional aims sometimes espoused as a community of common destiny.¹⁸ Here, the Sino-American competition could turn toward confrontation or a military clash if careful diplomacy is not exercised.¹⁹

China has economic dominance in markets and investment across most of the Indo-Pacific region. It also has eroded the U.S. military advantage in potential locations of military confrontation near its shores and inside the First Island Chain.²⁰ The United States retains an overall advantage in military technology and power projection across the wider Indo-Pacific, commercial financial dominance, and a resonant ideology and ability to communicate it, along with a regional political and military alliance structure unmatched by China.²¹

Russia has a primary interest in Europe, with special sensitivity to sovereignty at its near abroad, including the former Soviet Union provinces. American and European diplomacy will

remain challenged to stanch Russian misadventures without generating overt confrontation or clash.²² While Europeans mistrust Russia generally, their perception of Russia as a security threat varies greatly. Europe alone cannot defend member states from Russia. Should the United States move to depart the North Atlantic Treaty Organization, Europe may intensify accommodation with Russia, and even with China.²³

Two nontraditional competitive venues, space and cyberspace, are those where all three Great Powers have primary strategic interests engaged and growing.²⁴ There is high risk that intensifying competition in space could lead to greater confrontation there. Agreement on some viable rules and norms for collaborative use and cooperative actions in space could reduce the growing risks of confrontation and miscalculation leading to clash. Likewise, the absence of cooperative rules and norms in cyberspace has contributed to a darkening turn toward a confrontational dynamic.

Relevant History and Contemporary Dynamics. The contemporary era is a multipolar one characterized by heightened competition between more than two Great Powers. This makes it like most eras of GPC over the past 500 years, but distinct from the most recent period of Great Power competition: a bipolar Great Power rivalry between the United States and the Soviet Union that played out over a 45-year Cold War. In past multipolar Great Power competitions, rivalrous dyads ebbed and flowed. These dyads normally involved a rising power and a dominant one, raising the strategic question about the inevitability of relative power decline by the dominant state and a power transition between them. Great Power transition challenges rising states with the dilemma of how to assert their relative power gains without provoking outright clash with the dominant state. Transition also confronts the dominant, but relatively declining, state with the vexing question of whether its rising challenger can be accommodated in a manner that avoids destructive military clash and an unacceptable change in the status quo. These transitions play out over decades and centuries, not years.²⁵

Although three-quarters of Great Power transitions since 1500 have featured a destructive period of war between the contestants, this outcome is not foreordained.²⁶ Great Power competitors joined in a relative power transition can culminate their interactions with accommodation or acquiescence short of war. But the deck is stacked against such a benign endstate. Peaceful Great Power transition outcomes require hard work and astute leadership. When one or both sides in a relative power transition dyad recognize a shift in the relative alignment of economic and military power moving decisively against it, it is much more inclined to risk a preemptive conflict than when it perceives a stable power status quo. For the most part, the United States and Soviet Union perceived a relatively stable power balance during the Cold War, and that intense bipolar era of Great Power competition ended peacefully. The evolving Sino-American competitive dyad features an obvious power transition with worries, jealousies, and recriminations between the two reminiscent of past Great Power transition rivalries that culminated in Great Power war.

Too often, Great Power leaders misperceive relative power, eschewing detailed, empirical assessments of power to inform decisionmaking and strategic planning. Even when accurate assessments of relative decline or vulnerability are made, domestic or bureaucratic interests may retard the agile adaptation necessary to mitigate risks of Great Power war.²⁷ Thus, success in Great Power competition requires extraordinary political leadership in both international statecraft and generating domestic renewal and adaptation.

The Sino-American competitive dyad is likely to be a dominant Great Power rivalry well into the future.²⁸ It is the modern competitive dyad most fraught with the dangerous dynamics of Great Power transition, although any misstep leading to accidental war with Russia would be enormously destructive and consequential, especially if Russia escalated to a nuclear weapons threat or use in order to end a conventional conflict. While some Western pundits stoke fears



Sailors chart course of delivered ordnance for Naval Surface Fire Support during exercise Talisman Sabre 21, Coral Sea, July 18, 2021 (U.S. Navy/Daniel Serianni)

of an imminent and disastrous power shift in favor of China on the horizon, a net power comparison between the United States and China indicates that the power transition timeline is longer than some now fear.²⁹ Properly understood, this elongated timeline affords China and the United States time to better appreciate the risks of unbridled rivalry and seek a path of modulated competition with elements of confrontation and collaboration underpinning the search for mutually acceptable strategic outcomes.

The Biden Administration

The Trump administration was the first in Washington to fully acknowledge the end of America’s “unipolar moment” after the Cold War and that the world had entered a new era of Great Power competition.³⁰ Its December 2017 National Security Strategy (NSS) jettisoned the legacy American foreign policy premise of engagement, enlarge-

ment, and cooperation with all states of the world—an approach that had dominated American thinking since the 1991 end of the Cold War and over a two-and-a-half decade period of unrivaled U.S. military and economic power.³¹ In many ways, the Trump national security team fully acknowledged what had been increasingly obvious in the period from 2008 to 2015: there was a de facto competition ongoing between the United States, China, and Russia whether Washington admitted it or not. The Trump administration’s 2017 NSS—followed by the Department of Defense National Defense Strategy of 2018—moved American strategic thinking about interstate relations and international systems into one of fully acknowledged Great Power competition.³²

Taking the stage in January 2021, the Biden administration did not have to agree with its predecessor’s geostrategic

diagnosis or approach. The Trump administration’s new national security framework had been accompanied by a lot of public criticism of previous American foreign policy and security thinking, especially the Barack Obama administration’s approach toward China while Joe Biden had been the Vice President with a large foreign policy profile.³³ Some analysts thought it possible that the new administration might choose to steer away from both the Trump administration description of the international security environment and its policies for securing American interests in that environment.³⁴ But key members of candidate Biden’s foreign policy team—including those who were prominent administration officials under President Obama such as Jake Sullivan and Kurt Campbell—signaled that the Biden administration largely agreed with the Trump administration’s diagnosis of the new international environment, although

not with the manner in which the Trump team pursued policies for it. In late 2019, Sullivan and Campbell wrote of the Sino-American relationship in terms that mirrored the Trump administration's diagnosis: "Historically, the [United States] has sought to cooperate first and compete second with China. Beijing, meanwhile, has become quite comfortable competing first and cooperating second . . . this must reverse."³⁵

At the same time, they also wrote that Sino-American competition could be firm and competitive but with less impetus toward conflict and confrontation with Beijing than during the Trump years: "Despite the many divides between the two countries, each will need to be prepared to live with the other as a major power . . . competition [cannot] force [China's] capitulation or even collapse . . . instead competition must seek coexistence on terms favorable to U.S. interests and values."³⁶

In late 2020, the President-elect named Jake Sullivan as the new administration's National Security Advisor and Kurt Campbell to become the National Security Council Senior Advisor for the Indo-Pacific region. Biden also named former Obama administration Deputy Secretary of State and longtime close Biden foreign policy advisor Antony Blinken as his nominee for Secretary of State. Together, these three men led the rapid promulgation of a Biden foreign policy approach and interim national security strategy. They rolled out both on March 3, 2021. In a speech titled "A Foreign Policy for the American People," Secretary Blinken stipulated eight Biden administration priorities for American foreign policy and diplomacy in support of U.S. national security in a new era. Blinken began by acknowledging the change in strategic environment since the Obama administration, stating:

Yes, many of us serving in the Biden administration also proudly served President Obama—including President Biden. And we did a great deal of good work to restore America's leadership in the world. . . . Our foreign policy fit the moment, as any good strategy should.

But this is a different time, so our strategy and approach are different. We're not simply picking up where we left off, as if the past four years didn't happen. We're looking at the world with fresh eyes.³⁷

The Secretary of State then highlighted three of the eight foreign policy priorities as vital for American success in the evolving era of Great Power competition: revitalize ties with American allies and partners, secure U.S. leadership in technology, and manage the challenging relationship with China.³⁸ Blinken wove these three priorities together in a way that affirmed Biden administration agreement with the Trump 2017 NSS diagnosis of a world enmeshed in Great Power competition but with a different set of policy priorities for competition than those pursued during the Trump administration:

China is the only country with the economic, diplomatic, military, and technological power to seriously challenge the stable and open international system—all the rules, values, and relationships that make the world work the way we want it to, because it ultimately serves the interests and reflects the values of the American people.

That requires working with allies and partners, not denigrating them, because our combined weight is much harder for China to ignore. It requires engaging in diplomacy and in international organizations, because where we have pulled back, China has filled in. It requires standing up for our values when human rights are abused in Xinjiang or when democracy is trampled in Hong Kong, because if we don't, China will act with even greater impunity. And it means investing in American workers, companies, and technologies, and insisting on a level playing field, because when we do, we can out-compete anyone.³⁹

Later, on the afternoon of March 3, 2021, the Biden National Security Council released online its Interim National Security Strategic Guidance (INSSG), which reflected the eight priorities announced by Secretary Blinken that morning. It also affirmed a

Biden administration strategic approach anchored in acceptance that changing relative power and interests among the United States, China, and Russia placed Washington in an era of Great Power competition with two strategic rivals:

We must also contend with the reality that the distribution of power across the world is changing, creating new threats. China, in particular, has rapidly become more assertive. It is the only competitor potentially capable of combining its economic, diplomatic, military, and technological power to mount a sustained challenge to a stable and open international system. Russia remains determined to enhance its global influence and play a disruptive role on the world stage. Both Beijing and Moscow have invested heavily in efforts meant to check U.S. strengths and prevent us from defending our interests and allies around the world.⁴⁰

The INSSG went on to promise American strategic focus on collective action with fellow democratic states to assure a favorable international power distribution that defends U.S. strengths and safeguards American friends and partners, sustains the liberal and open international order while addressing its flaws, and secures American leadership in the ongoing technological revolutions.⁴¹

The cross-threaded themes found in "A Foreign Policy for the American People" and the INSSG established a U.S. view that the fundamentally changed nature of the international system—one of GPC—would remain for the coming 4 years. The Biden administration would not go back on the Trump diagnosis of a new era of Great Power competition. However, the Biden administration would end the Trump administration's "America first" policies for GPC that had often resulted in "America alone," instead pursuing a vigorous program of competition with China and Russia, working closely with allies and partners, and with specific attention to reinvigorating American competitiveness and the attractiveness of American partnership.

With continuity in geostrategic diagnosis but an altered framework for policy approaches, the Biden administration affirmed that the United States is engaged in an evolving geostrategic era of multipolar Great Power competition. The Biden administration also appears to understand the unique imperatives associated with the timelines and the multifaceted nature of Sino-American GPC. As stated by Secretary Blinken in March 2021, “Our relationship with China will be competitive when it should be, collaborative when it can be, and adversarial when it must be. The common denominator is the need to engage China from a position of strength.”⁴²

The U.S.-China Competitive Dyad and the Important Role of Alliances and Partnerships

An America that competes smartly with China in an era of multipolar Great Power competition must understand both the value of time and where it can leverage its major advantages. The United States retains a commanding advantage in military power, although not to the degree it had 20 years ago.⁴³ But its global military advantages can be offset if China (or Russia) is able to pick favorable physical and political ground for a short, decisive military conflict.⁴⁴ The Biden administration must acknowledge this and compensate for it. America’s ideology resonates well globally and especially in the Indo-Pacific.⁴⁵ Similarly, its ability to promulgate information and sustain support remains superior to China’s, despite Beijing’s serious efforts to articulate and reinforce a clear global message—a message often undercut by the fact that it features Chinese Communist Party (CCP) talking points inconsistent with Chinese actions at home and abroad.⁴⁶ China is upping its efforts to use political and diplomatic tools to undercut U.S. alliances and partnerships internationally and especially in the Indo-Pacific region, but Washington retains strong ties and bonds established over decades that are not easily destroyed.⁴⁷ At the same time, China has significant economic advantages over the United

States, especially in the Indo-Pacific region. Beijing can mobilize direct trade and investment resources and provide countries with valued opportunities for growth that the United States cannot alone match.⁴⁸

America’s relative advantages in ideas, information dissemination, political and military alliances, and conventional military power when applied away from regions of local Chinese advantage inform where the United States can build on strength. Yet American weaknesses in relative economic strength compared to China or the conventional military capabilities to defend allies and partners near China informs America about how it must proceed for competitive success. The United States will succeed in competition with China over time by working with friends and partners and avoiding the strategic error of posing stark, binary choices to would-be partners and friends.

Four Competitive Principles for the Biden Administration

A study of historic Great Power dyadic rivals offers several principles that can enable effective American competition with China while minimizing the prospect of Great Power transition collapsing into Great Power war.⁴⁹ Four of these historical principles stand out: firmness with flexibility; partnerships, alliances, and alternative geometries; leaders vs. peoples and the poison of mass denigration; and playing for time.

Firmness with Flexibility. First, to be successful the dominant Great Power must demonstrate firmness with flexibility. It must clearly signal the strategic aims it will defend at all costs and then offer the prospect of dialogue on those it may be willing to negotiate. While firm on its nonnegotiable aims, it should be flexible in finding issues and venues where win-win outcomes are possible. For example, at the turn of the 19th century, the United Kingdom (UK) accepted American primacy in the western Atlantic as a better path to sustaining high seas primacy on vital routes for its Middle Eastern and Asian colonies—and preferable to naval confrontation in recognition of growing American power. At the same

time, the rising United States came to accept the once-abhorrent British monarchy in recognition of growing political enfranchisement for a great number of UK citizens.⁵⁰ Is there such trade room today for the United States and China to agree on rules for collaboration in space and cyberspace while at the same time negotiating over reduced CCP domestic economic and human rights constraints?

Flexibility must be paired with firm resolve. Strong security arrangements, backed by formidable U.S. military power, might harden feelings of antagonisms and suspicion, but they are indispensable to preserving the peace with China.⁵¹ If the CCP expects resistance from the United States and several mid-sized U.S. security partners, it is unlikely to instigate a fight for regional hegemony in the near term.⁵² There is a discernible degree of caution in China’s behavior that is wary of demonstrated strength and exploits perceived weakness.⁵³ The Biden administration and its Indo-Pacific partners must stand firm in resistance to China’s illegal maritime claims by demonstrating the will to operate in international waters and airspace with Freedom of Navigation Operations and other joint activities. They also must stand firm with Japan on disputed islands. At the same time, the United States must demonstrate flexibility and adaptability in defense activities within the First Island Chain. It should proceed with a mobile and unpredictable basing posture for American forces. Washington also should work with Taiwan on development of weapons and tactics for self-defense that emphasize the advantages of smaller, smarter, and cheaper.⁵⁴ This kind of flexibility is not the same as ceding de facto spheres of influence to China with the First Island Chain or elsewhere in the Pacific.⁵⁵ Instead, it is an acknowledgment that basic premises about sticking with allies and partners can remain firm even as tactics and techniques adapt.

The United States also can firmly support democratic institutions, individual liberties, and human rights in its alliances and in its interactions with China while demonstrating flexibility in pursuing aspirations for Chinese political



Gunner's Mate Seaman stands optical sighting system watch in combat information center as guided-missile destroyer USS *Mustin* conducts routine operations in Taiwan Strait, August 18, 2020 (U.S. Navy/Cody Beam)

reform. After first defending allies and partners from encroachment of Chinese authoritarian tendencies, America can demonstrate flexibility and patience in modeling patterns of individual liberty, freedom of information, and political participation to the people of China. During the Cold War, U.S. efforts to strengthen noncommunist elements within the Soviet bloc often met frustration in the near term. Western radio transmissions were blocked and censored, humanitarian assistance was refused, greater transit and tourism opportunities were blunted, and people-to-people programs declined. But over the long term—and especially after the Helsinki Accords of 1975—these activities gave hope to those laboring for a freer future behind Moscow's Iron Curtain. American support for democracy and liberty in regions around the world during the 1970s and 1980s made the global ideological climate steadily

less friendly to the Soviet Union's repressive regime.⁵⁶ This kind of a Cold War competitive mindset is applicable for competition with China today and must be melded with modern, collective approaches that portray Chinese political and ideological representations as inappropriate. Now, as then, a large amount of America's appeal is the power of an uncensored world.⁵⁷

Partnerships, Alliances, and Alternative Geometries. History demonstrates that the dominant Great Power must look to build and maintain durable, reciprocal interstate alliances that provide would-be partners with alternatives to the either-or choices posed by a hard-charging rival.⁵⁸ Great Britain was right to seek strategic partnerships and allies in its rivalry with Napoleonic France, parlaying these alliances into first containment of the threat and later its defeat. Napoleon took a less collaborative and ultimately

failed approach of largely relying on territorial conquest and installation of family members in positions of political power to expand French national power and aspects of the French Revolution.⁵⁹

Today, the United States has a far greater base for building economic and military partnerships than any Great Power in modern history. It also confronts a rising Great Power in China with little experience or inclination in this area. The United States has invested in critical global alliances and partnerships over the years for precisely this kind of moment.

The Biden administration has an enormous opportunity to reframe longstanding American alliances and to construct alternative economic, diplomatic, and political "geometries" with an array of partners to give them alternatives to Chinese enticements and blandishments. The principles laid out in the administration's "A Foreign Policy



Special address by Vladimir Putin, as part of Davos Agenda and chaired by Klaus Schwab, on January 24, 2021, in Geneva, Switzerland (World Economic Forum/Pascal Bitz)

for the American People” and the INSSG indicate that the Biden team understands this.⁶⁰ But the administration has its work cut out. Many of America’s eager partners are today apprehensive about the recent unpredictability of U.S. foreign policy conduct. They want and value American partnership but have been in a state of deep worry for much of the past 5 years. They want a United States that views commitment to rules-based international order and institutions to be less like self-imposed shackles and more like a truly competitive advantage.⁶¹ To be fully competitive with China, American policy must overcome such partner apprehension and practice a competitive foreign policy that views alliances as assets to be invested in rather than costs to be cut.⁶²

Leaders vs. Peoples and the Poison of Mass Denigration. Third, successful Great Power competition, short of direct military clash, is extremely unlikely

if the rivals descend into a poisonous, open, and reciprocal denigration of each other’s people. The choice to criticize the government of a rival state while distinguishing it from the people is not as risky—although a tightrope must be walked to maintain the difference. Once the British and Imperial German press went after the character of the other’s societies, the march toward World War I accelerated.⁶³ So, too, World War II in the Pacific loomed ominously once the United States and Tojo’s Japan devolved to mutual societal recrimination played out in newspapers and journal articles.⁶⁴ But the American government’s conscious Cold War effort to distinguish the Soviet Union’s communist party from the Russian people, reserving greatest criticism toward the party and offering outreach to its people, generated a far different result. American leaders are likely to compete best with China while

clearly distinguishing between its pointed criticism of CCP leaders and its feelings for the Chinese people.

The Biden administration can and must do better at this than its predecessor. To reduce the risk—and to channel political and ideological competition appropriately—the United States should focus legitimate criticism on the CCP leadership and its policies in a manner that counters Chinese narratives feeding nationalist xenophobia. The line between criticizing the CCP and Chinese society is a fine one to walk—and will require calibration. But it can be done in a thoughtful way. For example, U.S. and partner scientists’ questioning CCP transparency in practices and statements about research laboratory safety in China as they investigate the origins of COVID-19 as a matter of global health is legitimate and targeted inquiry and criticism.⁶⁵ Publicly labeling COVID-19 as the “Chinese

Virus” or the “Kung Flu,” while insinuating that the CCP is hiding something about lab safety, is not.⁶⁶

A responsible American program of communication should concentrate on countering CCP-driven disinformation.⁶⁷ It also should speak and act publicly in a manner that counters the self-motivated CCP domestic narrative that only the CCP stands between China and chaos.⁶⁸ At the same time, the United States should try to maximize positive interactions and experiences with the Chinese people. The United States and its free-and-open partner states should consider issuing more visas and providing paths to citizenship for more Chinese, with proper security safeguards in place. Chinese who engage with citizens of free countries are the ones who are most likely to question their government’s policies either from abroad or when they return home. In this approach the United States would do what it did with expatriate Russian communities during the Cold War: view Chinese expatriate communities as valuable citizens while discriminating between Ministry of State security agents for expulsion.⁶⁹

Play for Time. Finally, some argue that time works in favor of the rising Great Power in a competitive dyad, putting the dominant Great Power at dire risk if it does not take swift confrontational action while its relative power is high. But this thesis rests on at least two dubious assumptions: that the rising power’s ascent is likely to be rapid and that the rising power will continue to ascend in a mainly linear fashion and not confront problems or challenges on the way. In the present moment, the critical factors confronting China at home and abroad make time work in favor of the United States.⁷⁰

First, America has its own domestic inconsistencies and challenges, many of which were on prominent display during a very turbulent 2020, but these pale in comparison to those certain to play out within China over the coming couple of decades. The CCP faces multifaceted challenges to safeguard both its political position and an unending Chinese economic rise that seems critical to CCP

legitimacy. These multifaceted challenges include rampant environmental degradation, rising income inequalities, a rapidly aging and less productive population, chronic worry about abuses of political power, widespread corruption, restive domestic regions including Tibet, Xingxang, and Mongolia, and a poor record on human rights.⁷¹ As China’s economy shifts toward more reliance on domestic economic consumption, its economic growth decelerates, and its national debt continues to grow, these many domestic challenges are moving to the fore.⁷²

Second, China faces serious unresolved challenges along its own borders, rendering its ability to dominate the Indo-Pacific region questionable in the near term and pushing off into the future any serious move by Beijing to reorder international norms and institutions along China’s model. China’s neighbors include formidable economic and military powers, such as Japan, South Korea, Australia, and India. Each of them is increasingly apprehensive about China’s strategic ambitions, and they are deepening security ties with each other and the United States in ventures such as the “Quad” in response.⁷³ Beijing’s ham-handed efforts to crush democratic resistance in Hong Kong and nationalism in Taiwan have stiffened regional headwinds for Chinese messaging.⁷⁴

It is unwise for the United States to assume that China will succumb to these challenges, for that could enable complacency and distract vital attention to a serious Great Power rival. At the same time, a U.S. conclusion that China is destined for global dominance—especially in the near term—is both unsupported by the facts and likely to generate strategic overreaction.⁷⁵ China’s economic rise will make it a long-term challenge for the United States to manage rather than one to be conquered or converted.⁷⁶ The United States and China are destined for a lengthy, uneasy coexistence, not decoupling or appeasement.⁷⁷ Thus, as American resilience and regeneration to confront a great challenge emerges anew, a U.S. strategy—one featuring a competitive mindset—that plays for time as China’s contradictions grow seems

best suited for successful contemporary Great Power competition.⁷⁸ The Biden administration’s March 2021 INSSG demonstrates an understanding of these geopolitical realities of contemporary GPC and has presented a new array of policies to meet them:

The most effective way for America to out-compete a more assertive and authoritarian China over the long-term is to invest in our people, our economy, and our democracy. By restoring U.S. credibility and reasserting forward-looking global leadership, we will ensure that America, not China, sets the international agenda, working alongside others to shape new global norms and agreements that advance our interests and reflect our values. By bolstering and defending our unparalleled network of allies and partners, and making smart defense investments, we will also deter Chinese aggression and counter threats to our collective security, prosperity, and democratic way of life.⁷⁹

It remains to be seen how well the Biden administration can put these principles into practice in the face of domestic political headwinds and distracting international challenges.

The Way Forward

Knowing the historic imperatives of Great Power competition and four major principles informing what the United States should do to succeed in a new era of GPC is not the same as knowing how to move forward properly. The Biden administration faces a historic challenge of galvanizing American resolve to compete with other international Great Powers after decades of competitive atrophy.

In today’s new era of multipolar Great Power competition among the United States, China, and Russia, the Sino-American dyad is the rivalry of greatest significance. This contest features an ongoing power transition—always a dangerous dynamic of international politics in modern history. China is clearly growing in relative economic power, but the United States is a dominant state with clear comparative advantages—“high

Sailors from USS *Germantown* signal MH-53 Sea Dragon, attached to Helicopter Mine Countermeasures Squadron 14 (HM-14) Detachment 2A, while conducting Deck Landing Qualifications, East China Sea, June 6, 2021 (U.S. Navy/Yeltsin E. Rodriguez)







EA-18G Growler attached to Shadowhawks of Electronic Attack Squadron (VAQ) 141 launches from flight deck of USS *Ronald Reagan*, South China Sea, June 14, 2021 (U.S. Navy/Quinton Lee)

cards” in its hand—that it can build on to advantage.⁸⁰ Alliance maintenance and cultivation is the most critical card. Firm and flexible confrontation when necessary and collaboration with China where possible is the second. Avoiding a regressive game of reciprocal societal invective is the third. And playing the long game—playing for time—is the fourth.

The December 2017 NSS properly recognized the Russian and Chinese challenges for what they were and formalized what had been a de facto new era of Great Power competition for several prior years. In its first months in office, the Biden administration has accepted the Trump geostrategic diagnosis but offered an altered suite of U.S. foreign policy and national initiatives to meet the challenges of GPC. There is goodness in this overdue bipartisan American recognition of a competitive geostrategic environment. Yet the way forward to successful

competitive policies still could go wrong if America devolves into confrontational hysteria and overreaction against Beijing. Overreaction in Washington could lead to high cards played badly. China’s recent behavior is galvanizing opposition among countries that do not want to be vassal states.⁸¹ A rejuvenating United States, with reframed domestic priorities and renewed focus on well-established and well-treated allies and partners, will have a clear advantage in what is likely to be a drawn-out era of multipolar Great Power competition featuring a rivalrous dyad with China. JFQ

Notes

¹ For an operational definition of a *Great Power* and the criteria met by China, Russia, and the United States today that make them the three modern Great Powers, see Thomas F. Lynch III, “Introduction,” in Thomas F.

Lynch III, ed., *Strategic Assessment 2020: Into a New Era of Great Power Competition* (Washington, DC: NDU Press, 2020), 1–15, available at <<https://ndupress.ndu.edu/Media/News/News-Article-View/Article/2404286/1-introduction/>>.

² For a review of contemporary Russia’s strategic focus and its tools for engaging in Great Power competition (GPC), see Thomas F. Lynch III and Phillip C. Saunders, “Contemporary Great Power Geostrategic Dynamics: Relations and Strategies,” and Thomas F. Lynch III and Phillip C. Saunders, “Contemporary Great Power Geostrategic Dynamics: Competitive Elements and Tool Sets,” in Lynch, *Strategic Assessment 2020*, 58–67 and 92–100, respectively. These chapters are available at <<https://ndupress.ndu.edu/Media/News/News-Article-View/Article/2404308/3a-contemporary-great-power-geostrategic-dynamics-relations-and-strategies>>; and <<https://ndupress.ndu.edu/Media/News/News-Article-View/Article/2404316/3b-contemporary-great-power-geostrategic-dynamics-competitive-elements-and-tool/>>, respectively.

³ For a review of contemporary China’s strategic focus and its tools for engaging in

GPC, see Lynch and Saunders, “Contemporary Great Power Geostrategic Dynamics: Relations and Strategies,” and Lynch and Saunders, “Contemporary Great Power Geostrategic Dynamics: Competitive Elements and Tool Sets,” in Lynch, *Strategic Assessment 2020*, 53–57, 59–67, 84–92, 96–100.

⁴ Lauren A. Courchaine, Alexis G. Grynkwich, and Brian D. Courchaine, “Structuring for Competition: Rethinking the Area of Responsibility Concept for Great Power Competition,” *Joint Force Quarterly* 98 (3rd Quarter 2020), 4–9; Lloyd Edwards, “Balancing Competition with Cooperation: A Strategy to Prepare for the Chinese Dream,” *Joint Force Quarterly* 98 (3rd Quarter 2020), 80–87; Brandon J. Archuleta and Jonathan I. Gerson, “Fight Tonight: Reenergizing the Pentagon for Great Power Competition,” *Joint Force Quarterly* 100 (1st Quarter 2021), 81–87.

⁵ Kaleb Redden, “Competition Is What States Make of It: A U.S. Strategy Toward China,” *Joint Force Quarterly* 99 (4th Quarter 2020), 40–56.

⁶ For a detailed listing of these major insights, see “Major Findings on Contemporary Great Power Competition,” in Lynch, *Strategic Assessment 2020*, xv–xxvii, available at <<https://ndupress.ndu.edu/Media/News/News-Article-View/Article/2404283/major-findings-on-contemporary-great-power-competition/>>.

⁷ See Thomas F. Lynch III and Frank G. Hoffman, “Past Eras of Great Power Competition: Historical Insights and Implications,” in Lynch, *Strategic Assessment 2020*, 17–25, available at <<https://ndupress.ndu.edu/Media/News/News-Article-View/Article/2404297/2-past-eras-of-great-power-competition-historical-insights-and-implications/>>.

⁸ See Lynch, “Introduction,” *Strategic Assessment 2020*, for an operational definition of *Great Power* and the criteria met by China, Russia, and the United States today making them the three modern Great Powers.

⁹ This article has insufficient space to effectively address the importance of technological advances emanating mainly from the fourth industrial revolution on modern economic progress and warfighting risks in GPC. For a detailed review of these, consider T.X. Hammes and Diane DiEuliis, “Contemporary Great Power Technological Competitive Factors in the Fourth Industrial Revolution,” in Lynch, *Strategic Assessment 2020*, 105–117, available at <<https://ndupress.ndu.edu/Media/News/News-Article-View/Article/2404319/4-contemporary-great-power-technological-competitive-factors-in-the-fourth-indu/>>; T.X. Hammes, “Key Technologies and the Revolution of Small, Smart, and Cheap in the Future of Warfare,” in Lynch, *Strategic Assessment 2020*, 121–137, available at <<https://ndupress.ndu.edu/Media/News/News-Article-View/Article/2404322/5-key-technologies-and->

the-revolution-of-small-smart-and-cheap-in-the-future-of/

>; Thomas F. Lynch III, “Conclusion: Realities, Imperatives, and Principles in a New Era of Great Power Competition,” in Lynch, *Strategic Assessment 2020*, 319–324, available at <<https://ndupress.ndu.edu/Media/News/News-Article-View/Article/2405118/15-conclusion-realities-imperatives-and-principles-in-a-new-era-of-great-power/>>.

¹⁰ Lynch and Saunders, “Contemporary Great Power Geostrategic Dynamics: Relations and Strategies,” in Lynch, *Strategic Assessment 2020*.

¹¹ Antony J. Blinken, “A Foreign Policy for the American People,” speech, Department of State, Washington, DC, March 3, 2021, available at <<https://www.state.gov/a-foreign-policy-for-the-american-people/>>.

¹² For a conspicuous example of uncorroborated and suspect claims that China has a master plan for global dominance, see Michael Pillsbury, *The Hundred-Year Marathon: China’s Secret Strategy to Replace America as the Global Superpower* (New York: St. Martin’s Press, 2015). For a more nuanced view of China’s strategic narrative and the range of aspirations inherent in China’s “community of common destiny,” see Lynch and Saunders, “Contemporary Great Power Geostrategic Dynamics: Relations and Strategies,” in Lynch, *Strategic Assessment 2020*, 53–57. Also see Phillip C. Saunders, “Implications: China in the International System,” in *The Chinese People’s Liberation Army in 2025*, ed. Roy Kamphausen and David Lai (Carlisle Barracks, PA: Strategic Studies Institute, July 2015); “China’s Concept of the World Order: Theory and Practice,” *Strategic Survey 2019: The Annual Assessment of Geopolitics* (London: International Institute for Strategic Studies, October 2019), 27, 390–398; Nadège Rolland, “A Concise Guide to the Belt and Road Initiative,” National Bureau of Asian Research, April 11, 2019, available at <<https://www.nbr.org/publication/a-guide-to-the-belt-and-road-initiative/>>; Alastair Iain Johnston, “China in a World of Orders: Rethinking Compliance and Challenge in Beijing’s International Relations,” *International Security* 44, no. 2 (Fall 2019), 9–60.

¹³ See Aaron L. Friedberg, “Competing with China,” *Survival* 60, no. 3 (2018), 7–64.

¹⁴ This conclusion is based on detailed analysis affirming that Russia clearly is a contemporary Great Power (contrary to those who argue otherwise) because its limited economic and ideological power attributes and potent but declining military, diplomatic, and communications tools make Moscow most capable of achieving foreign policy outcomes in its near-abroad. It also has a nontrivial ability to project power for influence in the Middle East, the Arctic, and cyberspace. But Moscow’s unambiguous relative economic decline along with ideological and political challenges make its Great Power status far from certain in

the mid to long term. Find details in Lynch and Saunders, “Contemporary Great Power Geostrategic Dynamics: Competitive Elements and Tool Sets,” in Lynch, *Strategic Assessment 2020*, especially 92–96, 99.

¹⁵ Lynch and Saunders, “Contemporary Great Power Geostrategic Dynamics: Relations and Strategies,” Lynch, *Strategic Assessment 2020*, 65–67.

¹⁶ For details, see Eugene Rumer and Richard Sokolsky, *Thirty Years of U.S. Policy Toward Russia: Can the Vicious Circle Be Broken?* (Washington, DC: Carnegie Endowment for International Peace, June 20, 2019), available at <<https://carnegieendowment.org/2019/06/20/thirty-years-of-u.s.-policy-toward-russia-can-vicious-circle-be-broken-pub-79323>>.

¹⁷ See “Major Findings on Contemporary Great Power Competition,” in Lynch, *Strategic Assessment 2020*, xvii; Robert Sutter, *China-Russia Relations: Strategic Implications and U.S. Policy Options*, NBR Special Report #73 (Washington, DC: National Bureau of Asian Research, September 2018), available at <https://www.nbr.org/wp-content/uploads/pdfs/publications/special_report_73_china-russia_cooperation_sep2018.pdf>; Vasily Kashin, “Tacit Alliance: Russia and China take Military Partnership to a New Level,” Carnegie Moscow Center, October 22, 2019, available at <<https://carnegie.ru/commentary/80136>>; Robert Kaplan, *The Return of Marco Polo’s World: War, Strategy, and American Interests in the Twenty-First Century* (New York: Random House, 2018), 215–218.

¹⁸ For an overview of the key elements of the U.S. Free and Open Indo-Pacific vision from an American perspective, see *A Free and Open Indo-Pacific: Advancing a Shared Vision* (Washington, DC: Department of State, November 4, 2019), available at <<https://www.state.gov/wp-content/uploads/2019/11/Free-and-Open-Indo-Pacific-4Nov2019.pdf>>. Some Western analysts believe that community of common destiny expresses Beijing’s long-term vision for transforming the international environment to make it compatible with China’s governance model and emergence as a global leader. Others view it as much less deterministic or threatening, assessing China’s main motive as one of sustaining a favorable external environment for China’s economic development in the first two to three decades of the 21st century or a “period of strategic opportunities.” For a comparative evaluation of China’s ambiguous call for a community of common destiny, see Liza Tobin, “Xi’s Vision for Transforming Global Governance: A Strategic Challenge for Washington and Its Allies,” *Texas National Security Review* 2, no. 1 (November 2018), available at <<https://tnsr.org/2018/11/xis-vision-for-transforming-global-governance-a-strategic-challenge-for-washington-and-its-allies/>>; Denghua Zhang,

“The Concept of ‘Community of Common Destiny’ in China’s Diplomacy: Meaning, Motives and Implications,” *Asia and the Pacific Policy Studies* 5, no. 2 (March 2018), available at <<https://onlinelibrary.wiley.com/doi/pdf/10.1002/app5.231>>.

¹⁹ Lynch and Saunders, “Contemporary Great Power Geostategic Dynamics: Relations and Strategies,” in Lynch, *Strategic Assessment 2020*, 59–65; Thomas F. Lynch III, James Przystup, and Phillip C. Saunders, “The Indo-Pacific Competitive Space: China’s Vision and the Post-World War II American Order,” in Lynch, *Strategic Assessment 2020*, 211–213, available at <<https://ndupress.ndu.edu/Media/News/News-Article-View/Article/2404551/9-the-indo-pacific-competitive-space-chinas-vision-and-the-postworld-war-ii-ame/>>.

²⁰ Lynch, Przystup, and Saunders, “The Indo-Pacific Competitive Space,” in Lynch, *Strategic Assessment 2020*, 204–207.

²¹ *Ibid.*, 197–211.

²² Lynch and Saunders, “Contemporary Great Power Geostategic Dynamics: Relations and Strategies,” in Lynch, *Strategic Assessment 2020*, 50–52, 58–59.

²³ Steven Philip Kramer and Irene Kyriakopoulos, “Whither Europe in a New Era of Great Power Competition? Resilient but Troubled,” in Lynch, *Strategic Assessment 2020*, 262–265, available at <<https://ndupress.ndu.edu/Media/News/News-Article-View/Article/2404614/12-whither-europe-in-a-new-era-of-great-power-competition-resilient-but-troubled/>>.

²⁴ Lynch and Saunders, “Contemporary Great Power Geostategic Dynamics: Relations and Strategies,” in Lynch, *Strategic Assessment 2020*, 64–67.

²⁵ Lynch and Hoffman, “Past Eras of Great Power Competition,” in Lynch, *Strategic Assessment 2020*, 18–20.

²⁶ *Ibid.*, 22–25.

²⁷ Aaron Friedberg, *The Weary Titan: Britain and the Experience of Relative Decline, 1895–1905* (Princeton: Princeton University Press, 1988), 14–17, 286; Lynch and Hoffman, “Past Eras of Great Power Competition,” in Lynch, *Strategic Assessment 2020*, 36–39.

²⁸ China does not possess and is unlikely to attain sufficient power assets in the coming decade to enable a strategy of remaking the international order in its favor before domestic risk factors collapse Chinese Communist Party (CCP) rule—even if that was its actual strategy. See Lynch and Saunders, “Contemporary Great Power Geostategic Dynamics: Competitive Elements and Tool Sets,” in Lynch, *Strategic Assessment 2020*, 97–99. For an opposite view that asserts China possesses a global grand strategy aspiring for leadership of a new tributary system soon to be resourced through a massive effort organized under three overlapping policies, carrying the names “Made in China 2025,” “Belt and Road Initiative,”

and “Military-Civil Fusion,” see H.R. McMaster, “How China Sees the World: And How We Should See China,” *The Atlantic*, May 2020, available at <<https://www.theatlantic.com/magazine/archive/2020/05/mcmaster-china-strategy/609088/>>.

²⁹ Michael Beckley, “The Power of Nations: Measuring What Matters,” *International Security* 43, no. 2 (Fall 2018), 22–25; Lynch and Saunders, “Contemporary Great Power Geostategic Dynamics: Competitive Elements and Tool Sets,” in Lynch, *Strategic Assessment 2020*, 96–97.

³⁰ For a discussion of the unipolar moment and its impact on American post-Cold War strategic thinking, see Charles Krauthammer, “The Unipolar Moment,” *Foreign Affairs* 70, no. 1 (1990), 23–33.

³¹ See Anthony Lake, “From Containment to Enlargement,” remarks, Johns Hopkins University, School of Advanced International Studies, Washington, DC, September 21, 1993, <<https://www.mtholyoke.edu/acad/intrel/lakedoc.html>>.

³² See *National Security Strategy of the United States of America* (Washington, DC: The White House, December 2017), available at <<https://trumpwhitehouse.archives.gov/wp-content/uploads/2017/12/NSS-Final-12-18-2017-0905.pdf>>; *Summary of the 2018 National Defense Strategy of the United States of America: Sharpening the American Military’s Competitive Edge* (Washington, DC: Department of Defense, 2018), available at <<https://dod.defense.gov/Portals/1/Documents/pubs/2018-National-Defense-Strategy-Summary.pdf>>.

³³ For examples and analysis of such criticisms, see Eliot A. Cohen, “A Reckoning for Obama’s Foreign-Policy Legacy,” *The Atlantic*, May 15, 2018, available at <<https://www.theatlantic.com/ideas/archive/2018/05/lessons-obama-era-foreign-policy-officials-should-learn-from-trump/560387/>>; Aaron David Miller and Richard Sokolosky, “Trump Isn’t Just Reversing Obama’s Foreign Policies. He’s Making it Impossible for His Successor to Go Back to Them,” *Politico*, April 23, 2019, available at <<https://www.politico.com/magazine/story/2019/04/23/trump-obama-foreign-policy-226708/>>; Michael Warren, “Trump’s Obama Obsession Drives His Foreign Policy,” CNN, January 8, 2020, available at <<https://www.cnn.com/2020/01/07/politics/trump-obama-obsession-foreign-policy/index.html>>.

³⁴ See John Haltiwanger and Sonam Sheth, “Biden’s Foreign Policy Will Be ‘Day and Night’ from Trump’s But He Faces Massive Challenges, Veteran Diplomats Warn,” *Business Insider*, November 24, 2020, available at <<https://www.businessinsider.com/biden-foreign-policy-will-mitigate-trump-damage-but-have-challenges-2020-11>>; Kylie Atwood and Nicole Gauoette, “How Biden Plans to Undo Trump’s ‘America First’ Foreign Policy

and Return U.S. to World Stage,” CNN, October 30, 2020, available at <<https://www.cnn.com/2020/10/31/politics/biden-foreign-policy-plans/index.html>>.

³⁵ Kurt M. Campbell and Jake Sullivan, “Competition Without Catastrophe: How America Can Both Challenge and Coexist with China,” *Foreign Affairs* (September/October 2019), available at <<https://www.foreignaffairs.com/articles/china/competition-with-china-without-catastrophe>>.

³⁶ *Ibid.*

³⁷ Blinken, “A Foreign Policy for the American People.”

³⁸ *Ibid.*

³⁹ *Ibid.*

⁴⁰ *Interim National Security Strategic Guidance* (Washington, DC: The White House, March 2021), 7–8, available at <<https://www.whitehouse.gov/briefing-room/statements-releases/2021/03/03/interim-national-security-strategic-guidance/>>.

⁴¹ *Ibid.*, 7–22.

⁴² Blinken, “A Foreign Policy for the American People.”

⁴³ Lynch and Saunders, “Contemporary Great Power Geostategic Dynamics: Competitive Elements and Tool Sets,” in Lynch, *Strategic Assessment 2020*, 80–81, 86–88, 93–94, 97–99.

⁴⁴ *Ibid.*, 98.

⁴⁵ Lynch and Saunders, “Contemporary Great Power Geostategic Dynamics: Relations and Strategies,” in Lynch, *Strategic Assessment 2020*, 82, 84; Lynch, Przystup, and Saunders, “The Indo-Pacific Competitive Space,” in Lynch, *Strategic Assessment 2020*, 200–202.

⁴⁶ Lynch, Przystup, and Saunders, “The Indo-Pacific Competitive Space,” in Lynch, *Strategic Assessment 2020*, 202–204.

⁴⁷ Lynch and Saunders, “Contemporary Great Power Geostategic Dynamics: Relations and Strategies,” in Lynch, *Strategic Assessment 2020*, 89–91.

⁴⁸ *Ibid.*, 84–86; Lynch, Przystup, and Saunders, “The Indo-Pacific Competitive Space,” in Lynch, *Strategic Assessment 2020*, 207–211.

⁴⁹ For an overview of these main principles based upon comparative historical case studies, see Lynch and Hoffman, “Past Eras of Great Power Competition,” in Lynch, *Strategic Assessment 2020*, 36–38.

⁵⁰ *Ibid.*

⁵¹ Charles Edel and Hal Brands, “The Real Origins of the U.S.-China Cold War,” *Foreign Policy*, June 2, 2019, available at <<https://foreignpolicy.com/2019/06/02/the-real-origins-of-the-u-s-china-cold-war-big-think-communism/>>.

⁵² Many Chinese leaders cannot believe that the Obama administration did not react more strongly to the 2010 seizure of Scarborough Shoal and 2014 arming of it despite Chairman Xi Jinping’s promise to Obama that year that China had no intention of doing so. These

Chinese officials indicate that a firm U.S. and allied response can moderate intemperate Chinese aggression in the Indo-Pacific region. See Evan Osnos, “The Future of America’s Contest with China,” *The New Yorker*, January 6, 2020, available at <<https://www.newyorker.com/magazine/2020/01/13/the-future-of-americas-contest-with-china>>.

⁵³ Denny Roy, “China Won’t Achieve Regional Hegemony,” *The Washington Quarterly* 43, no. 1 (Spring 2020), 105–106.

⁵⁴ See Lynch, Przystup, and Saunders, “The Indo-Pacific Competitive Space,” in Lynch, *Strategic Assessment 2020*, 204–207. For a broader modern frame of reference for U.S. strategy in the western Pacific, see T.X. Hammes, *An Affordable Defense of Asia* (Washington, DC: The Atlantic Council, June 2020), available at <<https://www.atlanticcouncil.org/wp-content/uploads/2020/06/An-Affordable-Defense-of-Asia-Report.pdf>>.

⁵⁵ For variations on this unhelpfully defeatist notion of de facto spheres of influence, see Graham Allison, “The New Spheres of Influence: Sharing the Globe with Other Great Powers,” *Foreign Affairs* 99, no. 2 (March/April 2020), 30–40; Fareed Zakaria, “The New China Scare: Why America Shouldn’t Panic About Its Latest Challenger,” *Foreign Affairs* 99, no. 1 (January/February 2020), 52–69.

⁵⁶ Edel and Brands, “The Real Origins of the U.S.-China Cold War.”

⁵⁷ Osnos, “The Future of America’s Contest with China.”

⁵⁸ Choosing proper allies also was a competitive mindset success for the United States during the Cold War. See Stephen M. Walt, “Yesterday’s Cold War Shows How to Beat China Today,” *Foreign Policy*, July 29, 2019, available at <<https://foreignpolicy.com/2019/07/29/yesterdays-cold-war-shows-how-to-beat-china-today/>>.

⁵⁹ Michael Broers, “Pride and Prejudice: The Napoleonic Empire Through the Eyes of Its Rulers,” in *Napoleon’s Empire: European Politics in Global Perspective*, ed. Ute Planert (New York: Palgrave Macmillan, 2016), 307–317; Michael V. Leggiere, “Enduring Strategic Rivalries: Great Britain vs. France During the French Wars (1792–1815),” in *Great Strategic Rivalries: From the Classical World to the Cold War*, ed. James Lacey (New York: Oxford University Press, 2016), 289–390.

⁶⁰ See Blinken, “A Foreign Policy for the American People”; *Interim National Security Strategic Guidance*.

⁶¹ “Don’t Be Fooled by the Trade Deal Between America and China,” *The Economist*, January 2, 2020, available at <<https://www.economist.com/leaders/2020/01/02/dont-be-fooled-by-the-trade-deal-between-america-and-china>>.

⁶² Campbell and Sullivan, “Competition Without Catastrophe,” 110.

⁶³ Lynch and Hoffman, “Past Eras of Great

Power Competition,” in Lynch, *Strategic Assessment 2020*, 29.

⁶⁴ *Ibid.*, 34, 37.

⁶⁵ See the ongoing zoological debate about theories of accidental release of COVID-19 from a laboratory in China and the continuing frustration by scientists and investigators that important information is being shrouded by the Chinese government, in Jesse D. Blum et al., “Investigate the Origins of COVID-19,” *Science* 372, no. 6543 (May 14, 2021), available at <<https://science.sciencemag.org/content/372/6543/694.1>>.

⁶⁶ Ravi Chandra, “Calling COVID-19 a ‘Chinese Virus’ or ‘Kung Flu’ Is Racist,” *Psychology Today*, March 18, 2020, available at <<https://www.psychologytoday.com/us/blog/the-pacific-heart/202003/calling-covid-19-chinese-virus-or-kung-flu-is-racist>>.

⁶⁷ For details on the organizations involved in international propaganda and influence activities, see appendix I in Larry Diamond and Orville Schell, eds., *China’s Influence & American Interests: Promoting Constructive Vigilance* (Stanford: Hoover Institution Press, 2019), 133–141. Some former policymakers specifically focus on the Chinese Ministry of State Security, the United Front Work Department, and the Chinese Students and Scholars Association as ones for attention to counter CCP-driven propaganda. See H.R. McMaster, “How China Sees the World.”

⁶⁸ Osnos, “The Future of America’s Contest with China.”

⁶⁹ Proper “safeguards” for Chinese student, teacher, and research visas should include tight limitations on Confucius Institutes in the United States to eliminate their revealed role in espionage, monitoring, and thought-policing on behalf of the CCP. The ideas for an American strategy valuing the Chinese people, while holding the CCP to account, include those found in McMaster, “How China Sees the World.”

⁷⁰ Strategic patience during the Cold War also was an American competitive mindset virtue. See Walt, “Yesterday’s Cold War Shows How to Beat China Today.”

⁷¹ See Minxin Pei, “China’s Coming Upheaval,” *Foreign Affairs* (May/June 2020); “Revised Demographic Forecasts for China: Key Takeaways,” *Economist*, July 2, 2019; William H. Overholt, *China’s Crisis of Success* (Cambridge, UK: Cambridge University Press, 2018).

⁷² See William H. Overholt, “The West Is Getting China Wrong,” *East Asia Forum*, August 11, 2018, available at <<https://www.eastasiaforum.org/2018/08/11/the-west-is-getting-china-wrong/>>; Yasheng Huang, “China Has a Big Economic Problem and It Isn’t the Trade War,” *New York Times*, January 17, 2020.

⁷³ See Derek Grossman, “The Quad Is Poised to Become Openly Anti-China Soon,” RAND blog, July 28, 2020, available at

<<https://www.rand.org/blog/2020/07/the-quad-is-poised-to-become-openly-anti-china-soon.html>>; James Holmes, “Can the Quad Transform Into an Alliance to Contain China?” *The National Interest*, March 21, 2021, available at <<https://nationalinterest.org/feature/can-quad-transform-alliance-contain-china-180786?page=0%2C1>>; “Why India Must Exercise the Quad Option,” *The Times of India* (Mumbai), October 15, 2020, available at <http://timesofindia.indiatimes.com/articleshow/78676596.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst>.

⁷⁴ Ali Wyne, “How to Think About Potentially Decoupling from China,” *The Washington Quarterly* 43, no. 1 (2020), 41–64.

⁷⁵ For similar conclusions, see Joseph S. Nye, Jr., “Power and Interdependence with China,” *The Washington Quarterly* 43, no. 1 (2020), 13; Wyne, “How to Think About Potentially Decoupling from China,” 50–52.

⁷⁶ Osnos, “The Future of America’s Contest with China”; Martin Wolf, “The Looking 100-Year U.S.-China Conflict,” *Financial Times*, June 4, 2019.

⁷⁷ Osnos, “The Future of America’s Contest with China.”

⁷⁸ For a detailed assessment of options for a U.S. strategic mindset for competition with China, see Frank G. Hoffman, “U.S. Strategies for Competing Against China,” in Lynch, *Strategic Assessment 2020*, 289–308, available at <<https://ndupress.ndu.edu/Media/News/News-Article-View/Article/2404635/14-us-strategies-for-competing-against-china/>>. For an overview of some of the Biden administration planned initiatives to renew and improve American productivity and poise it for vigorous, successful technological and strategic competition with China into the future, see *Fact Sheet: The American Jobs Plan* (Washington, DC: The White House, March 31, 2021), available at <<https://www.whitehouse.gov/briefing-room/statements-releases/2021/03/31/fact-sheet-the-american-jobs-plan/>>.

⁷⁹ *Interim National Security Strategic Guidance*, 20.

⁸⁰ See Nye, “Power and Interdependence with China,” 16.

⁸¹ McMaster, “How China Sees the World.”

NDU Press Congratulates the Winners of the 2021 Essay Competitions

NDU Press virtually hosted the final round of judging in May–June 2021, during which 27 faculty judges from 18 participating professional military education (PME) institutions selected the best entries in each category. There were 110 submissions in this year’s three categories—a record number. First Place winners in each of the three categories appear in the following pages.

Secretary of Defense National Security Essay Competition



The 15th annual competition was intended to stimulate new approaches to coordinated civilian and military action from a broad spectrum of civilian and military students. Essays address U.S. Government structure, policies, capabilities, resources, and/or practices and provide creative, feasible ideas on how best to orchestrate the core competencies of our national security institution.

First Place

Lieutenant Colonel Charles L. Carter, USAF

U.S. Army War College

“Reading the Tea Leaves: Understanding Chinese Deterrence Signaling”

Second Place

Lieutenant Commander Suraj Aiyappa, Indian Navy

U.S. Naval War College (Intermediate)

“Indian Ocean Island Chain: A Potential Indo-U.S. Strategy for Maintaining Maritime Superiority in the Indian Ocean Region”

Third Place

Lieutenant Colonel Eric V.M. Kreitz, USA; Lieutenant Colonel Claudia Bermudez, USAF; Colonel Bill Greer, USA; and Colonel Kathleen Turner, USA

Joint Forces Staff College–Joint and Combined Warfighting School

“Civ-Mil Implementation of the National Guard Response to COVID-19”

Chairman of the Joint Chiefs of Staff Strategic Essay Competition



This annual competition, in its 40th year in 2021, challenges students at the Nation’s joint PME institutions to write research papers (5,000 words) or articles (1,500 words) about significant aspects of national security strategy to stimulate strategic thinking, promote well-written research, and contribute to a broader security debate among professionals.

Strategic Research Paper

First Place (Tie)

Captain Aaron Smith, USMC

Marine Corps University–Expeditionary Warfare School

“Purpose-Built Antiarmor Teams: An Imperative for the Marine Corps Ground Combat Element”

First Place (Tie)

Major Douglas J. Verblauw, USMC

Marine Corps University–Command and General Staff College

“Degrading China’s Integrated Maritime Campaign”

Second Place

Lieutenant Colonel Christopher G. Adams, USAF; Lieutenant

Commander Camilo Carillo, USN; Lieutenant Colonel Christopher

W. McLeod, USSF; and Lieutenant Colonel Amber R. White, USA

Joint Forces Staff College–Joint and Combined Warfighting School

“Deterrence in Space: Apply the Fundamentals”

Third Place

Commander Timothy Chesser, USN;

Lieutenant Colonel Jason Seitz, USAF; Lieutenant Commander Dan

Owens, USCG; and Major Chris Telley, USA

Joint Forces Staff College–Joint and Combined Warfighting School

“Angling for Competition: Countering Illegal, Unreported, and Unregulated Fishing as Irregular Warfare”

Strategy Article

First Place

Lieutenant Colonel Timothy Renahan, USA

U.S. Army War College

“Realizing Energy Independence on U.S. Military Bases”

Second Place

Commander John Ferrari, USN; Lieutenant Colonel Leonard Miller, USAF; Major Steven Lem, USA; and Lieutenant Colonel Carmona March, USA

Joint Forces Staff College–Joint and Combined Warfighting School

“The Truth Is Out There: State-Sponsored Narratives and Credibility After International Incidents”

Third Place

Jonathon Dixon, Department of the Treasury

National War College

“Climate Change and a Nuclear North Korea”

Joint Force Quarterly Maerz Awards

In its 6th year, the *JFQ* Maerz Awards, chosen by the staff of NDU Press, recognize the most influential articles from the previous year’s four issues. Five outstanding articles were chosen for the Maerz Awards, named in honor of Mr. George C. Maerz, former writer-editor of NDU Press.

Forum

Matthew A. Hallex and Travis S. Cottom

“Proliferated Commercial Satellite Constellations: Implications for National Security,” *JFQ* 97 (2nd Quarter 2020)

JPME Today

David Wigmore

“Expanding Atrocity Prevention Education for Rising U.S. National Security Leaders,” *JFQ* 97 (2nd Quarter 2020)

Commentary

Charles Davis and Kristian E. Smith
“The Psychology of Jointness,” *JFQ* 98 (3rd Quarter 2020)

Features

Matthew C. Gaetke
“Mobilization in the 21st Century: Asking the Right Question,” *JFQ* 99 (4th Quarter 2020)

Recall

Michael R. Rouland and Christian E. Fearer
“Calling Forth the Military: A Brief History of the Insurrection Act,” *JFQ* 99 (4th Quarter 2020)

Joint Doctrine

Matthew N. Metzger, Todd J. McCubbin, Heidi B. Fouty, Ken G. Morris, John J. Gutierrez, and John Lorenzen
“Failed Megacities and the Joint Force,” *JFQ* 96 (1st Quarter 2020)

Distinguished Judges

Senior faculty members from participating PME institutions took time out of their busy schedules (and online teaching duties) to serve as judges for this year’s competitions. Their personal dedication and professional excellence ensured strong and credible competitions.

The judges were Dr. Amy Baxter, Air University eSchool of Graduate PME; Dr. Brandy Lyn Brown, Marine Corps University; Dr. Mark A. Bucknam, National War College; Dr. Grant Campbell, Marine Corps University–Expeditionary Warfare School; Dr. Charles Chadbourne, U.S. Naval War College; Dr. James Chen, College of Information and Cyberspace; Dr. Don Chisholm, U.S. Naval War College; Dr. Benjamin “Frank” Cooling, Eisenhower School of National Security and Resources Strategy; Dr. Richard L. DiNardo, Marine Corps Staff College; Dr. Antulio J. Echevarria II, U.S. Army War College; Dr. Peter Eltsov, College of International Security Affairs; Dr. C.J. Horn, Air Force Cyber College;

Dr. James D. Kiras, School of Advanced Air and Space Studies; Dr. Larry D. Miller, U.S. Army War College; Dr. Kristin Mulready-Stone, U.S. Naval War College; Dr. John O’Brien, College of Information and Cyberspace; Dr. Robert J. Orr, National War College; Dr. Jesse P. Samluk, National Intelligence University; Dr. Nicholas E. Sarantakes, U.S. Naval War College; Dr. Eric Shibuya, Marine Corps University; Dr. Naunihal Singh, U.S. Naval War College; Dr. Paul Springer, Air Command and Staff College; Dr. Dale F. Spurlin, Command and General Staff College; Dr. John Terino, Air Command and Staff College; Dr. Jeff Turner, Joint Forces Staff College; Dr. Elizabeth D. Woodward, Air War College; and Dr. Christopher Yung, Marine Corps University.

Air Force B-1B Lancer assigned to 37th Expeditionary Bomb Squadron, deployed from Ellsworth Air Force Base, South Dakota, to Andersen Air Force Base, Guam, prepares to fly bilateral mission with Japan Air Self-Defense Force F-15s in vicinity of Senkaku Islands, August 15, 2017 (U.S. Air Force/Christopher Quail)



Reading the Tea Leaves

Understanding Chinese Deterrence Signaling

By Charles L. Carter

China's rise over the past decade as a Great Power rival to the United States has captured American policymakers' attention. The People's Republic of China (PRC) increasingly asserts its will as it perceives its growing strength in the international community. Beijing seeks, like all states, to deter other powers from harming its interests and conveys those interests

through both statements and actions. However, the United States has not always understood these signals, resulting in miscommunications that have significant consequences for both states. In 1950, for example, Washington's failure to recognize PRC deterrence signals and anticipate the People's Liberation Army's (PLA's) entry into the Korean War dramatically length-

ened the war and increased costs.¹ More recently, in 1995, Beijing's response to the U.S. issuance of a visitor's visa to Taiwanese President Lee Teng-hui, and the associated damage to Sino-American relations, further exemplifies these communication breakdowns and the consequences of misunderstandings.

The stakes are higher than ever given China's military strength and the increasingly contentious relationship between Washington and Beijing. While both China and the United States wish to avoid a military conflict with each

Lieutenant Colonel Charles L. Carter, USAF, wrote this essay while a student at the U.S. Army War College. It won the 2021 Secretary of Defense National Security Essay Competition.

other, if these states exchange blows, the potential damage to their relationships and prestige and the costs of war for both the winner and loser would be severe. It would also be difficult to determine the outcome of such a conflict in advance. Washington and Beijing, therefore, prefer to protect their interests through deterrence instead of compellence.² But each state's unique culture and strategic perspective affect its deterrence signaling methods and how it interprets other states' signals. These differing deterrence languages may lead to costly misunderstandings. By evaluating Chinese statements and actions through their paradigm, U.S. National Security professionals can better understand China's approach to deterrence and interpret its signals to avoid miscalculations.

This essay seeks to illuminate Beijing's deterrence signaling by reviewing key concepts in Western deterrence theory to provide a foundation for discussion. With this foundation laid, the essay then contrasts these concepts with historical PRC deterrence practice to identify nuances and trends. Finally, the essay illustrates China's unique approach to deterrence signaling, using the ongoing Sino-Indian Ladakh border crisis as a case study.

Deterrence in Coercion Theory

Before examining how the PRC approaches deterrence, it is useful to review modern coercion theory to frame the discussion. In his classic *Arms and Influence*, Thomas Schelling identifies coercion as the use of threats to influence another entity to comply with one's wishes.³ Through coercion, an actor translates its power to inflict pain on another entity into bargaining power.⁴ While Schelling focuses on the threat of military force, the power to hurt may come from various sources, such as economic sanctions or diplomatic actions.⁵

Schelling breaks coercion into two subsets: compellence and deterrence. *Compellence* is the use of coercion to influence a targeted person or organization to either perform or cease an action.⁶ *Deterrence*, in contrast, is a coercive act through which one actor seeks to

prevent another actor from taking an action through threats of unacceptable consequences.⁷ The coercer's intent distinguishes compellence and deterrence. Although they are distinct concepts, a state may simultaneously compel and deter a target state, thereby coercing the state to take a desired action while refraining from an undesired activity. Deterrence is generally less costly than compellence because it does not necessarily require the coercer or the target to do anything other than signal. Compellence, in comparison, requires the coercer to punish a victim until the target changes behavior. Additionally, because compellence involves the use of force, it is subject to escalation, which may lead to unpredictable outcomes.⁸ As a result of these differences, deterrence is generally the dominant form of coercion between states.

Effective deterrence requires several elements. First, the threatener must effectively communicate what it does not want the threatened actor to do, and then the consequences that may occur if the target carries out the unwanted actions.⁹ Second, the target must anticipate the credibility of the threatened consequences, meaning whether the coercer has the capability and will to follow through on its threats.¹⁰ Third, the deterrence target must know how to avoid the threatened consequences by refraining from the unwelcome acts.¹¹ Fourth, because deterrence is a means of bargaining, the threatened consequences must be more painful to the target than the cost of abstaining from the undesirable actions.¹² Fifth, the deterrence target must not be able to impose sufficient costs on the threatening power to cause the latter to refrain from carrying out its threats. In other words, there must be an imbalance in the ability to hurt or the will to accept costs between the threatener and the threatened.¹³

Communication is the foundation of deterrence. It provides the means to convey what actions are not wanted and the expected consequences of taking those actions.¹⁴ To effectively coerce the target, the threatening power must convince the victim that it has the capability and

will to follow through with its threats.¹⁵ An actor can establish the credibility of its capabilities by displaying its military forces via parades and press media or demonstrations to defense attachés and other diplomats. A state may alternatively publicize information regarding its capabilities, allow foreign observers at military exercises, or ensure that other countries' intelligence services are made aware of its capabilities. Threats communicated by actions, such as military deployments or drills, are typically considered more credible than statements alone because these events demonstrate a public commitment by the threatening power.¹⁶ These actions may also position military forces to harm the threatened state, further bolstering the threat's credibility. If the target fails to comply in the face of this overt threat, the deterring power risks incurring reputational damage if it fails to follow through on its threat.

Demonstrating capability, however, is insufficient; a deterring power must also establish the will to use its capabilities.¹⁷ There are various means to executing this, such as public military exercises or carefully calibrated bellicose language from government officials in diplomatic and press channels. One of the most convincing demonstrations of the will to use military force is conducting limited military actions against the threatened power. For example, to demonstrate both capability and resolve in deterrence, a threatening state might conduct military aircraft or ship patrols close to a target state's borders or forces.

Alternatively, a deterring power may execute a short-duration campaign of military action, such as a raid or airstrikes, against specific targets within the victim state to firmly communicate its will to escalate and use force. These attacks might coincide with public readiness drills and forward deployments to demonstrate that the threatening power can bring additional forces to bear to inflict further punishment. These actions validate the threatening power's will to use force and provide a sample of the promised consequences should the target take an undesirable action.¹⁸ Similarly, if capabilities outside the threat of military force



Indian Army's 11th Jammu and Kashmir Rifles Battalion and U.S. Army's 2-3 Infantry Battalion kick off bilateral exercise Yudh Abhyas with opening ceremony, February 8, 2021, in India (U.S. Army/Joseph Tolliver)

are used to deter, the threatening power must also demonstrate the capacity and will to use them to inflict harm.

A state may also use progressive force to deter a target from taking unwanted actions, simultaneously causing harm while promising ever-increasing damage if the target does not comply.¹⁹ The use of progressive force can blur the line between deterrence and compellence. The coercer may simultaneously intend to deter a target from taking a new, undesired action while compelling the target to cease an existing unwanted activity.

In some cases, a power may lack the ability to hurt its deterrence target without incurring significant damage itself. In these circumstances, for its threats to be credible, the coercer must successfully demonstrate its willingness to tolerate this punishment.²⁰ The actor may then try to make its threats credible through policy statements indicating the interest in question is so great that the power is willing

to pay an exorbitant price to protect it. Mao Zedong's assertion that he did not fear nuclear war—even if it meant the loss of half the world's population because he was confident the resulting world order would be socialist—is an example of this type of rhetoric.²¹

However, because of the high stakes in question, it is difficult for the threatening power to convince its target that its words will be backed by action. Accordingly, the deterring state may have to demonstrate its will through activities such as limited military attacks that threaten to escalate to large-scale conflicts or by taking measures that deny the deterrer the choice not to act.²² An excellent example of this last point is the placement of U.S. troops near the South Korean border. In the event of an invasion of the Republic of Korea by North Korea, these U.S. forces would inevitably become embroiled in the ensuing war, thus functioning as a tripwire. Because these

troops would become immediately engaged in the conflict, Washington would be required to respond to Pyongyang's attack, if only because of American public opinion. This guarantee of U.S. involvement in any invasion of South Korea is a deterrent to such attacks.²³

While demonstrating credibility is vital, a threatening power must also consider the impact of reputational damage in its deterrence efforts.²⁴ While most coercion discussions focus on material harm, an actor's reputation is a highly valued asset subject to damage. A state seeking to coerce another power must consider the reputational damage the target may incur if it complies with the threatener's demands. This is a particular consideration when actions become compellence because the threatening power is actively, and often overtly, doing something to the target power.²⁵ However, this is also a consideration in deterrence if the threatening power's actions are

aggressive, such as conducting a major military exercise or deployment in proximity to the target state. In these cases, the public display of a threat means the target power will lose face if it complies with the coercer's demands.²⁶ Because of the substantial reputational damage compliance may cause the target, public threats are often ineffective coercion tools.²⁷ Similarly, because compelling actions are usually visible to outside parties, the threatening power may also incur reputational damage if viewed as an aggressor by the international community. Therefore, it is often in the coercer's interests to avoid publicizing its threats or linking its threats to specific demands.

For coercion to be an effective strategy, the threatening power must be confident that it can control any crisis's pace and direction, escalating or deescalating tensions at will.²⁸ The coercer must have the ability to inflict unacceptable harm on its target without the target possessing the capacity to inflict intolerable damage in return.²⁹ This capability provides the threatening power "escalation dominance" over its mark, as it can continue to increase the pain felt by its target and maintain the threat of future pain without fear of meaningful retaliation. This capability reinforces the credibility of the coercer's threats.³⁰

Escalation can take three forms: vertical, horizontal, or political.³¹ In vertical escalation, an actor expands the crisis by bringing more military capacity to bear against the target. For example, if the situation is a border standoff between opposing military forces, the introduction of more troops or more capable weapons would be a vertical escalation. In contrast, in horizontal escalation, an actor extends the conflict into new geographic areas not previously implicated. A historical example of horizontal escalation is the U.S. fear that the Soviet Union might seize West Berlin if Washington attacked Cuba during the Cuban Missile Crisis. While horizontal and vertical escalation focus on expanding military force to escalate a crisis, political escalation enlarges the conflict into new nonmilitary spheres.³² The imposition of new economic and diplomatic sanctions to deter Iran or North

Korea from conducting missile tests or nuclear weapons development activities is an example of political escalation.

The PRC Approach to Deterrence

The PRC understanding of deterrence is generally in line with Western deterrence theory, yet there are important nuances to China's approach. Chinese deterrence practice employs numerous tactics, including seizing initiatives, manipulating escalation risk, managing the publicity of threats, using limited force to enhance its own credibility, ambiguity in linking threats and actions, and using nonmilitary instruments of power to threaten and impose costs. Furthermore, the PRC demonstrates a predictable trend in how it sequences the use of its instruments of power to signal deterrence.

Seizing Initiatives. Beijing's approach to deterrence is guided by the Active Defense strategy identified in China's National Security Law of 2015 and the 2019 white paper *China's National Defense in the New Era*.³³ China describes its posture under this approach as "strategically defensive but operationally offensive."³⁴ Accordingly, if the PRC determines that another state has damaged or intends to damage China's interests at the strategic level, Beijing may act offensively to defend its interests.³⁵ Under this strategy, China seeks to control events on its terms, initiating actions to escalate or deescalate tensions to achieve its objectives.

China's 1979 invasion of Vietnam exemplifies Active Defense. This invasion followed several Vietnamese actions that threatened PRC interests. First, Vietnam's successful war with Cambodia neutralized a Chinese ally.³⁶ In November 1978, Vietnam and the Soviet Union signed a mutual defense treaty. Vietnam also made several military incursions into Chinese territory.³⁷ The PRC viewed these actions as counter to Chinese interests, as disrespectful of Beijing's primacy, and as part of a trend of Hanoi aligning itself with Moscow.³⁸ On February 15, 1979, the PRC announced it would conduct a "defensive counterattack" on

Hanoi.³⁹ Two days later, Beijing conducted a large-scale military invasion with nearly 300,000 troops positioned across its entire border with Vietnam.⁴⁰ After 2 weeks of fighting, Beijing announced it had achieved its objectives and started withdrawing its troops. Moscow did not intervene to aid Hanoi with military forces, although it did provide air transport, communications equipment, and arms. However, Beijing's invasion demonstrated the limits of Soviet security guarantees to Vietnam.⁴¹ The attack also communicated China's willingness to take military action to protect its interests.⁴² Finally, the PRC leveraged the 1979 war to deter Vietnam by periodically highlighting the threat of a second attack if Hanoi continued to threaten Chinese interests.⁴³

Manipulating Escalation Risk.

A critical aspect of China's deterrence theory is the use of risky actions that threaten to escalate a crisis unless the other side accommodates Beijing's demands.⁴⁴ This technique is similar to Schelling's concept of "threats that leave something to chance" and communicates a willingness to take actions that might lead to unacceptable consequences, such as an escalation to a major war or even a nuclear war.⁴⁵ Mao's previously discussed assertion that he would willingly risk half the world's population to defeat capitalism epitomizes this technique.

In addition, Chinese deterrence doctrine and practice emphasize Beijing's willingness to escalate conflict to deny the adversary victory, even at high costs to the PRC.⁴⁶ China's entry into the Korean War and use of mass human wave attacks to push United Nations (UN) forces away from the Chinese border and below the 38th parallel north despite high casualties is an example of this approach. The PLA's use of brute force accomplished China's immediate goal of protecting its border and securing a buffer between the PRC and UN forces. This attack also deterred the United States from conducting military operations near the Chinese border.⁴⁷

China's attack on U.S. forces in Korea also exemplified Beijing's employment of conflict in one area to create deterrence effects in other areas. The human wave



Royal Australian Navy servicemembers of HMAS *Hobart* monitor functioning of ship's 5-inch gun during firing exercise at Rim of the Pacific 2020, Pacific Ocean, August 17, 2020 (Royal Australian Navy)

attacks on U.S. forces in Korea communicated the high price the PRC was willing to pay to protect its core interests. The shock of these attacks and Beijing's demonstrated willingness to incur high casualties served as a deterrent to future American actions that might harm Chinese interests.⁴⁸

Managing the Publicity of Threats. Beijing has demonstrated a calculated approach to using overt and clandestine threats in its deterrence signaling. This approach enables China to preserve decision space and avoid reputational damage. The PRC displays a preference for using nonpublicized military deployments to support deterrence as a means to convey the intensity of its interests and readiness to use military force. The use of clandestine deployments provides a credible threat while avoiding placing the target of deterrence in a position in which backing down would result in a loss of face.⁴⁹ According to Allen Whiting,

the PRC used this tactic to deter the perceived threat of a U.S. and Taiwanese invasion of China in May 1962. By clandestinely deploying PLA forces to the Taiwan Strait, the PRC leveraged U.S. and Taiwanese intelligence capabilities to signal its readiness to defeat an invasion without bringing its deterrent actions into the public sphere.⁵⁰ This technique also provides the Chinese Communist Party (CCP) with decision space by avoiding triggering Chinese nationalist sentiment that may make it difficult for the PRC to back down from a crisis.

In cases in which the PRC deemed the clandestine deployment of forces an insufficient deterrent, China has escalated its deterrence threat through overt military exercises that often include live-fire events and deployments close to the threatened entity. For example, during the 1995–1996 Third Taiwan Strait Crisis, Beijing conducted two rounds of large-scale missile tests and live-fire

military exercises less than 100 miles off Taiwan's shore. Concurrently, China conducted an underground nuclear weapons test and multiple ballistic missile tests.⁵¹

Beijing paired these measures with a statement from the PRC defense minister warning that China "will not . . . give up the use of force and will not sit idle if foreign forces interfere in China's reunification and get involved in Taiwan independence."⁵² China intended these actions to demonstrate its capability to inflict unacceptable harm to the United States and Taiwan. In addition, the bellicose language accompanying these actions communicated Beijing's willingness to employ these threats to protect its existential interests regardless of the costs.

Using Limited Force to Enhance Credibility. Chinese deterrence practice indicates a propensity for limited force to demonstrate the PRC's capability and willingness to escalate a crisis and employ larger scale military forces to deter

adversaries.⁵³ The 1962 border conflict between China and India, discussed in greater detail later, demonstrates this technique.

During this period, and after India established military outposts in China-claimed areas along their shared border, Beijing first responded by ordering Indian forces to withdraw and then initiated diplomatic actions intended to negotiate the withdrawal of Indian troops. After negotiations failed, China threatened, and then executed, limited military incursions into the disputed areas. These incursions involved no more than three Chinese divisions against a roughly equal Indian military force. The Chinese successfully seized the North-East Frontier Agency area and all Chinese-claimed regions of Ladakh. The PLA then destroyed India's outposts in the disputed area and withdrew to the positions it occupied before the crisis.⁵⁴

These actions compelled the Indians to withdraw from the Chinese-claimed areas while deterring further Indian military advances by demonstrating Beijing's capability and will to use military force to protect its territorial integrity.⁵⁵ Additionally, the PLA's unilateral withdrawal to its preconflict positions indicated that China held the initiative to deliberately escalate and deescalate the crisis. The Chinese intended these actions to deter the Indians by signaling that Beijing was ready to fight a war to preserve its territorial claims, but was also willing to return to the status quo ante on the border if New Delhi complied with its demands.⁵⁶ Furthermore, this attack, and the PLA's subsequent withdrawal to China's preconflict positions, communicated the PRC's escalation dominance in the region by demonstrating that Beijing could inflict pain on New Delhi with little fear of retaliation. China's display of escalation dominance on the border reinforced the strength of its deterrence signaling.

Using Ambiguity and Nonmilitary Instruments of Power. China has used seemingly unrelated political escalation to increase the pressure on its coercion targets. During the 2012 Scarborough Shoal crisis, for example, the PRC

imposed trade restrictions on Philippine banana imports by claiming that agricultural inspectors had found pests on the fruit.⁵⁷ In addition, the Chinese International Travel Service, a government-owned travel agency, suspended tourism to the Philippines by citing safety concerns.⁵⁸ These collective actions significantly affected the Filipino economy and created domestic pressure on Manila to deescalate the crisis.⁵⁹ The PRC did not officially link these actions to the Scarborough Shoal crisis, but the Chinese vice minister of Foreign Affairs did imply a linkage in discussion with the Filipino ambassador in Beijing by stating that escalating tensions due to the crisis were "severely damaging the bilateral relations between China and the Philippines."⁶⁰

The PRC similarly used economic coercion in 2010 during a crisis between Beijing and Tokyo over Japan's detention of a Chinese fishing boat captain near the Senkaku Islands. The islands are claimed by both China and Japan, although Japan administratively controls them. On September 7, 2010, a Japan coast guard vessel directed the Chinese fishing trawler *Minjinyu 5179*, operating in Japanese-claimed waters near the Senkaku Islands, to stop for inspection.⁶¹ The *Minjinyu 5179* then attempted to flee and intentionally rammed a second coast guard vessel during the ensuing chase. The coast guard then detained the fishing boat's captain and 14 crew members following the incident. Shortly after Tokyo detained the boat's crew, China began delaying rare earth mineral exports to Japan.⁶² China was Japan's primary source of rare earth minerals—which are critical to the Japanese electronics industry. While the PRC never formally tied the decline in rare earth mineral exports to the Chinese fishing captain's detention, the action coincided with the crisis and placed significant pressure on the Japanese government to improve relations with China.⁶³ The export of rare earth minerals to Japan eventually returned to its normal pace following the fishing crew's release.⁶⁴ Beijing's action thus compelled Japan to release the boat crew and deescalate tensions while simultaneously deterring future Japanese

actions from threatening China's territorial claims.

In another example, in 2020, the PRC restricted Australian exports to China in apparent response to Canberra's public criticism of Chinese policy regarding Hong Kong, the COVID-19 pandemic, Chinese telecommunications infrastructure, and equipment giant Huawei's business practices, along with several other topics.⁶⁵ The PRC also unofficially discouraged Chinese companies from purchasing Australian coal, cotton, and timber. Furthermore, China threatened to place high tariffs on imports of Australian wine by asserting that Canberra sells these products below cost. Because China accounts for approximately one-third of Australia's export trade, these trade barriers significantly threatened Australia's economy.⁶⁶

The PRC once more did not link these trade sanctions to specific policy demands. However, the actions appear as a response to Canberra's calls for an investigation into the origins of COVID-19; its rejection of China's South China Sea claims and continuing military patrols in the region; and its increasingly close ties with India, Japan, and the United States via the Quadrilateral Security Dialogue (Quad).⁶⁷ In formal statements, China's Foreign Minister Wang Yi implied that Australia's negative public comments regarding China drove the deterioration in the countries' bilateral relationship and the associated negative impacts on trade and other areas.⁶⁸ He also highlighted that Australia had instigated the decline in relations and must take positive steps toward China in order for the relationship to improve.⁶⁹

In each of these cases, Beijing never formally acknowledged a tie between its trade restrictions and the target state's policies.⁷⁰ China deliberately avoided linking these sanctions to its diplomatic demands to allow it to achieve its coercion objectives while attempting to avoid appearing as a bullying force.⁷¹ By not openly tying these trade restrictions to diplomatic goals, Beijing enabled its coercion target to deescalate the crisis at hand and comply with China's demands while also saving face.

China has historically accompanied military and economic coercion with threats using its diplomatic and informational instruments of power. For example, during the Third Taiwan Strait Crisis, Beijing's Ministry of Foreign Affairs (MFA) "threaten[ed] severe damage to relations between the PRC and the U.S." in response to Washington's decision to issue a visitor's visa to Taiwanese President Lee Teng-hui.⁷² The PRC canceled several engagements between Chinese and American officials to discuss nuclear weapons and missile technology proliferation.⁷³ The Chinese media also published editorials warning "the [United States] not to interfere in China's internal affairs."⁷⁴

Summary and Trends. Several trends become apparent in China's approach to deterrence by considering this review of historical examples. First, the PRC prefers to seize the initiative to gain escalation dominance. Second, Beijing seeks to communicate a willingness to risk extraordinarily high costs, such as high casualties or a nuclear war, to protect its core interests. Third, the PRC prefers to refrain from public threats to prevent a loss of face for itself or its target and thus preserve both parties' decision space. Fourth, Beijing utilizes ambiguity to avoid linking its coercive threats and actions with specific demands to avoid reputation costs to itself and its target. Fifth, China is willing to employ limited force, often via surprise attacks, to gain an advantage in a crisis and demonstrate the credibility of its threats. Sixth, the PRC will progressively escalate conflicts using military and nonmilitary force and threats to increase pressure on its coercion target.

In addition, Beijing's approach to deterrence follows a phased approach to communicate its objectives and threats. This approach initially leverages statements from lower level MFA officials and Chinese media editorials to express China's concerns. If these actions are not persuasive, the PRC will escalate to statements from higher level MFA officials and engagements with target nation diplomats and governmental officials. China may also impose informal diplomatic

pressure, such as delaying or denying visa requests from citizens of the target state. If necessary, Beijing will bring to bear its economic and military instruments of power, depending on the situation and the importance of the issue at stake. In each of these actions, China may seek to compel its target to perform or cease a given action in the short term while deterring unwanted future actions.

In cases in which Beijing considers military power inappropriate, China will rely on informal trade sanctions for coercion. Initially, these sanctions may be few and targeted away from the threatened entity's vital interests. The PRC uses this technique to deliberately communicate its concerns and readiness to inflict pain and to coerce its target while maintaining the threat to escalate with more damaging sanctions if necessary. However, Beijing will threaten military force for issues that China considers core or vital interests. These military threats may start with unofficial or official statements by PLA leaders and defense officials, both active and retired. China will escalate its military force threats through military deployments, exercises, and live-fire events if the target fails to respond appropriately. In cases in which Beijing perceives it has the advantage, the PLA may use limited force to demonstrate the seriousness of China's threats and communicate its willingness and ability to inflict unacceptable harm to the target if it fails to comply.

In summary, while Chinese deterrence practice is generally in line with Western coercion theory, there are important nuances in Beijing's approach. In particular, China's approach is set apart from Western deterrence patterns by its use of the initiative, manipulation of escalation risk, management of threat publicity, employment of limited force to enhance its deterrence credibility, ambiguity in linking coercive threats and actions with a specific demand, and use of nonmilitary instruments of power to threaten and impose costs. Beijing prefers these techniques because they allow it to seize and maintain escalation control, preserve decision space, and avoid reputational damage. Furthermore, the PRC demonstrates a predictable trend in how it sequences the use

of its instruments of power for deterrence. Again, Beijing follows this general escalation flow because it provides flexibility and allows China to escalate or deescalate crises on its terms. With this background in hand, the next section examines the 2019–2021 Ladakh Border Crisis and associated Chinese deterrence signaling.

The 2019–2021 Ladakh Border Crisis

India and China share an approximately 2,500-mile border. Beijing and New Delhi do not agree on the frontier in many areas—a disagreement that is a significant factor in their relationship.⁷⁵ The 1954 Friendship Treaty established relations between the two states but did not demarcate their shared border.⁷⁶ Instead, treaties and historical claims made before the creation of the PRC and India's independence guide the current boundary. While the disputed border has continually been an issue in Sino-Indian relations, its prominence as a focal point for conflict has ebbed and flowed with tensions between the two states. In 1962, India and China went to war over the boundary. However, since that time, frontier conflicts have typically been small in scale and nonlethal, except for periodic standoffs from 1986 to 1987 and from 2013 to 2020.⁷⁷

Beijing and New Delhi dispute in particular several regions in the Himalayas and the Tibetan Plateau, which have been the primary points of conflict. In 1996, China and India established a de facto demarcation, referred to as the Line of Actual Control (LAC), in these regions to avoid military conflicts by providing a common understanding of the areas under each side's administrative control. While the two nations differ on the LAC location in many places, the LAC has generally proved to be an effective mechanism for avoiding conflict. There were, however, four serious border standoffs between 2013 and 2020.⁷⁸

The Ladakh region is strategically valuable to China and India. For Beijing, its control of the Aksai Chin area, which borders Ladakh, provides the only road links between the Xinjiang and Tibet provinces and is essential to China's

Map. Disputed Kashmir Region



Source: Central Intelligence Agency, University of Texas at Austin Perry-Castañeda Library Map Collection, 2004, altered to show rough location of conflict in Galwan Valley.

territorial integrity.⁷⁹ China's possession of the Shaksgam area of Ladakh allows Beijing to connect these provinces with Pakistan to support its Belt and Road Initiative.⁸⁰ For New Delhi, the region's rugged terrain provides a bulwark against potential Chinese attacks. Additionally, both India and China see defending their

territorial claims as vital to maintaining their states' integrity.⁸¹ As a result, both India and China have taken various steps to improve road access to their forward areas, increase the quantity and quality of outposts, and improve their forces' ability to operate in the high-altitude regions around the LAC to defend their claimed

territory. The map illustrates the disputed Ladakh area.

Beijing also views its border dispute with India as a legacy of colonialism.⁸² Because the frontier between India and China was established through treaties between the British and Qing Empires, the PRC sees the border between the



Joint Security Area and Camp Bonifas, looking north from South Korea, along Korean Demilitarized Zone (U.S. Army/Edward N. Johnson)

states as a remnant of China's Century of Humiliation. Furthermore, Beijing successfully resolved its border disputes with Russia, Vietnam, and other neighboring states, leaving the impasses with India and Bhutan as the only remaining territorial issues concerning mainland China. While resolving the border dispute with India is not as important to the legitimacy of the CCP as reunification with Macao, Hong Kong, and Taiwan, it is still a significant issue for Beijing. China's 2019 defense white paper highlights the importance of resolving the PRC's territorial issues and safeguarding its territory.⁸³ In the paper, Beijing asserts that it will use any means necessary to protect its territorial integrity and sovereignty. The CCP views any action by another power that threatens Chinese territorial integrity as a threat to the entire party's legitimacy.

More broadly, over the past two decades, Indian and Chinese relations have gradually deteriorated as New Delhi has pursued new partnerships and military

capabilities, including nuclear weapons, as a means to enhance its security in response to China's rising military and economic strength.⁸⁴ Around 2005, China began adopting a more aggressive stance toward India in response to New Delhi's growing relationship with the United States following the approval of a civilian nuclear deal and a defense framework between the two states.⁸⁵ These agreements, and American and Indian statements highlighting this new partnership, provoked a defensive reaction from the PRC, which feared India becoming a potential U.S. ally and a Great Power rival.⁸⁶ In addition, India has strengthened ties with other regional powers, such as Australia, Singapore, Vietnam, and Japan, that are concerned with the PRC's rise, and has aligned itself with the United States in opposition to China's claims in the South China Sea.⁸⁷ Moreover, India's participation in the Quad and the related 2020 naval exercises with Australia, Japan, and

the United States prompted Chinese concerns that these powers may align to contain Beijing.⁸⁸

The Crisis. Historically, New Delhi maintained its areas bordering China and Pakistan as autonomous regions. On August 5, 2019, however, India changed the status of these regions. These areas, Jammu-Kashmir and Ladakh, became Union Territories under the direct control of New Delhi.⁸⁹ The PRC viewed these actions as a significant shift in the LAC's status quo and protested the change. On August 6, the Chinese MFA released a statement opposing the creation of the Jammu-Kashmir and Ladakh Union Territories because the areas contained territory claimed by China and asserting India's action as invalid.⁹⁰ China also reportedly began denying visas to Indians seeking to travel to Tibet for religious purposes.⁹¹

Given China's public assertions that it will defend its territorial integrity using any means necessary, Beijing likely viewed

the MFA's statements as a clear signal to India that China viewed the creation of the Union Territories, with Chinese-claimed land, as a threat to China's sovereignty. Beijing likely intended this signal to deter India from taking any further steps to assert control over the Chinese-claimed areas and to compel New Delhi to remove these areas from the new Union Territories' jurisdiction.

In January 2020, China conducted major military exercises involving thousands of troops near the Ladakh region on the Tibetan Plateau. These exercises occur annually, but in 2020 the PLA failed to withdraw its forces after the drills. Instead, around May 5, it moved some troops forward to occupy four points on the Indian-claimed side of the LAC in the Galwan Valley.⁹² The forward movement of PLA forces prompted an escalation in tensions between India and China and led to threat exchanges on social media between Chinese and Indian citizens.⁹³ Beijing likely intended the continued presence of large numbers of Chinese troops in the Ladakh region and the occupation of Indian-claimed territory as signals to New Delhi of the PRC's resolve and willingness to use force to protect its territorial claims.

In late May 2020, Chinese and Indian patrols confronted each other in the Ladakh region; however, these confrontations were limited, and no casualties were reported.⁹⁴ On June 6, immediately before a scheduled meeting between Chinese and Indian military commanders to discuss the border tensions, PRC news media broadcast video of PLA maneuvers and reinforcements in the Ladakh region.⁹⁵ These news stories asserted that thousands of troops with armored vehicles had moved to the area to defend Chinese territory against Indian aggression. During the commanders' meeting, the PLA representatives asserted that the Chinese troop presence near the LAC was on PRC territory. The Chinese MFA reinforced this message with a similar statement.⁹⁶ Beijing likely considered these statements and the video broadcast as a final warning to New Delhi that its actions threatened Chinese sovereignty, and that China would use force if India

did not restore the status quo in the Ladakh region.

On the evening of June 15, 2020, Indian and Chinese troops skirmished in the disputed border territory of Ladakh (see map).⁹⁷ Chinese forces killed over 20 Indian military personnel in the fight. China confirmed its forces also took casualties but provided no specifics.⁹⁸ On June 16, the PRC's MFA released a statement accusing the Indian military of crossing the LAC and attacking Chinese troops.⁹⁹ Both India and China reinforced their forces in the region and began conducting fighter and helicopter patrols following the clash.¹⁰⁰ These clashes between Indian and Chinese troops likely were deliberate actions by the PLA, intended to further demonstrate Beijing's commitment to protect its territory and willingness to escalate the dispute with lethal military operations.

In July 2020, the PLA deployed H-6 bombers equipped with land-attack cruise missiles to Kashgar Air Base, approximately 500 miles from the Ladakh region.¹⁰¹ The bomber aircraft deployment was a significant signal that demonstrated China's willingness to escalate the conflict to a large-scale war if India did not back down. In addition, on October 13, the Indian city of Mumbai experienced a major power outage that the Indian government determined was caused by a Chinese cyber attack.¹⁰² Indian officials assert that Chinese malware was discovered in multiple parts of the Indian power grid, indicating Beijing is positioned to cause future outages at will. As of July 2021, tensions between India and China remain high, with both sides maintaining significant forces at a heightened state of readiness in the Ladakh region.

In addition to these military, diplomatic, and informational actions, in June 2020, Beijing froze several extensive infrastructure and business investment projects in India, including a \$500 million car factory.¹⁰³ On June 29, the Hong Kong-based English-language *South China Morning Post* published an article indicating that China has significant capability to inflict harm on India through trade sanctions. The report also highlighted that Beijing had chosen not

to escalate the crisis economically to date but might impose significant trade sanctions on India if New Delhi went "too far."¹⁰⁴ The PRC likely intended these political escalations to demonstrate its willingness to further punish India if New Delhi failed to restore the status quo in the Ladakh region.

At first glance, this clash appears to be simply another tactical incident between China and India over the disputed border. However, the timing and apparent deliberate preparation and execution of the incident by the PRC indicate Beijing intends to use this crisis to deter New Delhi from continuing actions that are counter to Chinese interests. Beijing has not publicly linked its activities in the Ladakh region or its recent diplomatic and economic sanctions against New Delhi with India's increasingly close ties with the United States. However, the PRC has warned members of the Quad not to attempt to create an alliance against China.¹⁰⁵ Despite China's warnings, New Delhi has increased both its engagement in the Quad and its participation in multilateral exercises with the United States over the past several years.

Deterrence Signaling in the Standoff. To deter India from increasing its security ties with the United States and its allies or taking policy positions against China, Beijing likely seized the opportunity created by the establishment of the Jammu-Kashmir and Ladakh Union Territories to amplify its signaling to New Delhi. The PRC's contested border with India provides Beijing with the ability to generate crises at a time and place of its choosing. These crises enable the PRC to coerce India while avoiding appearing as the aggressor.

In the 2019–2021 Ladakh standoff, the PRC's deterrence signaling generally followed the pattern observed in its previous coercion efforts. Beijing identified the opportunity provided by India's creation of the Jammu-Kashmir and Ladakh Union Territories to signal to India. Next, the MFA issued a statement protesting the Union Territories' creation as a violation of Chinese sovereignty. This statement created a crisis that enabled Beijing to significantly escalate tensions with India for



Prime Minister Shri Narendra Modi holding All Party Meeting to discuss situation in India-China border areas, in New Delhi, June 19, 2020 (Prime Minister's Office, Government of India)

signaling purposes while also attempting to avoid being portrayed as the aggressor.

Because the Chinese did not anticipate this opportunity, Beijing likely was not ready to immediately escalate the situation militarily. China instead conducted limited diplomatic and media actions to signal New Delhi that its actions to change the border's status quo were unacceptable. To this end, Beijing used additional MFA statements, visa denials for Indian citizens attempting to visit Tibet, and press reports asserting China's concerns to place pressure on New Delhi.

In April and May 2020, China took advantage of the cover provided by its annual exercises to move forces into the Ladakh region while avoiding significant attention from India or outside powers. With these forces in place, China moved military forces into Indian-controlled territory along the disputed border. These actions precipitated a military standoff between the two states, and China then took steps to bring this crisis to a fever pitch.

To further escalate its threats to New Delhi, Beijing conducted media releases highlighting the PLA's deployment of

significant military forces to the region. In addition, the PRC asserted through military and MFA official statements that the occupied areas were Chinese land. Chinese and Indian citizens also exchanged propaganda and threats on social media regarding the Ladakh. It is unclear if either government directed this activity; however, the PRC tightly controls the expression of nationalist sentiment regarding foreign states. Thus, Beijing likely encouraged this Chinese social media activity. Because New Delhi considered the occupied areas its sovereign territory, these statements and actions constituted an existential threat to India's sovereignty.

Finally, when India predictably attempted to reassert its sovereignty over the contested area through military patrols, the PLA was prepared and aggressively attacked an Indian patrol, causing more than 20 fatalities. This lethal exchange demonstrated Beijing's capability and willingness to escalate the crisis. In addition, the PLA's deployment of H-6 bomber aircraft with cruise missiles to the region further reinforced

the message that the PRC was willing to broaden the conflict. Beijing also froze several Chinese business investments in India and leveraged its news media to threaten escalating the conflict by sanctioning Indian exports to China if New Delhi did not accommodate its interests.

Collectively, the PRC's diplomatic, informational, military, and economic actions in the Ladakh region strongly signaled Beijing's willingness and ability to inflict harm on India. Also, China's assessed use of offensive cyberspace operations to disrupt Indian electricity in Mumbai and hold portions of India's power grid at risk communicated that Beijing could punish New Delhi at any time. Because of the PRC's demonstrated capacity and willingness to further escalate the conflict, New Delhi was faced with a *fait accompli*, placing it in a situation in which Beijing was willing and able to inflict more harm on India than it could tolerate. In contrast, India was disadvantaged because it lacked the necessary capabilities to inflict significant damage on China unless it was willing to risk escalation to a larger scale military

conflict that it was unlikely to win or absorb additional economic damage from Chinese sanctions.

While this crisis focused on tactical events in the Ladakh, Beijing's deterrence signaling was broader. Through this crisis, Beijing demonstrated its ability to asymmetrically inflict pain on New Delhi with little opportunity for India to reciprocate. This position provides the PRC escalation dominance over India in the Ladakh, enabling Beijing to coerce India at a time and place of its choosing while positioning China to control the pace of escalation and deescalation.¹⁰⁶ The PRC signaled to India, from this stance, that it opposes New Delhi's attempts to balance against China and is willing and capable of inflicting pain on India if it persists.

China also demonstrated its sensitivity to being viewed as the aggressor when conducting coercion. For example, while Beijing placed several major investment projects in India on hold, it did not announce these actions or formally tie them to pressuring New Delhi to comply with its demands. Similarly, when Beijing stopped approving visas for Indians traveling to Tibet for religious purposes, it did not issue an official statement indicating this new policy. Additionally, Beijing did not broadcast its deployment of H-6 bombers and associated cruise missiles near the Ladakh. By not explicitly messaging these actions as attempts to coerce India, China likely sought to pressure New Delhi without losing face.

Conclusion

In reading tea leaves to predict the future, much is open to interpretation. Similarly, understanding China's deterrence signaling appears to be a study in ambiguity and mixed messages. However, while Beijing's statements and actions can seem challenging to understand, Beijing's signals reflect its unique deterrence approach. By studying the PRC's words and actions since its founding in 1949, American leaders can more effectively understand those messages in the future.

Chinese deterrence practice is generally in line with Western coercion theory. However, there are meaningful

nuances in Beijing's methods. Chinese deterrence signaling emphasizes seizing initiatives, using risk as a deterrence tool, avoiding public threats, and preferring ambiguity to avoid overtly linking threats and demands. In addition, Beijing often demonstrates its resolve and the credibility of its threats through small-scale military attacks and the employment of nonmilitary instruments of power. These limited uses of military and nonmilitary force impose costs on China's targets and reinforce the PRC's willingness to escalate with additional actions. Finally, history indicates a trend in how Beijing sequences the use of its instruments of power to signal deterrence.

In communication, actions and body language are often more critical in conveying messages than are verbal statements. Thus, by understanding how Beijing approaches deterrence signaling, American policymakers and strategists can better interpret China's verbal and nonverbal communications to discern its intent. This knowledge also allows U.S. leaders to anticipate potential actions the Chinese may take to signal its interests and escalate or deescalate a crisis. This understanding can enhance U.S. comprehension and anticipation of Chinese deterrence signaling and improve the quality of strategic communication between the world's two greatest powers.

Additional Research Opportunities

While this essay identifies several unique aspects of the PRC's approach to deterrence, many additional questions and sources are worthy of further research. This essay relies exclusively on English-language unclassified sources to support its analysis; the inclusion of both Chinese-language and classified materials would greatly illuminate U.S. understanding of the PRC's deterrence approach. Sources that tie China's statements and actions to its strategic intent would provide valuable insights.

In addition, while this document touches on China's use of modern media to signal deterrence, Beijing's use of new technologies to augment its coercive efforts continues to evolve. Researchers

should evaluate how the PRC employs social media and cyber operations in deterrence. China also maintains significant influence overseas through the ethnic Chinese diaspora and ties to foreign politicians and businesses. Research is needed to understand how Beijing uses these assets to support its deterrence signaling. While this essay draws on several historical case studies, this examination is limited in depth. Significant opportunities exist to expand and refine U.S. understanding of Chinese deterrence signaling through a more thorough treatment of these case studies. Finally, at the time of this essay's completion, China and India continue their standoff in the Ladakh. Beijing's actions to compel and deter New Delhi to comply with its demands persist, providing a significant opportunity to further study China's deterrence approach. JFQ

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PLA Overseas Operations in 2035: Inching Toward a Global Combat Capability

By Joel Wuthnow, Phillip C.

Saunders, and Ian Burns McCaslin



The Chinese military presence in the "far seas" beyond Asia is growing and will expand further as

the PLA moves toward its 2035 goal of fielding a fully modern military. Existing overseas activities are mostly conducted by a single service and have not involved combat. Future scenarios for overseas joint operations include larger scale military operations other than war and overseas combat. Conducting more complex overseas operations would require substantial improvements in PLA capabilities, such as a stronger overseas joint logistics system. Changes in the domestic or regional security environment or intensified U.S.-China competition could accelerate a transition toward greater emphasis on expeditionary operations, including higher end combat scenarios.



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Marines with 1st Battalion, 2nd Marine Regiment, currently attached to 3rd Marine Division, and 3rd Low Altitude Air Defense Battalion, provide combined anti-air and antiarmor capabilities during amphibious defense exercise at Iejima, Japan, January 27, 2021 (U.S. Marine Corps/Alize Sotelo)



Purpose-Built Antiarmor Teams

An Imperative for the Marine Corps Ground Combat Element

By Aaron Smith

The Marine Corps has an “institutional misunderstanding of armor” that leaves its Ground Combat Element (GCE) ill-equipped to defeat the armored platforms that our peer adversaries employ.¹ According to Marine Corps Warfighting Publication 3-15.5, *Antiarmor Operations*, “The expeditionary nature of the Marine Corps limits the number of armor assets available to the Marine

Air-Ground Task Force (MAGTF), while many of our potential enemies continue to expand and upgrade their armored forces. This dilemma requires the MAGTF commander to adopt a style of warfighting that allows him to win without armor parity.”² Unfortunately, the MAGTF has no active antiarmor doctrine and likewise lacks a purpose-built, ground-based antiarmor capability. Although the combined

arms fight extends beyond the GCE, the limitations of airpower prevent the Air Combat Element (ACE) from functioning as a panacea against armor. Correspondingly, the timely availability and successful integration of superior joint or allied armored forces is not a foregone conclusion. The Marine Corps must establish modern antiarmor doctrine and restructure the training and equipping of Combined Anti-Armor Teams (CAATs) across the GCE to remain globally competitive across the full spectrum of conflict.

The paucity of antiarmor doctrine across the MAGTF inhibits the GCE’s

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ability to achieve a competitive advantage. Tavis McLaren argues, with “no dedicated antiarmor doctrine or tactics, techniques, and procedures (TTPs), the result is a widening gap in the capabilities of an infantry battalion.”³ This disparity is inexcusable given the lessons learned over a century of Marines combating armored threats. Antiarmor operations were first captured in Marine Corps doctrine in 1965 with the publication of Fleet Marine Force Manual (FMFM) 9-3, *Antimechanized Operations*, followed by FMFM 2-11, *MAGTF Antiarmor Operations*, in 1992. The latter publication was marginally revised as Marine Corps Warfighting Publication 3-15.5 in 2000, and subsequently renamed Marine Corps Tactical Publication (MCTP) 3-01F. Advocacy for this publication, while active, rested with the School of Infantry West, where it received no updates before it was officially deleted in 2016.⁴ The absence of any doctrinally grounded antiarmor capability in the GCE is manifested by the existence of quasi-antiarmor units haphazardly employed by infantry battalions that lack the focus, equipment, or training to compete against an armored threat.

Sound doctrine must inform a purpose-built capability. Although there are several systems in the GCE that could defeat armor, that is not their primary function. Light Armored Reconnaissance does not doctrinally fulfill antiarmor missions and avoids close decisive combat because its vehicles “cannot survive the fires of medium caliber automatic cannons, antiarmor weapons, improvised explosive devices or direct hits from indirect fire weapons.”⁵ The Amphibious Combat Vehicle similarly lacks the protection to decisively engage an armored threat—and would not conceivably do so while carrying a squad of Marine infantry. These capabilities do not possess the requisite direct fire rapidity with armor-defeating munitions necessary to compete in an antiarmor role.

The CAAT construct represents the most realistic attempt at an antiarmor unit in the GCE, yet its organization and equipment do not lend themselves to success in this capacity. Under current

doctrine, CAATs are the combination of the heavy machine gun and antiarmor platoons within the weapons company of an infantry battalion.⁶ Their mission-oriented organization, while flexible, negates any real utility as an antiarmor unit, especially given a CAAT’s primary operating platforms. According to Walker Mills and Michael Rasmussen, a “gun truck in a CAAT platoon, even when armed with a Saber system, is inferior by nearly every metric to the vehicles it is supposed to kill. When combined with dated antiarmor doctrine, the result is a looming gap in the capabilities of the Marine infantry battalion.”⁷ Whether using older gun trucks or Joint Light Tactical Vehicles (JLTVs), CAATs are slower and more restricted by terrain than are the threats they intend to defeat. These vehicles are difficult to deploy via air, take up excessive space aboard ship, and offer no protection against the main guns of enemy armored personnel carriers and tanks. Their machine guns are unstabilized and lack the penetrating power to defeat most armored platforms.⁸ The missiles employed by CAATs have long flight times and give off distinct signatures that expose positions and preclude reengagement. Moving targets, and especially those equipped with active protection systems, require multiple missiles to achieve a catastrophic kill.⁹

Even with the recommended equipment and organization, CAATs presently lack the purpose-driven training required to forge a credible antiarmor force. The armored threats that CAATs must defeat are not lifeless hulks that sit in the open, waiting to get pounded by ground- and air-based missiles or indirect fire. They employ the principles of fire and maneuver, field craft, signature reduction, and camouflage.¹⁰ CAATs rarely, if ever, train against tanks and receive scant exposure to armored systems beyond the M1A1 Abrams tank, Amphibious Combat Vehicle, or LAV-25. Finally, CAATs lack a demanding Gunnery Skills Test (GST) package in which Marines must regularly maintain extensive Armored Fighting Vehicle Identification (AFVID) skills for all primary threat and allied armored platforms.

To overcome these problems, the Marine Corps must first reestablish doctrine for MAGTF antiarmor operations that supports our emerging operating concepts. MCTP 3-01F should be revised, republished, and integrated across the force. This revised publication should mainly address the fundamentals of antiarmor employment detailed in the U.S. Army’s Field Manual 3-2, *Tactical Employment of Antiarmor Platoons and Companies*. These basics include mutual support, security, flank shot engagements, standoff, cover and concealment, employment in depth, and employment as part of a combined arms team,¹¹ and their application “improves the lethality and survivability of antiarmor elements” on the battlefield.¹² Additionally, the revised MCTP 3-01F should include more detail regarding employment techniques, antiarmor field craft and survivability, hasty antiarmor obstacle employment, and updated armored platform threat analysis to include the capabilities of active protection systems. Finally, this updated doctrine must appropriately frame MAGTF antiarmor operations within the Expeditionary Advanced Base Operations (EABO) concept.

Along with this viable antiarmor doctrine, CAATs should be reorganized into light, agile, purpose-built units dedicated to antiarmor missions and capable of distributed employment. The primary task of these units should be hunting enemy armor by leveraging offensive ambush techniques in compartmentalized terrain, and this goal is best achieved at the forward edge of the battalion’s battlespace as a covering force during shaping operations.¹³ With cheap and sustainable adjustments to their equipment, CAATs become seekers that disrupt and attrite high-payoff targets by maneuvering inside the gaps of an enemy mechanized force.¹⁴ Gun trucks should be divested as the primary platform for CAATs; these platoons should instead center around two-man Javelin teams with a driver and medium machine gunner mounted in MRZR or equivalent all-terrain vehicles. These versatile vehicles are one-tenth the weight and cost of a JLTV, yet offer comparable speed and range, and greater off-road



Marines with Light Armored Reconnaissance Company, Battalion Landing Team 1/1, 11th Marine Expeditionary Unit, offload light armored vehicle during amphibious landing as part of expeditionary advance base exercise, May 15, 2021, San Clemente Island, California (U.S. Marine Corps/Alexis Flores)

mobility. A CAAT under this organization is the “smallest . . . [option] that yield[s] the maximum operational utility” that the commandant requires of the future force.¹⁵ It is a “resilient, low-signature, low maintenance” unit “optimized for inside force employment,” as necessitated by the EABO concept.¹⁶ This kind of CAAT is purpose-built, cheaper, faster, and more concealable. It is more maneuverable, carries a smaller logistic footprint, is easier to embark on ship, and can insert via air on MV-22 Ospreys.¹⁷ Finally, the scalable nature of this unit would allow for the attachment of small unmanned aircraft systems, a fire support team, or small engineer teams to further increase the lethality of CAATs and enable them to win the “hider versus finder competition.”¹⁸

With CAATs under this kind of organization, infantry battalions could address the scalable nature of CAATs by providing ample opportunities for

them to train against joint and allied armored platforms. Such instruction would give CAAT Marines the chance to experience and understand the capabilities and employment techniques of diverse armored platforms. Marines need to get inside these vehicles and understand the armament, targeting systems, sight packages, and engines, so they can understand how to survive against and destroy comparable enemy platforms. Armed with this experience, CAATs could develop and refine successful TTPs and increase missile team proficiency. A robust semiannual GST package should accompany this training. The CAAT GST should include an extensive AFVID test of all major threat and allied platforms. The standard for this AFVID should be 90 percent positive identification of all required vehicles in less than 10 seconds for both day and thermal images. Robust AFVID standards would compel CAAT Marines to maintain a working

knowledge of the effective range, optics, targeting capabilities, munitions, exhaust points, protection systems, engine and suspension type, vulnerabilities, on- and off-road speeds, tactics, and formations of enemy platforms.¹⁹ This familiarity makes the CAAT Marine a more capable hunter and intelligence collector, thereby increasing the lethality of the GCE.

Some may argue that the ACE, combined with indirect fires, could neutralize any serious armored threat before our outmatched platforms and infantry must seize an objective. This assumption, however, does not account for all the limitations of airpower and the capability of enemy armor. Airpower is a low-density, high-demand, maintenance-intensive capability that is always in short supply. The comparable aviation platforms and extensive air defense of peer adversaries suggest that airspace in a major conflict will likely be contested.²⁰ Again, according to Mills and Rasmussen, at a “time

when our aircraft expect to be operating in closely contested skies, their unhindered support would be the first casualty of any near-peer conflict.”²¹ The ACE is further limited by enemy electronic warfare, weather, and sustainment restrictions. Effective artillery support against armor is likewise constrained by range, enemy counter-battery fire, restricted munitions, and the complex urban terrain characteristic of many littoral regions.²² Limitations aside, the enemy on the ground is not naïve. We cannot prosecute targets from the air that we cannot see, which will invariably make these threats a problem for the GCE to manage.²³ Disciplined armored adversaries know how to reduce thermal and electromagnetic signatures, hide their pattern of life, and effectively conceal vehicles in terrain. As stated by Chris Niedziocha, “If you cannot sense, you cannot shape. Properly concealed assets are resistant to detection by even the most sophisticated airborne sensors as long as they do not run, emit in the electro-magnetic spectrum, or move around, especially on roads.”²⁴ The MAGTF must have a dependable ground-based antiarmor alternative to airpower.

Others may argue that the Marine Corps will always have the benefit of joint or allied forces with the direct fire capability to defeat enemy armor when needed. This is a risk-imbued assumption that negates historical precedent. In the event that joint or allied armored forces are readily available, success is possible only if we extensively train together for the joint antiarmor fight. The kind of tank-infantry integration the Marine Corps is accustomed to is not what the Army trains to provide. Without capturing the doctrine and TTPs gleaned through 76 years of Marines fighting alongside armor—and training to these TTPs with the Army and allied forces—Marines will die needlessly as we relearn these lessons in combat.

As we form the infantry battalions of the future, doctrinally grounded and purpose-built antiarmor teams are necessary to provide the firepower and mobility in distributed operations required by our operating concepts.²⁵ In the end, if the

Marine Corps “cannot create a credible antiarmor capability . . . we will limit ourselves to operations on the periphery.”²⁶ The aforementioned recommendations are rapidly achievable and will forge the CAAT into an asset that enables success for the GCE against armor. JFQ

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Degrading China's Integrated Maritime Campaign

By Douglas J. Verblaauw

Irregular warfare (IW) is a method available for Great Powers to shape or control the global architecture by enabling a state to “influence populations and affect legitimacy” without incurring the heavier losses of blood

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and treasure typically associated with armed conflict.¹ The past decades have witnessed the rise of the People's Republic of China (PRC) as a Great Power and its orchestration of an integrated maritime campaign using IW—for example, economic coercion, diplomatic intimidation, lawfare, and hacking of information technology systems—to control the South China Sea (SCS). This essay examines this maritime campaign's IW tactics and describes how the United States can

launch an effective countercampaign to reestablish order in the SCS by creating a surveillance network and strengthening regional security institutions.

This integrated maritime campaign is driven by a struggle between China and its neighbors for legitimacy of territorial claims over various surface and subsurface maritime terrains and a desire to manage those operations to prevent U.S. intervention (see map).² The risk that China faces if the balance is not properly maintained is a loss of territorial claims,

blood, and treasure. At the moment, China does not want to take that risk. The PRC's integrated maritime campaign seeks to attain de jure control, or the official legal recognition of sovereign rights over China's claims in the SCS, while remaining below the threshold of armed conflict.³ If the PRC is to fulfill this goal, it must first achieve de facto control—or a state of affairs that is true in fact if not in official law.⁴ Control of the SCS would provide China with maritime trade security, in-depth defense of its mainland, and greater hydrocarbon production.

Maritime trade is a part of international trade, and control of the SCS would allow China to safeguard a significant percentage of its global imports and exports.⁵ Specifically, the Center for Strategic and International Studies estimated in 2019 that 64 percent of China's trade by volume transits the SCS.⁶ Trade route security is mutually supported by territorial security, and control of the SCS would offer China the defensive offset it desires to secure its mainland.⁷ The PRC's construction of military airfields and port facilities on the maritime claims constitutes the building blocks of a mutually supporting network of military bases, logistics facilities, and supply nodes.⁸ By controlling the SCS through territorial security, China will gain massive hydrocarbon reserves with major oil and gas fields.⁹ A U.S. Geological Service study estimated that the SCS is a major oil field that contains at least 750 million barrels of oil and even more natural gas.¹⁰ The benefits to trade, defense, and resource production from controlling the SCS are nested within the PRC's strategic core interests of security, sovereignty, and development.¹¹

To control the SCS, China must first overcome two glaring problems: possession of a claim and the nature of the sea. The first problem is one of simple logic: If the Chinese are going to assert their sovereignty over a territorial claim, then they must have a territorial claim to start the process, and this is the *raison d'être* of the nine-dash line. Introduced in 1947 as the 11-dash line by Yang Huairan, an oceanic cartographer in the employ of the Nationalist Koumintang, this marker

was developed based on Yang's interpretation of underwater geography.¹² Ever the opportunist, Mao Zedong adopted the claim for the PRC, but in 1952 he renounced claims to the Gulf of Tonkin as a show of proletarian solidarity with Ho Chi Minh. The removal of those two dashes produced the nine-dash line that is the foundation of present-day Chinese territorial claims.¹³

The second problem for China is determining how to assert control over a space that is constantly shifting form. Joseph Strange stated that a *center of gravity* is the "primary source of moral or physical strength, power, and resistance," as it exists within a specific context.¹⁴ The Chinese cannot assert their sovereignty claims if they do not possess the means to control a maritime terrain feature, and they cannot control it if they cannot persist in its vicinity. Persistence, therefore, is the essential task that allows China to identify interlopers, undertake mass intimidation efforts, and exercise escalatory options. If the Chinese lose their means to persist, they will no longer have the means to achieve their ultimate purpose. In the context of the PRC's maritime operations, the center of gravity is the service that can best accomplish the essential task of persisting on the sea.

Before we can analyze the maritime operations' center of gravity, we must first understand the Chinese military's perspective. In 2013, a retired People's Liberation Army Navy (PLAN) admiral, Zhang Zhaozhong, while serving as a professor at China's National Defense University, unofficially referred to the concept as a "cabbage strategy."¹⁵ He equated the cabbage—with its core surrounded by layers of leaves—with a contested terrain feature surrounded by layers of maritime forces.

The PRC's three maritime services all play important roles in the campaign, but only one possesses the capabilities to best accomplish the essential task. The first layer is the PLAN; its technologically advanced warships facilitate command and control and provide an escalatory option of the threat or actual use of military force. The second layer, created in 2013 from an amalgamation of the

Fisheries Law Enforcement and the China Maritime Service, is the People's Armed Police Force Coast Guard Corps (Chinese coast guard, or CCG).¹⁶ Both PLAN and CCG ships have the trained personnel and necessary equipment to replenish at sea, and both are valuable commodities that must prioritize other mission sets. The continuous stationing of one or more of these ships in vicinity of a contested terrain feature is not an economical use of resources, and the PRC has a better option.

The third layer is the People's Armed Forces Maritime Militia (PAFMM). This service does not possess the same mission limitations as the PLAN and the CCG, but, like the other two services, it is able to replenish at sea, albeit limitedly, in the form of transshipment.¹⁷ Transshipment is the process of moving cargo from one vessel to another,¹⁸ and a PAFMM vessel under the guise of fishing will exchange personnel, replenish stores, and often transfer an actual catch.¹⁹ Furthermore, the sheer size of the PAFMM facilitates a continuous stream of vessels to designated locations, thereby mitigating the limitations of vessel maintenance and crew rest. As an example of its endurance, the PAFMM has maintained a daily average of 18 ships in vicinity of Thitu Island, a contested territory with the Philippines in the Spratly Island chain, since at least December 2018.²⁰ These capacities make the PAFMM the most appropriate of the three maritime services to accomplish the crucial task of persisting in the vicinity of a contested terrain feature.

Begun as a nautical offshoot of Mao's militia concept, the original PAFMM had two primary tasks: provide security from attacks along the coast and facilitate incorporation of the coastal population into the greater state. The militia, in its modern form, can trace its lineage to the 1982 PRC constitution, which codified militia and military service as a "sacred" and "honorable duty."²¹ In 2007, the PRC further strengthened the PAFMM's proficiencies when it released the *Militia Military Training and Evaluation Outline*, a document written to transform the militias from their primary orientation on the People's

Map. South China Sea Islands with Nine-Dash Line



Source: Peter Hermes Furian/Alamy

Liberation Army (PLA) to include the other Chinese armed services.²²

Manning the PAFMM was made easier between 2015 and 2017. During these years, the PLA cut 300,000 soldiers as part of the plan to modernize the Chinese military, and these former soldiers were rapidly absorbed into the burgeoning ranks of the PAFMM.²³ The PRC, in general, gained threefold benefits from recruiting veterans into the PAFMM. First, it meant that PAFMM training cadres gained efficiency by spending less time on instruction; veterans are already skilled in small arms marksmanship and communications. Second, the provincial governments reaped fiscal savings by allocating funds to supplement a pension instead of a full salary.²⁴ Third, by recruiting veterans, the PRC partially neutralized a threat to the Chinese Communist Party by providing jobs to suddenly unemployed soldiers.²⁵

As the various provincial governments were recruiting new crews, they were also expanding their PAFMM fleets. Even though the manner of equipping the PAFMM units varies by provincial government, all the ships generally fall within three classifications: repurposed CCG ships, specially designed ships, and upgraded fishing vessels. The best example of the first ship classification is the YZ-310. In May 2015, after outliving its usefulness to the CCG, the ship was stripped of its guns and transferred to Hainan's Sansha City PAFMM unit.²⁶ The best example of the second ship classification is also found in Hainan Province. The same year the YZ-310 was acquired, the government placed an order for vessels equipped with "mast-mounted water cannons, collision-absorbing rails, and reinforced hulls," in addition to requirements for small arms and ammunition storage rooms.²⁷ The third ship classification composes the majority of the PAFMM's fleet. These ships lack the purpose-built design features of a repurposed CCG ship or Hainan's new fleet, but they still boast upgraded communications for coordination with the PLAN and CCG, small arms weapons storage, and fire hoses to harass adversary vessels.²⁸

The manning and equipping of the PAFMM are designed to enable its two asymmetric capabilities, which are critical to achieving persistence. The first asymmetric capability, ambiguity of purpose, is created by the appearance and obfuscation of status—both critical requirements. In terms of appearance, most PAFMM ships appear as regular fishing vessels and lack the distinctive national markings seen on PLAN or CCG ships. An article written in 2014 for China's official military newspaper, *PLA Daily*, describes this deception: "Putting on camouflage [uniforms], they [the men aboard] qualify as soldiers; taking off the camouflage [uniforms], they become law-abiding fishermen."²⁹ The intent here is to gain a decisive advantage in decisionmaking time as a result of the increased time it takes for a foreign warship or maritime law enforcement (MLE) ship to positively identify a vessel as belonging to the PAFMM.

The PRC's deliberate obfuscation of the PAFMM's status as either a naval auxiliary or a fishing vessel further reinforces ambiguity of purpose. The uncertainty of how to treat the PAFMM has left other nations' maritime forces unable to appropriately respond. If they act with force because they believe the PAFMM vessels are naval auxiliaries and lawful military objectives, they risk escalation to armed conflict and condemnation for attacking an "innocent" fishing vessel. If, instead, they act with restraint and treat the PAFMM vessel as a fishing vessel, they risk harm to their own ships. This confusion has kept other nations' maritime forces in Boyd's observe-orient loop and consistently unable to make decisions that lead to action.³⁰

The second asymmetric capability, ambiguity of size, is created by the following critical requirements: lack of a publicly accessible registry and the PRC's requirement to register only those ships over 50 tons for national defense.³¹ This has created a theoretical size of the PAFMM that is best summed up in one adjective: *large*. Unfortunately, no single definitive estimate, only a range, of the PAFMM's size exists. At the low end is 480 vessels, which translates to

the combined strength of the PLAN and CCG,³² while at the high end is 140,000 vessels from a study conducted in 1978.³³ Somewhere in the middle is the most realistic estimate: 20,000 vessels.³⁴

This estimate is derived from combining a plausible starting number, an assumption about vessels under 50 tons, and an assumption about resource availability. The first factor—a plausible starting number—is found in a June 2020 study published by the Overseas Development Institute (ODI). Researchers identified 16,995 vessels in China's Deep-Water Fishing fleet.³⁵ The second factor is an assumption that the PRC will allocate a percentage of vessels under 50 tons to the PAFMM. The third factor is an assumption that not every Deep-Water Fishing ship is a PAFMM vessel, and while resource rich, even China lacks the ability to train and equip every fishing vessel as a PAFMM ship. The disclaimer to an estimate of 20,000 vessels is that this number is likely the most dangerous activation level and exceeds the total vessels the PRC could surge at one time. Additional assumptions about maintenance levels, crew availability, and out-of-area fishing, among others, are required to smartly approximate the number of PAFMM vessels that would most likely receive activation orders in the event of a crisis.

Critical capabilities, ambiguity of purpose, and ambiguity of size are powerful, but not insurmountable, and a successful countercampaign will degrade the PAFMM's more vulnerable aspects. The United States and Southeast Asian nations have waited long enough for China to act as a responsible power. It is time for the United States and Southeast Asian nations to begin a countercampaign along two focuses of effort: creation of a surveillance network and the strengthening of regional security institutions, which will yield restoration of timely decisionmaking and celerity of action.

The initial focus for this countercampaign is the development of a surveillance network that can detect, identify, and monitor PAFMM vessels. This network first needs a data set; however, even a cursory glance suggests an overwhelming



Filipino soldier patrols shore of Pagasa Island (Thitu Island) in Spratly group of islands in South China Sea, west of Palawan, Philippines, May 11, 2015 (Reuters/Ritchie B. Tongo)

mass of information exists. Fortunately, various databases and studies already contain the nucleus, and much of the work will involve aggregating and organizing the data into a single archive for useful analysis. Among the repositories devoted to this problem are the ODI, the U.S. Naval War College China Maritime Studies Institute, the Congressional Research Service, and the naval and MLE records of other Southeast Asian nations. The synthesis of all these data sets through big data analytics and artificial intelligence modeling will produce a reliable PAFMM registry.

The surveillance network then would need to designate a lead actor to construct, maintain, and secure the surveillance network. The immediate choice is the United States because of

Southeast Asia's historic international security positions and U.S. experience in leading international organizations. Within the U.S. panoply, the type of organization optimally suited for this role is a Combined Joint Interagency Task Force (CJIATF). Indonesia and Singapore are the other prime candidates to lead the CJIATF because neither nation possesses a contested SCS territorial claim. Indonesia, though, is the better of these two candidates because it is equipped with a significantly larger naval and MLE force than is Singapore, second only to China, and because it routinely coordinates operations across a large area and appeals to Southeast Asian solidarity.³⁶ In this scenario, the United States could serve as a key enabler, but regardless which nation leads the CJIATF, its

mission—to detect and monitor known and suspected vessels that are threatening regional security and sovereignty claims in order to facilitate international reporting and interdiction—would remain the same.

Inherent to the creation of this surveillance network is the second focus of effort: strengthening regional security institutions, and in the context of Southeast Asia this means respecting the region's historic norm of holding independence in high regard, since most nations achieved independence only in the 20th century.³⁷ The policies that these nations have enacted to maintain their independence involve a combination of hegemonic order, balancing, and institution-building.³⁸ The ideal hegemonic order “entails preserving the broad hierarchical system

dominated by the United States, a system that has proved to be successful and beneficial in the post–World War II period.”³⁹ Balancing is used to draw favorable policies or concessions out of either China or the United States by playing one power against the other.⁴⁰ Institution-building attempts to improve cooperation among all states in the region and provides a forum for communication that has most often taken the form of discussions about economic matters (for example, financial regulation agreements).⁴¹

Established to “foster constructive dialogue and consultation on political and security issues of common interest and concern,” the Association of Southeast Asian Nations (ASEAN) Regional Forum is the most obvious institution to begin the work of strengthening.⁴² Unfortunately for the countercampaign, this organization, consisting of 27 nations, is a consensus decisionmaking forum, which means no choice is made “against the will of an individual or minority.”⁴³ Because China is a member of the ASEAN Regional Forum, it can delay or impede any decision that is not in its favor.⁴⁴ Instead, the United States should support an alternate security forum that consists of only ASEAN member states that make decisions based on a supermajority.⁴⁵ Even though this type of decisionmaking body would not include the United States, it is more important that China not be included.

ASEAN has already demonstrated a capacity for aggregating to confront China. As recently as June 2020, ASEAN issued a statement for the maintenance of “freedom of overflight” in the SCS in response to China’s pending announcement of an air defense identification zone over the region.⁴⁶ China seems to have recognized the implications of this unified front and adjusted its actions to “carefully and prudently study the relevant issue taking into account all factors.”⁴⁷ If one meeting and common declaration from ASEAN can make China change its tone, it stands to reason that more frequent communications from a members-only security forum would have a similar effect on negating Chinese actions.

The United States will have to take the first step, and lead by example, to demonstrate its commitment to countering the PRC’s integrated maritime campaign. The following two “quick win” methods are available for the United States to express this resolve. The first method, increasing U.S. maritime presence, consists of more than Freedom of Navigation operations.⁴⁸ Freedom of Navigation operations are akin to trying to establish a presence as described in Field Manual 3-24, *Counterinsurgency*, by “raiding from remote, secure bases.”⁴⁹ Instead, U.S. forces must “live in the AO [area of operations] close to the populace” because such proximity creates “links with the local people.”⁵⁰ The United States can best achieve this task by conducting security force assistance operations and building capacity among its ASEAN partners. As trust is built, combined maritime patrols could begin in accordance with the previously mentioned mission of the CJIATF. A difficult but necessary imperative for these combined maritime patrols is establishing the rules of engagement and an escalation of force framework to guide U.S. maritime forces in their inevitable encounter with a Chinese response. The Naval War College’s published vital work on this subject should guide the creation of rules of engagement and an escalation of force framework.⁵¹ The last element of building trust is the use of U.S. maritime forces due to their unique abilities to rapidly deploy and redeploy, self-sustain, and perform multiple roles.

As for the second method, the United States must man the CJIATF with personnel from all branches of the government to ensure that it has the military, diplomatic, legal, and economic expertise to succeed. The United States should create a joint manning document to identify the ideal mix of representation from all branches of government and not oversaturate the CJIATF with military. Personnel from the Departments of State, Justice, and Commerce, among others, have a lot to contribute to the CJIATF if the United States is to navigate the international agreements necessary for a shared surveillance network and strong regional security institutions.

The time to implement this counter-campaign is now. Every day that passes without acting is another day that the PAFMM persists and moves the PRC closer to achieving its near-term goal of de facto control of the maritime terrain within the nine-dash line. The United States must exploit the rancor among the Southeast Asian nations caused by Chinese aggression.⁵² As Andrew Erickson and Gabriel Collins state, “Beijing has pocketed gains without acknowledging the benefits and goodwill it has squandered.”⁵³ Eventually, China will remember the wisdom of its own history, as an ancient sage opined in the *Zuozhuan*: “Good relations are not to be neglected; enmity is not to be nurtured. . . . By nurturing enmity and not repenting, he [Lord Huan of Chen] went the way of bringing disaster upon himself.”⁵⁴ Under the aegis of a whole-of-government approach and by working together, the United States and the Southeast Asian nations can reestablish order in the South China Sea. JFQ

Notes

¹ *Summary of the Irregular Warfare Annex to the National Defense Strategy* (Washington, DC: Department of Defense [DOD], 2020), 2.

² The terrain features in contention consist of rocks, reefs, and shoals of various sizes. Surface and subsurface refers to visibility based on tides. Some of the terrain features are perpetually covered by the sea, some are visible only at low tide, and some are visible year-round regardless of tides. Brunei, China, Indonesia, Malaysia, the Philippines, Taiwan, and Vietnam are all the nations with competing territorial claims within the South China Sea. See Council on Foreign Relations, “Global Conflict Tracker: Territorial Disputes in the South China Sea,” updated January 21, 2021, available at <<https://www.cfr.org/global-conflict-tracker/conflict/territorial-disputes-south-china-sea>>.

³ Washington University in St. Louis School of Law, “Legal English: ‘De Facto/De Jure,’” December 28, 2012, available at <<https://onlinelaw.wustl.edu/blog/legal-english-de-facto-de-jure/>>.

⁴ *Ibid.*

⁵ The United Nations Conference on Trade and Development estimates that 80 percent of the volume of international trade is carried by maritime transport, and the percentage is even higher for developing states. See *Review of Maritime Transport 2019* (Geneva: United



Navy Sailors ride rigid-hull inflatable boat from USS *Wayne E. Meyer* during visit, board, search, and seizure drill as part of Association of Southeast Asian Nations/U.S. Maritime Exercise, Gulf of Thailand, September 5, 2019 (U.S. Navy/Rawad Madanat)

Nations Conference on Trade and Development, 2019), available at <<https://unctad.org/webflyer/review-maritime-transport-2019>>.

⁶ Anthony H. Cordesman, *China and the US: Cooperation, Competition, and/or Conflict: An Experimental Assessment* (Washington, DC: Center for Strategic and International Studies, October 1, 2019), 337–338, available at <https://csis-website-prod.s3.amazonaws.com/s3fs-public/publication/191001_China_Grand_Strategy.pdf>.

⁷ *China's National Defense in the New Era* (Beijing: State Council Information Office of the People's Republic of China, July 2019), available at <https://www.globalsecurity.org/military/library/report/2019/china-national-defense-new-era_20190724.pdf>.

⁸ Ronald O'Rourke, *U.S.-China Strategic Competition in South and East China Seas: Background and Issues for Congress*, R42784 (Washington, DC: Congressional Research Service, updated March 18, 2021), 85, available at <<https://fas.org/sgp/crs/row/R42784.pdf>>.

⁹ A major oil field is one that contains at least 500 million barrels of oil. See Tim Daiss, "Why the South China Sea Has More

Oil than You Think," *Forbes*, May 22, 2016, available at <<https://www.forbes.com/sites/timdaiss/2016/05/22/why-the-south-china-sea-has-more-oil-than-you-think/?sh=6d93a9c7dd8f>>.

¹⁰ Ibid.

¹¹ Security involves all activities necessary for thwarting threats to China's basic political system, sovereignty involves the protection of territorial integrity and reunification efforts, and development involves establishing those conditions necessary for China's economy to thrive and ameliorate internal discontent. See Andrew Scobell et al., *China's Grand Strategy: Trends, Trajectories, and Long-Term Competition* (Santa Monica, CA: RAND, 2020), 12, available at <https://www.rand.org/pubs/research_reports/RR2798.html>.

¹² Hannah Beech, "Just Where Exactly Did China Get the South China Sea Nine-Dash Line From?" *Time*, July 19, 2016, available at <<https://time.com/4412191/nine-dash-line-9-south-china-sea/>>.

¹³ Ibid.

¹⁴ Joe Strange, *Centers of Gravity & Critical Vulnerabilities: Building on the Clausewitzian*

Foundation So That We Can All Speak the Same Language, Marine Corps University Perspectives on Warfighting, No. 4, 2nd ed. (Quantico, VA: Marine Corps University Foundation, 1996), 3.

¹⁵ Brahma Chellaney, "China's Creeping 'Cabbage' Strategy," *Taipei Times*, December 1, 2013, available at <<http://www.taipetimes.com/News/editorials/archives/2013/12/01/2003578036>>.

¹⁶ Andrew S. Erickson and Ryan D. Martinson, eds., *China's Maritime Gray Zone Operations* (Annapolis, MD: Naval Institute Press, 2019), 93.

¹⁷ Miren Gutiérrez et al., *China's Distant-Water Fishing Fleet: Scale, Impact and Governance* (London: Overseas Development Institute, June 2020), 30.

¹⁸ Florian Frese, "What Is a Transshipment?" *Container xChange*, June 12, 2019, available at <<https://container-xchange.com/blog/what-is-a-transshipment/>>.

¹⁹ Kimbra Cutlip, "Rendezvous at Sea: What Is Transshipping?" *Global Fishing Watch*, August 23, 2016, available at <<https://global-fishingwatch.org/fisheries/rendezvous-at-sea>>.

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²⁰ Asia Maritime Transparency Initiative, “The Long Patrol: Staredown at Thitu Island Enters Its Sixteenth Month,” Center for Strategic and International Studies, March 5, 2020, available at <<https://amti.csis.org/the-long-patrol-staredown-at-thitu-island-enters-its-sixteenth-month/>>.

²¹ Erickson and Martinson, *China’s Maritime Gray Zone Operations*, 54.

²² James Clad and Robert A. Manning, “Catching Controversy: China’s Maritime Militia,” *Jane’s Defence Weekly*, December 15, 2016.

²³ Ma Chengkun and John Chen, “System Overload? The 2015 PLA Force Reduction, Military-Locality Relations, and the Potential for Social Instability,” in *Chairman Xi Remakes the PLA: Assessing Chinese Military Reforms*, ed. Phillip C. Saunders et al. (Washington, DC: NDU Press, 2019), 661.

²⁴ *Annual Report to Congress: Military and Security Developments Involving the People’s Republic of China 2020* (Washington, DC: DOD, 2020), 72.

²⁵ Gerry Shih, “Large Army Veteran Protests in China Pose Challenge for Xi,” Associated Press, June 26, 2018, available at <<https://apnews.com/article/15caf2ca03841bf9f32d5ed959ba85>>.

²⁶ Ryan D. Martinson, “The Lives of a Chinese Gunboat,” U.S. Naval Institute *Proceedings* 142, no. 6 (June 2016), 39.

²⁷ Conor M. Kennedy and Andrew S. Erickson, “Hainan’s Maritime Militia: All Hands on Deck for Sovereignty Pt. 3,” Center for International Maritime Security, April 26, 2017, available at <<https://cimsec.org/hainans-maritime-militia-hands-deck-sovereignty-pt-3/32085>>.

²⁸ Clad and Manning, “Catching Controversy.”

²⁹ Zhang Yi and Liu Jinpeng, “Guangxi Navy Division to Strengthen the Construction of Maritime Militia to Enhance Equipment Efficiency,” *China News*, January 6, 2014, available at <<http://www.chinanews.com/mil/2014/01-06/5700496.shtml>>.

³⁰ David Major, “Napoleon and Operational Art,” PowerPoint presentation, Marine Corps University, January 5, 2020.

³¹ Ian Easton, “Chinese Invasion Threat: Taiwan’s Defense & American Strategy in Asia,” interview by Demetri Kofinas, *Hidden Forces* podcast 157, October 20, 2020, available at <<https://podcasts.apple.com/us/podcast/chinese-invasion-threat-taiwans-defense-american-strategy/id1205359334?i=1000493611873>>.

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³³ Michael McDevitt, *Becoming a Great “Maritime Power”: A Chinese Dream* (Arling-

ton, VA: CNA, June 2016), 63, available at <https://www.cna.org/cna_files/pdf/irm-2016-u-013646.pdf>.

³⁴ James Kraska, “China’s Maritime Militia Vessels May Be Military Objectives During Armed Conflict,” *The Diplomat*, July 7, 2020, available at <<https://thediplomat.com/2020/07/chinas-maritime-militia-vessels-may-be-military-objectives-during-armed-conflict/>>.

³⁵ Overseas Development Institute researchers identified 16,966 vessels through various technical and administrative means that were flagged to either China or another country but were operated by a Chinese state-owned enterprise. See Gutiérrez et al., *China’s Distant-Water Fishing Fleet*, 21.

³⁶ The Indonesian maritime forces consist of approximately 705 total vessels of various tonnage with almost two-thirds consisting of maritime law enforcement vessels. See Lyle J. Morris and Giacomo Persi Paoli, *A Preliminary Assessment of Indonesia’s Maritime Security Threats and Capabilities* (Santa Monica, CA: RAND, 2018), 40, available at <https://www.rand.org/content/dam/rand/pubs/research_reports/RR2400/RR2469/RAND_RR2469.pdf>; “Navy Fleet Strength by Country (2021),” *Global Firepower*, n.d., available at <<https://www.globalfirepower.com/navy-ships.php>>.

³⁷ Thailand is the only country in Southeast Asia that was never colonized by a European power. See Chris Baker, “Thailand Escaped Colonialism, but Still Adapted Western Ideas,” *Wall Street Journal*, June 25, 1997, available at <<https://www.wsj.com/articles/SB86728174163740500>>.

³⁸ Evelyn Goh, “Great Powers and Hierarchical Order in Southeast Asia: Analyzing Regional Security Strategies,” *International Security* 32, no. 3 (2007/2008), 119, available at <<http://direct.mit.edu/isec/article-pdf/32/3/113/693118/isec.2008.32.3.113.pdf>>.

³⁹ *Ibid.*, 155.

⁴⁰ *Ibid.*, 136.

⁴¹ *Ibid.*, 145.

⁴² Association of Southeast Asian Nations, “ASEAN Regional Forum,” n.d., available at <<https://asean.org/asean-political-security-community/asean-regional-forum-arf/>>.

⁴³ “Consensus Decision Making,” *Seeds for Change*, n.d., available at <<https://www.seedsforchange.org.uk/consensus>>.

⁴⁴ Australian Government, Department of Foreign Affairs and Trade, “ASEAN Regional Forum,” n.d., available at <<https://www.dfat.gov.au/international-relations/regional-architecture/asean-regional-forum-arf>>.

⁴⁵ Ten nations compose the member nations of ASEAN: Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Vietnam. See Association of Southeast Asian Nations, “ASEAN Member States,” n.d., available at <<https://asean.org/>>.

asean/asean-member-states/>.

⁴⁶ An air defense identification zone is an area in which a country reserves the right to identify, intercept with fighter aircraft, or target with surface to air missiles. See Tomoya Onishi and Kentaro Iwamoto, “ASEAN Stresses Freedom of Overflight Above South China Sea,” *Nikkei Asia*, updated June 27, 2020, available at <<https://asia.nikkei.com/Politics/International-relations/ASEAN-stresses-freedom-of-overflight-above-south-china-sea>>.

⁴⁷ *Ibid.*

⁴⁸ Freedom of Navigation Operations are operations conducted by U.S. naval and air forces to reinforce internationally recognized rights and freedoms by challenging excessive maritime claims. See Eleanor Freund, “Freedom of Navigation in the South China Sea: A Practical Guide,” Belfer Center for Science and International Affairs, June 2017, available at <<https://www.belfercenter.org/publication/freedom-navigation-south-china-sea-practical-guide>>.

⁴⁹ Field Manual 3-24, *Counterinsurgency* (Washington, DC: Headquarters Department of the Army, 2006), A-4.

⁵⁰ *Ibid.*

⁵¹ See Kraska, “China’s Maritime Militia Vessels”; and Erickson and Martinson, *China’s Maritime Gray Zone Operations*.

⁵² Onishi and Iwamoto, “ASEAN Stresses Freedom of Overflight.”

⁵³ Gabriel Collins and Andrew S. Erickson, “Hold the Line Through 2035: A Strategy to Offset China’s Revisionist Actions and Sustain a Rules-Based Order in the Asia-Pacific,” Baker Institute for Public Policy, Rice University, November 2020, 6, available at <<https://doi.org/10.25613/4fzk-1v17>>.

⁵⁴ *Zuozhuan* is a seminal work in Chinese history that provides commentary and histories of the diplomatic, military, and political affairs of ancient China between 722 and 468 BCE. Its commentaries and history are analogous and as important to China as Thucydides’s *History of the Peloponnesian War* are to the West. See *Zuo Tradition, Zuozhuan: Commentary on the “Spring and Autumn Annals,”* trans. Stephen Durrant, Wai-ye Li, and David Schaberg (Seattle: University of Washington Press, 2016), xvii–xviii.

Virginia-class nuclear-powered fast-attack submarine
USS *North Dakota* transits Thames River as it pulls
into homeport on Naval Submarine Base New
London, in Groton, Connecticut, January 31, 2019
(U.S. Navy/Jason M. Geddes)



Realizing Energy Independence on U.S. Military Bases

By Timothy Renahan

Politically motivated cyber attacks are now a growing reality, and foreign actors are reconnoitering and developing access to U.S. critical infrastructure systems, which might be quickly exploited for disruption if an adversary's intent became hostile.

—JAMES CLAPPER,
Director of National Intelligence¹

Lieutenant Colonel Timothy Renahan, USA, wrote this essay while attending the U.S. Army War College. It won the Strategy Article category of the 2021 Chairman of the Joint Chiefs of Staff Strategic Essay Competition.

The Department of Defense (DOD) is the largest consumer of energy in the U.S. Government, yet it relies on the local electrical distribution systems and grids that surround each military base.² The Army has realized that dependence on local energy grids creates a national security

concern. Near-peer competitors such as Russia and China are working to exploit our aging infrastructure to gain advantage in possible future conflict and destabilize day-to-day operations.³ Rogue nations such as Iran and North Korea have undertaken offensive cyber acts to asymmetric benefit, and they

have disrupted U.S. ability to continue to pressure them economically.⁴ Therefore, military bases should have independent energy production methods to prevent loss of capability and to provide emergency service if the local energy grid is compromised. DOD is currently exploring renewable energy initiatives and nuclear possibilities, such as small modular reactor (SMR) technology, which could offer options for energy independence that are scalable and environmentally friendly. This article focuses on domestic military bases and the energy vulnerabilities associated with local grids; it does not consider forward-deployed locations or military bases overseas. As energy technologies evolve, now is the time to invest future funding to reduce vulnerability of domestic military bases to attack and ensure energy independence.

Risks to National Security

DOD has publicly identified that a significant vulnerability to U.S. military bases is the local energy infrastructure.⁵ The military installations themselves are currently positioning physical and cyber security measures, but illicit actors do not need to penetrate the bases.⁶ Targeting the external power distribution system that provides a base its electricity is just as damaging as targeting the base itself. In 2019, more than 12 utilities companies across the country were targeted via cyber attack.⁷ This pattern of sustained pressure by illicit actors on infrastructure, including electrical nodes, is predicted to continue—if not increase.⁸

The Department of Energy reports that grids have been tested by external threats for years. In 2014 alone, the energy sector reported 46 individual incidents, a significant number of them being advanced persistent threats.⁹ Near-peer competitors such as Russia and China seek to manipulate our aging infrastructure to gain advantage in future possible conflict and destabilize day-to-day capability.¹⁰ Nonstate actors, such as terrorist and transnational criminal organizations, are also working to attack grid facilities as a way to challenge perceptions of U.S.

governance and stability.¹¹ Complicating the issue is the way power is managed and regulated: The Federal Energy Regulatory Commission has “jurisdiction over the reliability of the bulk power grid,” but the states have responsibility for electrical distribution.¹² Such division of labor creates an issue of security standards across energy platforms and can expose cracks in mutually supporting security strategies.

Energy Consumption and Initiatives

DOD has steadily remained the largest governmental consumer of energy, and it relies heavily on local electrical grid systems to provide that power.¹³ Military installations require uninterrupted access to power and other utilities to ensure readiness and maintain critical services. A loss of sustained power could have a significant detrimental effect on a military base and its ability to provide emergency services and support critical missions.¹⁴ External infrastructure support for military bases creates a security concern that has prompted evaluation and testing across the Services.

In conjunction with DOD, the Army has already conducted several energy resilience readiness exercises to deliberately shut off power to a military base and test the reaction and stability under only emergency power capability.¹⁵ So far, Fort Stewart (Georgia), Fort Greely (Alaska), Fort Knox (Kentucky), and Fort Bragg (North Carolina) have been tested using the exercise.¹⁶ The Army has learned numerous lessons, identified gaps, and pinpointed improvements and is moving forward with “resilience” initiatives and Installation Energy and Water Plans.¹⁷

Several military installations are also experimenting with “microgrids” to provide backup energy in case of emergency and to reduce carbon footprints.¹⁸ Projects in landfill-to-gas, solar, and wind are creating methods to reduce the demand on carbon-based power and local electrical grids.¹⁹ Unfortunately, the current microgrids must be supplemented with diesel and natural gas generators, as the technology for low-emission energy sources alone cannot provide the necessary power. These efforts are

developing—and they are important to creating green alternatives for power—but installations must continue to rely on diesel and natural gas in the near term.²⁰

DOD is also investigating nuclear options for energy on military bases. Two efforts working through the Strategic Capabilities Office and the Under Secretary of Defense for Acquisition and Sustainment have created pilot programs and contracted private energy companies to design small nuclear reactors for use on military installations.²¹ Both projects rely on the development and availability of commercial technology and manufacturing support. Although DOD is most interested in microreactor technology, SMRs will be commercially available first, with microreactors lagging and possibly not commercially available until the 2030s.²²

Solutions for Energy Independence

SMR technology has reached the level of final testing and is expected to be ready for employment by 2026.²³ SMRs can provide on-demand power for a military base if the local energy grid is compromised. These miniaturized nuclear reactors have a smaller footprint compared with a microreactor and are scalable for any energy requirement.²⁴ Although currently not defined, the cost of producing a SMR could range from 15 percent to 40 percent less than construction of a comparable nuclear plant.²⁵ SMRs would help the U.S. military increase readiness, reduce its carbon footprint, and lower energy-related waste, while taking up less physical space than other clean energy sources.²⁶

Military bases also provide an additional level of safety, security, and support. The U.S. military has had nuclear-powered vessels, with nuclear support on bases, and independent nuclear facilities since the 1950s with no incidents. Currently, the Navy has boasted approximately “5,400 reactor years of accident-free operations.”²⁷ The Army even operated a nuclear facility at Fort Belvoir (Virginia), only miles from Washington, DC, from 1957 through 1973 without incident or fanfare.²⁸

Figure. How Do SMRs Work?

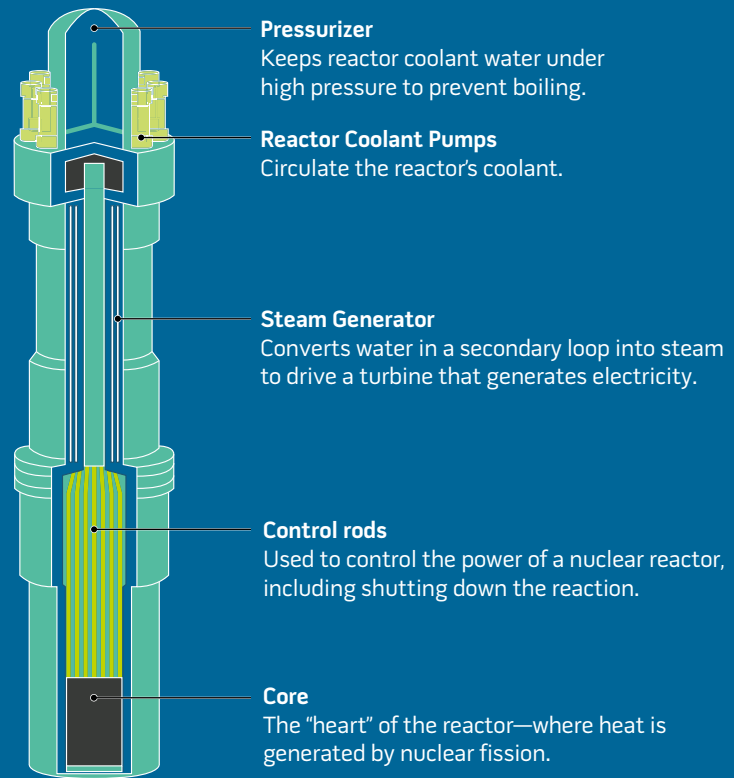
1. Nuclear power plants generate heat through nuclear fission. The process begins in the reactor core. Atoms are split apart—releasing energy and producing heat as they separate into smaller atoms. The process repeats again and again through a fully controlled chain reaction.

2. Control rods made of neutron-absorbing material are inserted into the core to regulate the amount of heat generated by the chain reaction.

3. Reactor coolant water picks up heat from the reactor core. Reactor coolant pumps circulate this hot water through a steam generator, which converts water in a secondary loop into steam.

4. The steam is used to drive a turbine, which generates electricity.

5. Throughout the process, the pressurizer keeps the reactor coolant water under high pressure to prevent it from boiling.



Drawbacks and Constraints

The biggest barrier to introducing nuclear power to military bases, besides a potential large initial investment, is the word *nuclear*. Despite the significant rarity of nuclear accidents, the scope and long-term effects of a “Chernobyl” still frighten the population. A 2019 poll showed that Americans were evenly divided, at 49 percent, over the use of nuclear energy as a clean energy alternative—a significant drop from 2010’s high of 62 percent in favor.²⁹ Current political opposition to nuclear power in some states could also be a concern, especially where carbon or natural gas-based enterprises abound.

The potential for terrorist attack and/or cyber attack to a military base is always a threat. But the sheer lack of nuclear incidents in current Navy and Air Force facilities is a direct indication that physical and cyber security measures are in place and being updated.³⁰ This strong record attests that sound processes are available for transfer within DOD, offering a

blueprint for future nuclear additions to facilities. There is the possibility of increased costs to secure and transport nuclear material on the base or to a disposal facility. Current DOD efforts to evaluate nuclear power options should account for those costs in order to inform the overall overhead needed to operate the reactor.

Recommendation

As energy technologies continue to evolve, now is the time to earmark future defense funding to create energy-independent military bases. SMRs would be the first commercially available technology that could support the critical energy needs of a military base.³¹ Current data indicate that they would be less expensive to implement compared with microreactors or other nuclear options, although both options present a significant initial cost for purchase and infrastructure. DOD should continue to develop and research renewable energy capabilities (solar, wind, water) but should prioritize a

nuclear solution to deliver to military bases energy that is independent of a local grid.

Investing in SMRs will provide a quicker and more cost-efficient option for independent power to reduce vulnerability on domestic military bases. SMRs create enough energy to run critical infrastructure and maintain readiness levels; they will be commercially available almost a decade before microreactor technology will.³² Placing a smaller and scalable SMR on a military base would also allow DOD to effectively map on-base energy infrastructure specific to each installation. DOD, in coordination with the Department of Energy, should prioritize military installations for fielding and testing; work with local installations to educate and plan; and include research, development, and acquisition funding in the Program Objective Memorandum and/or request funding as part of potential upcoming environmental legislation for purchase and installation of a few SMRs on select installations.³³ JFQ

Notes

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Annual Energy Data and Sustainability Performance.”

¹⁴ Alex Beehler and J.E. Jack Surash, “Cutting the Cord to Test Energy Resilience,” *U.S. Army* blog, April 13, 2020, available at <https://www.army.mil/article/234514/cutting_the_cord_to_test_energy_resilience>.

¹⁵ *Ibid.*

¹⁶ *Ibid.*

¹⁷ Installation Energy and Water Plans are working plans that “outline critical mission requirements, assess energy and water baseline conditions, and develop a prioritized approach for both projects and operations-and-maintenance activities that improve energy and water resilience.” See *ibid.*

¹⁸ The move to renewable energies is based on law and executive order to improve energy security and energy sustainability and to increase renewable energy sources to meet government-wide goals. See *DOD Renewable Energy Projects: Improved Guidance Needed for Analyzing and Documenting Costs and Benefits*, GAO-16-487 (Washington, DC: Government Accountability Office, September 2016), available at <<https://www.gao.gov/assets/gao-16-487.pdf>>.

¹⁹ Emma Foehringer Merchant, “U.S. Military Microgrids Are Using More Renewables and Batteries,” *Greentech Media*, November 9, 2018, available at <<https://www.greentechmedia.com/articles/read/for-the-u-s-military-energy-resilience-has-long-been-a-priority>>.

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²⁹ “U.S. Public Opinion Evenly Split on Nuclear,” *World Nuclear News*, April 1, 2019, available at <<https://world-nuclear-news.org/Articles/US-public-opinion-evenly-split-on-nuclear>>.

³⁰ Conca, “Masters of Modular Nuclear Reactors.”

³¹ DOD has already reached out to private industry for recommendations on how to effectively and efficiently add nuclear power to military bases. See Mehta, “Pentagon Awards Contracts.”

³² *Ibid.*

³³ President Joe Biden’s Plan for Climate Change and Environmental Justice, released after the 2020 Presidential campaign, and the current American Jobs Plan being discussed in Congress both contain significant emphasis and funding for clean energy infrastructure. DOD has the ability to use its history of success in funding dual-use technology (technology that is created with a military intent/use but can be used in commercial/private sector as well) to fund or request funding for small modular reactor technology. Internally programming or requesting funding in environmentally focused legislation will allow DOD to create energy-independent installations, support national climate change goals, and propel immature nuclear technology for future commercial use. Supporting research and development into modular nuclear technology defends against environmental national security challenges and hedges against potential energy use cuts or taxes to DOD. See “The Biden Plan to Secure Environmental Justice and Equitable Economic Opportunity,” *Joe Biden.com*, 2021, available at <<https://joebiden.com/environmental-justice-plan/>>; and *Fact Sheet: The American Jobs Plan* (Washington, DC: The White House, March 31, 2021), available at <<https://www.whitehouse.gov/briefing-room/statements-releases/2021/03/31/fact-sheet-the-american-jobs-plan/>>.



Cadet uses Ludwig Tube to measure pressures, temperatures, and flow field of various basic geometric and hypersonic research vehicles at Mach 6 in U.S. Air Force Academy's Department of Aeronautics, in Colorado, January 31, 2019 (U.S. Air Force/Joshua Armstrong)

Educating Senior Service College Students on Emerging and Disruptive Technologies

By Kelly John Ward

Changing the curriculum of any senior Service college (SSC) is never taken lightly. Over time and with care and experience, the commandant, dean, and associate

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deans craft a well-balanced mix of operational and strategic topics to best prepare their students for future senior leadership positions. The most precious resource at an SSC is time on the academic calendar. Every assigned reading, every lecture by an expert or senior leader, and every seminar the students participate in is valuable because of the opportunity cost. In a

constrained 10-month master's degree program that must meet and excel at the tasks stipulated in the joint professional military education (JPME) program for the Process of Accreditation of Joint Education requirements, an outcomes-based military education has no room for extraneous material.¹ SSC curricula are a delicately balanced mix of subjects, discussions, applied thinking

and exercises, and student evaluations. The unfortunate reality is that adding important topics or material to the SSC curriculum requires removing equally important material—and often upsets the delicate balance that has built over time.

A recent Joint Chiefs of Staff (JCS) publication, *Developing Today's Joint Officers for Tomorrow's Ways of War* (JCS PME Vision 2020), provides the impetus for a curriculum assessment at the National War College (NWC).² More specifically, the dean of the NWC asked me to develop and potentially integrate material into the NWC curriculum to address the following points in the JCS PME Vision 2020:

*Our leader development enterprise demands a . . . deeper understanding of the implications of disruptive and future technologies for adversaries and ourselves; JPME programs must provide graduates the initial knowledge and skills to prepare them for service as warfighting joint leaders, senior staff officers, and strategists who . . . anticipate and lead rapid adaptation and innovation during a dynamic period of acceleration in the rate of change in warfare under the conditions of Great Power competition and disruptive technology.*³

By their very nature, disruptive technologies are uncertain, but they are not always unpredictable. The unclassified version of the 2018 National Defense Strategy identified the following list as areas where rapid technological advancement could change the character of war:

- advanced computing
- “big data” analytics
- artificial intelligence (AI)
- autonomy
- robotics
- directed energy
- hypersonics
- biotechnology.⁴

There are of course other emerging technologies that have the potential to change both the character of war and the larger economic competition among

powerful nations. This article describes *one* potential solution to the question of which emerging technologies should potentially be integrated into NWC's curriculum, and to what degree, for just one of the many Department of Defense (DOD) graduate institutions and SSCs. It recognizes that there are many possible solutions to senior leader development in emerging technologies and that the preferred solution will vary from school to school based on the current curriculum, faculty expertise, degree focus, and other factors. The intent of this article is to add to the discussion and provide a logical baseline for how one SSC addressed the imperative to “provide graduates the initial knowledge and skills to prepare them for service as . . . strategists who . . . anticipate and lead rapid adaptation and innovation . . . under the conditions of great power competition and disruptive technology.”⁵

Which Emerging and Disruptive Technologies to Teach?

Emerging technology is a term generally used to describe a new technology, but it may also refer to the continuing development of an existing technology. Emerging technology can also have a slightly different meaning when used in different areas, such as business, science, education, or national security. For example, DOD has always been focused on developing emerging military technologies to enhance national security and maintain superiority over potential competitors.

In 2020, the top 10 emerging technologies, according to the CompTIA Emerging Technology Community, were:

- AI
- 5G (fifth-generation technology standard for broadband cellular networks)
- Internet of Things
- serverless computing
- biometrics
- augmented reality/virtual reality
- blockchain
- robotics
- natural language processing
- quantum computing (QC).⁶

Disruptive technology, alternatively, is an innovation that significantly modifies the way that consumers, industries, businesses, or the military operate. A disruptive technology quickly devastates the systems or habits it replaces because it has attributes that are recognizably superior. Recent disruptive technology examples include e-commerce, online news sites, ride-sharing apps, and global positioning systems. At one time, the automobile, electricity service, television, and atomic weapons were considered disruptive technologies.

In 2010, the Committee on Forecasting Future Disrupting Technologies wrote:

*New technologies continue to emerge in every field and in [every] part of the world. In many cases, when a technology first emerges, its disruptive potential is not readily apparent. It is only later, once it has been applied or combined in an innovative way, that the disruption occurs. In other cases, however, a disruptive technology can truly be the result of a scientific or technological breakthrough. Some of these technologies are specific and target a niche market, while others possess the potential for widespread use and may open up new markets. A disruptive technology may change the status quo to such an extent that it leads to the demise of an existing infrastructure. Accordingly, three important questions should be asked about emerging technologies: Which of them could be considered latently disruptive? In which sector, region, or application would the technology be disruptive? What is the projected timeline for its implementation?*⁷

The Congressional Research Service recently analyzed current emerging military technologies that include AI, lethal autonomous weapons systems, hypersonic weapons, directed energy weapons, biotechnology, and quantum technology.⁸ Comparing this list with the CompTIA list of emerging commercial technologies, we see two areas of overlap: AI and QC technology. For the NWC curriculum—with its focus on Great Power competition and emphasis on all national elements and instruments

of power—AI and its subfield, machine learning (ML), seemed like the area of emerging technology on which to potentially focus. Further research and analysis supported this initial intuition.

To meet the purpose of the JCS PME Vision 2020 for the NWC curriculum, the following two learning objectives were developed:

- understand the vocabulary and concepts behind the emerging (and potentially disruptive) technologies of AI and ML
- understand the current and potential future applications and capabilities, as well as some of the limitations and concerns, of AI and ML.

AI/ML in an SSC Curriculum

AI and ML are upon us. Information on AI is flooding the market, media, and social channels. Former Secretary of Defense Mark Esper highlighted AI as one of DOD's top 11 modernization initiatives.⁹ In 2018, DOD created the Joint Artificial Intelligence Center (JAIC) to coordinate efforts to use ML and other AI to maintain a lethality and efficiency edge over other nations' militaries. Without a doubt, AI and ML are topics worth the attention of future strategic leaders.

It can be difficult to sift through the media hype and grandiose promises of AI firms to understand exactly how AI/ML could be applied in practical and reliable ways. Of course, incorporating new technology into governmental or commercial processes requires significant leadership and effective direction that all stakeholders can easily understand.

Many of our daily human experiences and interactions involve machines or devices that are already using AI of some sort. Examples include a Google search, ride-sharing apps such as Uber or Lyft, email spam filters, banking and credit card fraud prevention, and online shopping searches. AI/ML technology is an integral part of our lives already, and its ubiquity will only increase. Strategic leaders will be called on to evaluate how we can better use the strengths of AI—while acknowledging its weaknesses—to

augment our ability to defend our national interests.

Advances in ML have allowed us to create systems that can automate complex tasks through constant learning. Computers have always been able to assist and make assessments about the world based on information we provide to them. But we have evolved beyond telling these machines what to do with our data. Now machines can learn from patterns and anomalies they find in data on their own. These are patterns and anomalies that our minds cannot feasibly find due to the sheer size and complex intricacies that exist within the data. AI's strength comes from its ability to analyze large volumes of data reliably, efficiently, and accurately, and without fatigue.

However, AI/ML does not understand strategy. It is constrained to a specific task, which it executes in an efficient manner. Its ability to learn and provide insights is limited in scope. It still requires humans to take those insights and determine what role they will play in a larger strategy that accomplishes the identified objectives. If DOD and the Intelligence Community can harness the strengths of AI—and autonomy, a major area of application of AI—while acknowledging the weaknesses, then national security professionals can use these technologies to better achieve future success.

Resources

In 2018, at the urging of the Pentagon's Defense Innovation Board, JAIC was stood up.¹⁰ Working within DOD's Chief Information Office, JAIC seeks “to transform the DOD by accelerating the delivery and adoption of AI to achieve mission impact at scale.”¹¹ Part of JAIC's holistic approach is to “cultivate a leading AI workforce.”¹² JAIC's chief AI architect, Nate Bastain, spearheaded an effort in the summer and fall of 2020 to develop multiple “AI communities of interest” across DOD, especially within educational institutions, such as the Service academies as well as PME and JPME organizations. His efforts succeeded in creating the DOD-affiliated Graduate Institution Artificial Intelligence Community of

Interest (Graduate AI COI), bringing together interested faculty, researchers, and leaders from across the SSCs and all other master's degree-granting institutions in DOD. The Graduate AI COI has been extremely valuable in this process of analyzing AI/ML as a potential addition to the NWC core curriculum. Thomas Linn from the NWC was generous in sharing his perspective on what SSC students should know about AI/ML and QC. All SSC representatives have shared what their institutions currently teach their students, mostly via electives or guest speakers.

For academic year 2021, only the National Defense University's (NDU's) College of Information and Cyberspace (CIC) has a block of instruction in its core courses about AI/ML and QC. CIC's Linda Jantzen was especially generous in providing the curriculum that CIC teaches its students, which provided a great starting point for this analysis. The bottom line here is that JAIC's Graduate AI COI is a tremendous resource, full of professionals, researchers, and educators with expertise and interest in AI/ML.

The next potential resource for any SSC considering adding AI/ML to its core curriculum is appropriate guest speakers. The advantages of having a true AI professional who can bring excitement and valuable knowledge about AI to our mature student body cannot be overstated. Speakers who combine a genuine understanding of AI with experience and expertise in national security are especially valuable.¹³

Some Readings to Consider

What should SSC students read about AI/ML as an emerging and potentially disruptive technology that will prepare them as future warfighting joint leaders, senior staff officers, and strategists? The students will vary greatly in their prior knowledge of AI, as is the case with many topics we teach. (Some students may even boast advanced degrees in AI-related subjects or have prior assignments in AI-related fields or acquisition.) However, it should be assumed that the typical SSC student (and faculty member) is at a low level



Ranger from 3rd Battalion, 75th Ranger Regiment, executes live-fire exercise with IVAS Capability Set 4 during tropical weather testing in Camp Santiago, Puerto Rico, April 1, 2021 (U.S. Army/Courtney E. Bacon)

of prior knowledge about AI and ML. From the literally thousands of available books, articles, videos, and Web sites about AI and ML, what should be the selection criteria for materials? The NWC chose material that was a balanced combination of informative, national security–related, not purely commercial in application, and straightforward and efficient at imparting the information. Create and adhere to a well-considered and comprehensive catalogue of the concepts, ideas, arguments, and counterarguments to which to expose SSC students. (The selected annotated bibliography at the end of this article includes only a small sample of what is available.) More important, the catalogue of concepts, ideas, arguments, and counterarguments that the NWC selected as the most relevant for our students will almost certainly not match

the SSC’s catalogue of important AI/ML concepts. Employ the expertise that already exists within educational institutions when considering adding (or expanding) emerging and disruptive technologies to the SSC curriculum.

Seminar Discussions

The Socratic seminar that is the centerpiece of the pedagogy at the NWC and other SSCs will be vitally important to meet the JCS PME Vision 2020 goal of creating leaders with a “deeper understanding of the implications of disruptive and future technologies for adversaries and ourselves.”¹⁴ Guest speakers and selected readings will introduce the current evolution of AI/ML and its challenges, limitations, and vulnerabilities, and our Great Power rivals’ emphasis on quick development of AI for both economic development

and military dominance.¹⁵ The faculty seminar leaders will have to guide the discussion and debate toward the larger strategic issues of the advantages to being first to develop a disruptive technology. Encouraging students to think and debate—and logically defend—their thoughts and potential biases on the larger issue of AI as a disruptive technology is the goal.

Potential questions for inclusion in a seminar include:

- Could AI/ML advances truly disrupt? Which applications would be most disruptive, and over what time frame?
- To what level do strategic leaders need to understand AI and ML—and other emerging/disruptive technologies—to be effective decisionmakers?

- Commercial businesses and big tech firms are at the forefront of AI and ML research. How can governments and national security agencies possibly benefit from these advances?
- Which application of AI provides the most potential, either commercially or from a national security perspective? Why?
- Which AI vulnerability or safety issue (for example, brittleness, unpredictability, bias, ethical) is of most concern? Why?
- What strategic-level actions should the United States—and our allies—take today and in the near future to ensure that China does not gain tactical, operational, or strategic advantage with AI systems, autonomous capabilities, or decision support systems? What would be the estimated costs of these U.S. actions, and what would be the potential budget tradeoffs?

The JCS PME Vision 2020 states, “JPME programs must provide graduates *the initial knowledge and skills* to . . . anticipate and lead rapid adaptation and innovation . . . under the conditions of great power competition and disruptive technology.”¹⁶ Some deans and associate deans assert that the described one-two lesson block of readings, guest speakers, and focused seminar discussion fulfills the JCS’s intent, using AI/ML as a prime example of a disruptive technology that is currently relevant to strategic leaders. A complementary benefit of incorporating these AI concepts into the curriculum is that doing so creates an additional opportunity to familiarize students with innovation and leadership through change, as specified in the JCS PME Vision 2020: “Anticipate and lead rapid adaptation and innovation during a dynamic period of acceleration in the rate of change in warfare under the conditions of Great Power competition and disruptive technology.”¹⁷

An argument can also be made that the students should conduct, after discussing and debating AI/ML information in seminar, a collaborative exercise of some type. This experiential

learning task could be centered around the questions posed in the National Research Council’s *Persistent Forecasting of Disruptive Technologies*:

*Which of the AI/ML technology applications would you consider to be the most latently disruptive for national security? Why? What is the projected timeline for its implementation, either by the United States and our allies, or by a strategic competitor? What actions and budget decisions should the U.S. and DOD be considering now to offset the risks or take advantage of the rewards when your selected disruptive application of AI/ML becomes a reality?*¹⁸

Such exercises, however, take a significant amount of limited academic time. The leaders ultimately responsible for the SSC curriculum will need to carefully weigh the benefits of an AI/ML exercise against the opportunity costs to the other topics in the academic program.

AI and ML are not going away. The SSCs and other JPME institutions, working with each other and with organizations such as JAIC and the National Security Commission on Artificial Intelligence, can better prepare our future senior leaders by integrating AI/ML into our Great Power competition-focused curricula. Leveraging professional military education to teach our students baseline knowledge and skills, and how to think about these disruptive technologies, will be critical to our nation’s future economic and security success. JFQ

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¹³ From the experiences of the members of JAIC's community of interest, particularly Andy Leith, who teaches the AI Industry Study at the Eisenhower School for National Security and Resource Strategy at the National Defense University (NDU), a partial list of possible choices for dynamic and relevant guest speakers would include Eric Schmidt, Defense Innovation Board, former Google/Alphabet chairman; Paul Scharre, senior fellow and director of the Center for a New American Security (CNAS); Vint Cerf, Internet pioneer (co-inventor of TCP/IP) and "chief Internet evangelist" for Google; Robert Work, former Deputy Secretary of Defense, now at CNAS; Robert Atkinson, president of the Information Technology and Innovation Foundation; Jason Matheny, director of the Center for Security and Emerging Technology at Georgetown; Yll Bajraktari, executive director, National Security Commission on Artificial Intelligence; P.J. Maykish, senior military fellow, Center for Strategic Research, Institute for National Security Studies, at NDU, detailed full time to the National Security Commission on Artificial Intelligence; Robert Spalding, senior fellow, Hudson Institute; Reginald Hobbs, Army Research Laboratory and adjunct lecturer, Howard University; Darryl Ahner, interim dean for research, Air Force Institute of Technology; Sam White, deputy director, Center for Strategic Leadership, U.S. Army War College; Gavin Taylor, associate professor of computer science, U.S. Naval Academy; Nate Bastian, chief data scientist, Army Cyber Institute; and Chuck Howell, chief scientist responsible for AI, MITRE.

¹⁴ *Developing Today's Joint Officers for Tomorrow's Ways of War*, 3.

¹⁵ For example, Mick Ryan, "Intellectual Preparation for Future War: How Artificial Intelligence Will Change Professional Military Education," *War on the Rocks*, July 3, 2018, available at <<https://warontherocks.com/2018/07/intellectual-preparation-for-future-war-how-artificial-intelligence-will-change-professional-military-education/>>; Mick Ryan, "Integrating Humans and Machines," *The Strategy Bridge*, January 2, 2018, available at <<https://thestrategybridge.org/the-bridge/2018/1/2/integrating-humans-and-machines>>.

¹⁶ *Developing Today's Joint Officers for Tomorrow's Ways of War*, 4. Emphasis added.

¹⁷ Ibid.

¹⁸ NRC, *Persistent Forecasting of Disruptive Technologies*.

Notes

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² *Developing Today's Joint Officers for Tomorrow's Ways of War: The Joint Chiefs of Staff Vision and Guidance for Professional Military Education & Talent Management* (Washington, DC: The Joint Staff, May 1, 2020), available at <https://www.jcs.mil/Portals/36/Documents/Doctrine/education/jcs_pme_tm_vision.pdf?ver=2020-05-15-102429-817>.

³ Ibid., 3–4.

⁴ *Summary of the 2018 National Defense Strategy of the United States of America: Sharpening the American Military's Competitive Edge* (Washington, DC: Department of Defense, 2018), 3.

⁵ *Developing Today's Joint Officers for Tomorrow's Ways of War*, 4.

⁶ Louisa Fitzgerald, "Ten Emerging Technologies Making an Impact in 2020," *ComptIA*, June 10, 2020, available at <<https://www.comptia.org/blog/emerging-technologies-impact-2020>>.

⁷ National Research Council (NRC), *Persistent Forecasting of Disruptive Technologies* (Washington, DC: National Academies Press, 2010), 11.



Army M109A6 Paladin howitzer with Ellenwood-based Charlie Battery, 1st Battalion, 214th Field Artillery, 648th Maneuver Enhancement Brigade, Georgia Army National Guard, observes fired artillery rounds during African Lion 2021, at Tan Tan Training Area, Morocco, June 13, 2021 (U.S. Army National Guard/R.J. Lannom, Jr.)

Specialized Analytic and Targeting Study

A Methodology and Approach for Conducting Faster Full-Spectrum Targeting

By Curtis E. Pinnix, Jr.

Today, levels of autonomy and cognitive weapons employment are limited more by policy than by capability.¹ Joint Publication

(JP) 3-60, *Joint Targeting*, prescribes targeting processes and activities; however, major gaps exist between doctrine and operational application.² JP

3-60 provides broad guidance on targeting but fails to connect its effects-based approach to the true rhythm of operations. Doctrine in fighting coalition war is sufficient, but comprehensive doctrine in preparing for war lacks focus.³ In time- and resource-constrained environments, flexible and

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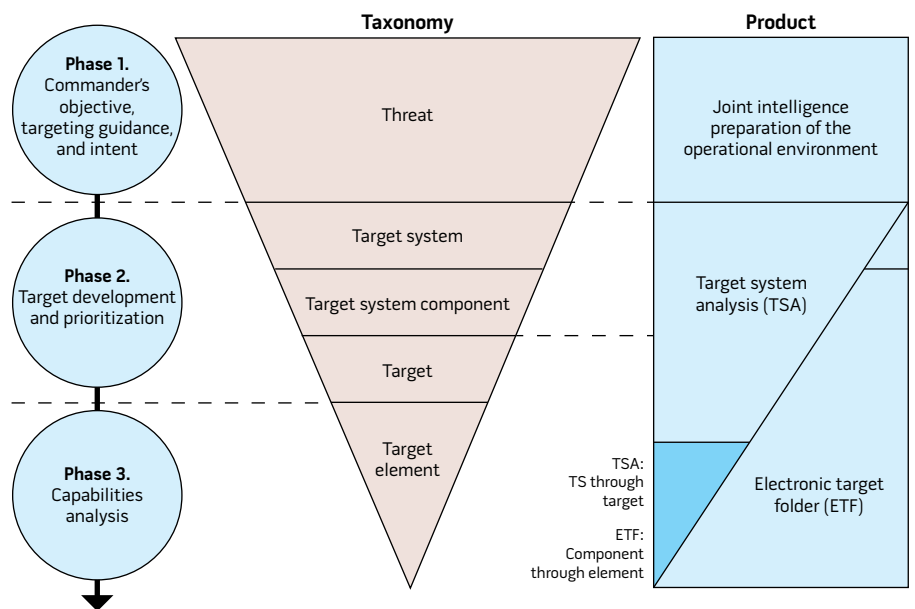
even ad hoc approaches are used to examine the target environment and achieve desired objectives. It is analogous to how consumers would rather critical information be delivered in a brief and concise format than sparsely distributed throughout a cumbersome product. The targeting model needs to evolve, and as such the integration of intelligence that feeds that model must likewise evolve.⁴ Establishing and moving to a more agile kill-chain affords the warfighter and war planner an adaptable model that solves challenges inherent in broad spectrum, cross-domain operations.

Background

Targeting is the fundamental task of analyzing and prioritizing foci and assigning the appropriate response to achieve desired effects.⁵ Additionally, targeting links intelligence, plans, and operations across all levels of command and phases of operations.⁶ In any campaign, a clearly defined and well-developed strategy is essential to synchronizing activities aimed at meeting the joint force commander's intent. The Joint Targeting Cycle discusses Target Systems Analysis (TSA) and the Counter-Terrorism Analytic Framework (CTAF) as doctrinal methodologies for systematically analyzing adversary elements. Unfortunately, neither methodology is designed to examine all target types (for example, individuals, virtual targets, financial networks). More important, traditional methodologies and products that contribute to targeting activities require substantial time and manpower. Though such products are incredibly applicable to deliberate targeting in enduring conflicts, they are rarely useful in unanticipated and time-constrained environments. For these instances, the Army, Marine Corps, and Air Force employ tactics, techniques, and procedures associated with dynamic targeting—a hybrid process built on the deliberate targeting cycle and overlaid on dynamic operations.

Dynamic targeting operations have taken on many formats over the years,

Figure 1. Target Development Relationships



Source: Joint Publication 3-60, *Joint Targeting* (Washington, DC: The Joint Staff, September 2018), II-6.

but there remains no standard template or output linking these operations in the greater targeting process. U.S. Special Operations Command has even coined “strike-to-develop” intelligence as a method to service targets while simultaneously developing entities of interest.⁷ Dynamic and strike-to-develop targeting, however, fail to incorporate a total understanding of an adversary and its significance to a larger system, as their exclusive focus is on the lowest level of operations. For targeting to have maximum impact, there must be time to connect the dots of the broader network and leverage information generated through processes, which is a key weakness of dynamic targeting. Furthermore, adversary use of space and cyberspace makes executing targeting strategy significantly more difficult, as this practice complicates the intelligence picture and targeting calculus.⁸

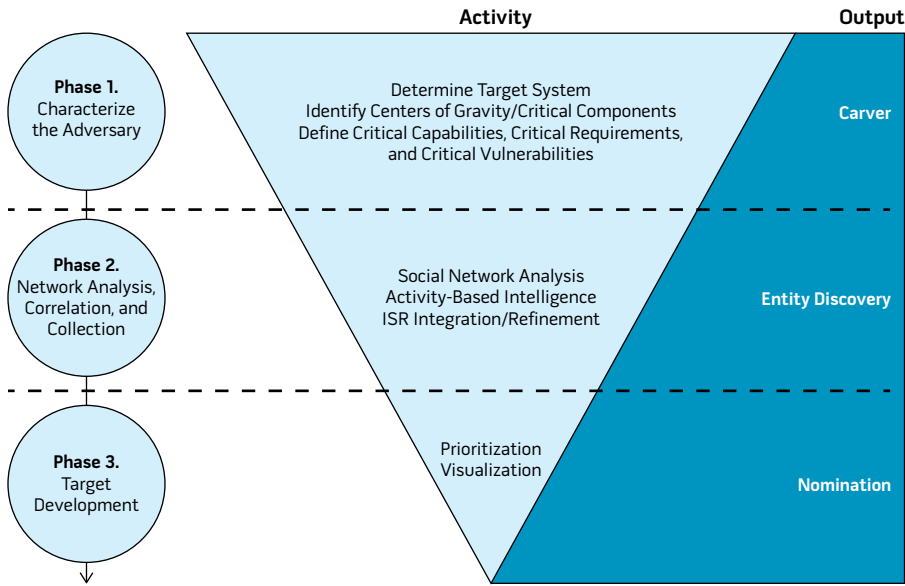
In summer 2019, the 612th Air Operations Center (AOC) was faced with unique operational challenges when analyzing a formidable adversary in its area of operations. The adversary and its smaller elements could be categorized as both state and nonstate actors and

fit multiple definitions of a *target* as prescribed in JP 3-60, but traditional targeting processes neither applied nor met the needs of operational users, specifically in terms of timeliness and presentation of information. To meet the needs of the joint force, the 612th AOC established an analytic process that systematically examined the adversary and provided analytic and targeting departure points, in turn cueing collection and target development efforts consistent with the joint force commander's objectives and intent. The end product, referred to as a Specialized Analytic and Targeting Study (SATS), was built on terminology and structure found in TSA and CTAF models but focused its analysis to yield a manageable level of actionable content on the defined adversary. Most important, the SATS drastically reduced the production timeline of TSA-standard information and provided broader understanding of the adversary.

Necessity of a Refined Approach

First, it must be clarified that TSA is both a product and a process (see figure 1). As a process, a TSA entails identifying, describing, and evaluating

Figure 2. Graphic Depiction of the SATS Process



targeting efforts. The SATS maintains operational relevance as it provides TSA-like information, but on a much more abbreviated timeline. The SATS approach can be tailored, exported, and used as a standalone product or fitted into existing target development processes (see figure 2).

SATS: The Process

Consistent with the joint targeting process writ large, the SATS is anchored to a clear understanding of the joint force commander’s intent and objectives. All analysts and components involved with SATS production must be keenly aware of those objectives. JP 3-60 explicitly states that “objectives are the basis for developing the desired effects and scope of target development.”¹² Once these objectives have been conveyed from the higher echelon, intelligence analysts and targeteers alike can begin a deliberate analysis of intelligence gaps and identified vulnerabilities.

Analysis for the SATS began with the development and application of a criticality-accessibility-recuperability-vulnerability-effect-recognizability (CARVER) matrix. Developed during the Vietnam War, the CARVER is the prevailing method established by U.S. special operations forces that provides a targeting framework associated with center-of-gravity analysis (see table).¹³ More specifically, the CARVER matrix identifies targets that are most vulnerable to attack through an analytic, quantitative scoring system examining critical capabilities (CCs), critical requirements (CRs), and critical vulnerabilities (CVs). Consistent with this model, the AOC built a CARVER assessing the adversary’s centers of gravity associated with leadership, organic essentials, infrastructure, population, and fielded military as prescribed by John Warden’s “Five Rings” theory.¹⁴ Though the Five Rings model has faced much criticism over the past few decades, it proved successful against a state actor when subduing Iraqi forces during the Gulf War in 1990–1991. Subject matter experts further analyzed the centers of

Table. Sample Quantified CARVER Matrix

Target systems	C	A	R	V	E	R	Total	Rank
Bulk electric power	5	3	3	3	5	5	24	2
Bulk petroleum	5	3	5	4	3	5	25	1
Water supply	3	5	3	5	3	3	22	3
Communication systems	3	4	2	2	3	5	19	5
Air transport	1	1	2	1	1	3	9	7
Ports and waterways	1	1	1	1	1	3	8	8
Rail transport	5	1	2	1	5	4	18	6
Road networks	1	5	5	5	1	3	20	4

the composition of an adversary target system to determine its capabilities, requirements, and vulnerabilities.⁹ As a product, a TSA is simply the information that results from the TSA process.¹⁰ Nonetheless, traditional TSA products and processes negate flexibility; they are cumbersome and manpower-intensive. Moreover, production of TSAs is limited due to the relatively small number of units doctrinally tasked with creating them.

The Intelligence Directorate for the Air Force’s Air Combat Command has stated that “the Air Force lacks codified targeting processes, systems, and enterprise-wide personnel management to successfully implement reach-back and distributed targeting operations with

the air component or larger combatant command.”¹¹ Rapidly emerging threats, evolving technologies, and existing resource constraints reinforce the need for a targeting standard that condenses production timelines and establishes targeting fundamentals. Simply put, supply in the targeting enterprise has exceeded demands of the joint force. Merging all of these points reiterates the need for a refined, innovative approach that requires fewer resources and is more operationally relevant than a TSA—and truly pertinent for both the war planner and the warfighter.

Through our efforts and analytic rigor, the SATS was identified as the optimal process and product to examine the adversary and guide analytic and

gravity to identify CCs, CRs, and CVs, all of which were captured on the CARVER.

After completing the CARVER matrix, analysts examined various databases and focused their efforts on entity discovery. Degrees of interrelation on discovered entities were examined through social network analysis and activity-based intelligence. *Social networks* are defined as “a set of entities and the relation of those entities.”¹⁵ *Activity-based intelligence* is an analytic methodology that shifts the process from reporting on known targets and locations to discovering the unknown.¹⁶ Practically speaking, this type of analysis can be applied to all target types, as a social network analysis highlights both entities and relationships. In the AOC application, analysts evaluated centers of gravity and discovered entities against the CARVER model, creating a list of prioritized entities vulnerable to attack. This prioritized list was published in Kessel Run—created Web-based visualization software that provided a “point-click-get” interface for consumers to quickly retrieve information on the entities of greatest importance to them. Kessel Run maintains the mission of delivering combat capabilities and revolutionizing Air Force software acquisition. Specifically, Kessel Run builds, tests, delivers, and operates cloud-based infrastructure and warfighting software applications for use by Airmen worldwide.¹⁷ Employment of visualization software provided a single repository that optimized information retrieval for stakeholders and decisionmakers.

Strengths and Operational Considerations

The greatest strength of the SATS is that the product cues both pinpoint analysis and precision targeting. Three primary benefits can be gained from applying the SATS approach against a state or nonstate adversary system or network.

Decreases Time to Form a Clear Understanding of Adversarial Networks. The standard timeline to create a typical TSA is 1 to 2 years. When applied against a target system or network, the

SATS process focuses on relationships and networks, thus shrinking the time needed to gain a coherent understanding of the target system. The AOC SATS was accomplished by a team smaller than that which typically creates a TSA; team members delivered a complete network analysis of a sizable adversary in approximately 4 months. Notably, limited manpower and the truncated timeline did not negate the AOC’s ability to conduct a comprehensive, all-source examination of the target system. More important, the timeline of completion for the AOC SATS ensured the product was operationally relevant and consistent with ongoing activities of the combatant command writ large.

Is Built on Precision and Concision. Although traditional TSA products are both comprehensive and precise, they are rarely concise. Not only is the textual portion of a SATS streamlined and refined, but integration of visualization software increases ease of access while minimizing information dissemination timelines. A traditional TSA requires the consumer to fully examine the extensive textual document to locate pertinent information. The SATS in total is a four-part product that consists of an executive summary, CARVER, prioritized entity list, and visualization. The SATS groups and compartmentalizes centers of gravity, CCs, CRs, and CVs, and makes information easily discoverable.

Enables the Corroboration of Intelligence Data into Useful Products. Copious amounts of intelligence data are regularly collected, but they are not always processed or integrated for a variety of reasons. Data with no analytic rigor applied is simply data, not intelligence. The SATS process offers a scalable framework that accommodates integration of data and brings clarity to the intelligence picture. This intelligence cues analytic activities while simultaneously informing the targeting process. The breadth of information captured ensures that the SATS addresses all the joint, interagency, intergovernmental, and multinational considerations required to synchronize activities and achieve desired effects.¹⁸

As with any major intelligence problem, the SATS takes time and patience. Though the time required to produce a SATS is significantly shorter than that of a traditional TSA, the requirement for timely and comprehensive analysis remains. Additionally, as with all intelligence activities, a SATS cannot be adequately completed in a vacuum. Like TSAs, all SATS-associated activities must be conducted with close coordination among strategy, plans, and operational elements.¹⁹ Leaders must remain cognizant of the time associated with relationship-building and information retrieval, ensuring that efforts are operationally relevant and aligned to the objectives of the higher echelon.

Conclusion

As today’s battlespace continues to evolve, we must change how we evaluate and affect the adversary. Gaining a strategic advantage requires a refined approach to collecting and analyzing information.²⁰ Doctrine is only as effective as those implementing it, and targeting doctrine requires revision if it is to be effective against the full spectrum of targets. In the words of former Secretary of Defense James Mattis, “Doctrine is the last refuge for the unimaginative. . . it is a guide, not an intellectual strait jacket.”²¹ JP 3-60 outlines fine details in the targeting process but specifically states that targeting is “not time-constrained.”²² Therefore, new targeting processes must be developed that reflect better the operational realities faced by commanders at multiple echelons and that connect strategic doctrine such as JP 3-60 to the needs of intelligence users. The SATS, as a process, is one way to bridge this gap; it enables rapid analysis of the adversary and presents key findings in a precise and interactive format, informing all phases of the military planning construct. U.S. Southern Command’s director of intelligence Brigadier General Timothy Brown described the SATS as “remarkable” and “appropriate for the world of warfare we are in right now.” The true strength of the SATS rests in its ability to inform

Fire Controlmen assigned to USS *Preble* load rounds into Phalanx close-in weapons system in preparation for calibration test, Pacific Ocean, January 21, 2019 (U.S. Navy/Bryan Niegel)



strategists, analysts, and decisionmakers in a flexible and timely fashion. As both a process and a product, the SATS meets the competing demands of the enterprise; in application it has proved more efficient than—and equally effective as—a traditional TSA. JFQ

Notes

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⁴ Benitez, “It’s About Time.”

⁵ JP 3-60, I-5.

⁶ Ibid.

⁷ Hy S. Rothstein, “Relentless Strike: The Secret History of Joint Special Operations Command,” by Sean Naylor,” *Naval War College Review* 69, no. 3 (2016), available at <<https://digital-commons.usnwc.edu/cgi/viewcontent.cgi?article=1171&context=nwc-review>>.

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¹⁰ Ibid.

¹¹ *Air Force Targeting Roadmap: Reinvigorating Air Force Targeting* (Washington, DC: Headquarters Department of the Air Force, September 30, 2012), available at <<https://defenseinnovationmarketplace.dtic.mil/wp-content/uploads/ndia/AirForceTargetingRoadmap13Dec12.pdf>>.

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¹⁵ Carter T. Butts, “Social Network Analysis: A Methodological Introduction,” *Asian Journal of Social Psychology* 11, no. 1 (2008).

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¹⁹ Chance A. Smith and Steve W. Rust, “Geographic Component Network Analysis: A Methodology for Deliberately Targeting a Hybrid Adversary,” *Joint Force Quarterly* 88 (1st Quarter 2018), available at <https://ndupress.ndu.edu/Portals/68/Documents/jfq/jfq-88/jfq-88_70-77_Smith-Rust.pdf?ver=2018-01-09-102341-647>.

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Strategic Perspective 34

Iran in Latin America: Malign Alliances, “Super Spreaders,” and Alternative Narratives

By Douglas Farah and Alexa Tavarez



Iran’s ability to shape the information environment and spread the narrative of the United States as an imperialist

force has grown in recent years. These ongoing and multifaceted campaigns of disinformation and carefully curated messages are coordinated with Russian and Venezuelan state media companies and thousands of allied Internet and social media accounts. Together, these efforts pose a strategic challenge to U.S. interests and regional efforts to promote stability, democratic values, and the rule of law. While less visible than shipping gasoline to the Nicolás Maduro regime and other provocative actions, Iran’s advances in Latin America’s information space is not any less threatening than its more overt activities.



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Chinese President Xi Jinping meets with delegates to First Party Congress of People's Liberation Army Joint Logistic Support Force in Wuhan, Hubei Province, October 18, 2019 (Xinhua/Alamy Live News/Li Gang)

Understanding the Vulnerabilities in China's New Joint Force

By David Bickers

Colonel David Bickers is a Defence Policy Advisor in the Cabinet Office at the United Kingdom Ministry of Defence. The views expressed in the article are those of the author and do not reflect those of the UK Ministry of Defence.

Over the past 5 years, China has undertaken radical reform of the People's Liberation Army (PLA). This modification is sweeping in its scope (encompassing changes to strategy, force structure, and technology) and clear in its purpose to create, in the words of Xi Jinping, a

joint force that can “fight and win.”¹ If this reform succeeds, China's regional neighbors and the United States could find that the People's Republic, whose leadership is already demonstrating an increased assertiveness, will be emboldened further still. Successful reform is not assured—indeed, many of China's previous attempts at military transformation have failed—but Xi does wield near-unprecedented power to force change. It is therefore prudent to assume this reform will succeed and understand both its consequences and how best to respond.

This article analyzes PLA reforms and identifies vulnerabilities in China's new joint force. The first section analyzes the changes to the Central Military Commission (CMC), the highest level of the PLA, set in the context of China's model of national decisionmaking and civil-military relations. The second section considers the restructuring of the PLA, focusing particularly on its new

Strategic Support Force (SSF) and revised theater-level organization. The third section explores the measures that could disrupt and defeat this new joint force via targeting the vulnerabilities identified in sections one and two.

The article anticipates that four key vulnerabilities will exist within the reformed PLA. First, the joint force will embrace a model of highly centralized decisionmaking, which could prove ill-suited to the demands of major combat operations. Second, the reformed PLA force will struggle to integrate multidomain operations at the joint theater level. Third, the reformed PLA will lack the capabilities to project, sustain, or command its forces across the spread of China's global interests. And last, the PLA is currently hindered by a lack of meaningful operational experience.

CMC Reform and the Nature of Decisionmaking in China

Xi demonstrates a highly centralized style of decisionmaking, even by Chinese authoritarian standards. During routine national management, a mix of negotiation, bargaining, and consensus-building were traditionally required to fully mobilize the Chinese polity. But in times of crisis, this fragmented and somewhat lethargic system would typically transform into a more centralized, autocratic system demonstrating greater ideological decisionmaking, a pronounced monopoly of decisionmaking by senior party leaders, and a severe constraining of any latitude previously granted to subordinates.² Such a style of crisis command was observed in China's response to severe acute respiratory syndrome in 2003, the Sichuan province earthquake in 2008, and, most recently, the coronavirus pandemic. The typical characteristics of crisis command are strict prioritization by the highest echelons of the Chinese Communist Party (CCP), mobilization of state media, and significant pressure placed on lower levels of the party for successful implementation. In the Xi era, however, even routine national

management has taken on these crisis command characteristics. As CCP general secretary, Xi has amassed an unusually high concentration of decisionmaking authority across a broad range of policy areas. The result is that the machinery of state government has become inured to almost a decade of highly centralized command.

The relationship between the PLA and the CCP is a close one. Under China's National Defense Law, the PLA's loyalty is to the CCP rather than to China's constitution or central government. PLA officers are invariably party members, and a cadre of uniformed commissars exists to defend the CCP's interests. While not directly responsible for internal security, the PLA has taken on such roles when crises arise. Both the Cultural Revolution and Tiananmen Square protests, for instance, required PLA intervention to restore party control. The PLA prefers not to perform such tasks (due to potential reputational damage) but ultimately remains the CCP's last line of defense against instability and chaos.

Despite this closeness, the CCP-PLA relationship is more one of shared interests than of symbiosis. Over time, clearer institutional boundaries have led to functional differentiation and bifurcation of civilian and military elites.³ Indeed, a former CMC vice chairman, speaking in 2013, warned that the PLA must "resolutely refute and reject the erroneous political viewpoints of disassociating the military from the party, depoliticizing the armed forces, and putting the armed forces under the state."⁴

Against this backdrop, Xi's reform of the CMC has sought to strengthen political control of the PLA beyond the already high levels typically seen in a Leninist military. An integrated party and state institution, the CMC sets defense policy and provides the highest level of military command in peace and war. As chairman, Xi reduced the CMC from 11 to 7 members, removing service chiefs, reorganizing its general departments, and delegating some functions to a new Joint Staff Department.⁵ Released of the responsibility to act as an army

headquarters (the army becomes a ground force component on par with the air force and navy), the CMC can focus on Xi's priority of building a joint force and supervising both military readiness and operations. Not all CCP general secretaries have exerted such absolute control over the CMC. Indeed, the CMC has previously seen the chairman role divorced from that of CCP general secretary (for 2 years during the Hu Jintao era) or authority delegated to its uniformed CMC vice chairmen.⁶ Xi, however, leads through a "CMC chairman responsibility system" in which even day-to-day defense matters elevate to him as CMC chairman.⁷

Overall, the nature of CCP decisionmaking and its relationship to the PLA represent vulnerabilities. First, this centralized system could fail under the highest levels of strategic complexity. Most management theory would argue that decentralized decisionmaking best suits complexity, but Xi's normalization of centralized decisionmaking is depriving his machinery of government experience with decentralization and delegation. Natural and health disasters have revealed weaknesses within his regime, and war could do the same. Any conflict with China should seek to maximize the number and variety of strategic challenges it faces to disrupt the CCP's efficient management of war. Enacting measures that promote internal disorder and force the PLA to focus attention and resources on internal security would be one approach. Second, the complicated relationship between the CCP and the PLA could be targeted. The two should be treated as separate entities; careful targeting (exacerbating what Joel Wuthnow describes as a latent distrust between Xi and his military advisors) may help divide the CCP and the PLA and diminish the overall unity of Chinese command.⁸

Theater Level: Structural and Operational Weaknesses

The PLA has made significant changes to its force structure. The army is the main loser, being relegated to a national-level ground force on a par with the navy and air force rather



Formation of People's Liberation Army Rocket Force takes part in grand military parade celebrating 70th anniversary of founding of People's Republic of China in Beijing, October 1, 2019 (Xinhua/Alamy Live News/Xing Guangli)





F/A-18E Super Hornet assigned to “Tomcatters” of Strike Fighter Squadron (VFA) 31 takes off from flight deck of USS *Theodore Roosevelt*, South China Sea, February 14, 2021 (U.S. Navy/Dylan Lavin)

than being administered directly by general departments of the CMC. Also elevated to the status of a service is the Second Artillery Force (renamed the PLA Rocket Force), which remains responsible for China’s land-based nuclear and conventional missiles. The final element of structural change is the creation of a new Strategic Support Force, which assumes responsibility for the information domain (which in Chinese conception encompasses cyber; electronic warfare; intelligence, surveillance, and reconnaissance [ISR]; and space).

The SSF offers important insights into how China expects to conduct future warfare. Observing the U.S. military’s prosecution of the first Gulf War, the PLA pinpointed the critical importance of information technology and its integration into a joint force.⁹ This concept took root in China’s 2014

military strategy as “informationized local wars,” with a 2015 white paper then elevating information to a “leading role” rather than just an “important condition” of warfare.¹⁰ Under this concept, the PLA expects to conduct operations principally in the maritime and air domains but with actions also in cyberspace, outer space, and across the electromagnetic spectrum. This conceptual development and its strategic articulation were precursors to and justification for the subsequent radical structural change. The ability to integrate information technology into its operations should be the West’s measure of success for the PLA joint force; the SSF plays a critical role in this integration, and its development will be the leading indicator of China’s ability to turn a vision of information warfare into a reality.

The SSF delivers this role by collocating capabilities previously

distributed across various parts of the PLA, including the General Staff Department. It has grouped cyber espionage and technical reconnaissance from the Third Department, cyber targeting and attack from the Fourth Department, and information system defense from the Informatization Department. This combination allows the SSF to undertake a span of cyber operations that the Chinese term *integrated reconnaissance, attack, and defense*. The SSF is the lynchpin in enabling Chinese antiaccess/area denial. Although many ground-based conventional strike assets fall under the PLA Rocket Force, all intelligence, surveillance, target acquisition, and missile guidance rely on the SSF. The SSF also supports PLA power projection in the East and South China seas, with all space-based surveillance, satellite relay and communications, telemetry, tracking,

and navigation required for maritime and strategic air deployments controlled by the SSF.¹¹

Another key objective of Xi's reforms is to transform the PLA into a fully joint force. A Chinese joint force sees the army's domination of the PLA reduced by placing it on a par with the navy and air force. A joint operational command system is established at two levels: a Joint Staff Department (JSD) reporting to the CMC, and a theater level formed through the reorganization of seven administrative military regions into five joint theater commands. Whereas previously command authority remained vested in each service, it now rests with these theater commands, with services maintaining responsibility only for administrative tasks (such as equipment and workforce issues).¹² The PLA has further signaled its intent to become a more joint force by giving two of the five theater commands to nonground force officers.¹³

The new joint theater command system, in theory, will make China more combat ready. Previous military regions did not serve as wartime headquarters (instead, the CMC would activate an ad hoc theater command); however, the new theater headquarters maintains command across both peace and war, meaning the transition from one to another should prove relatively seamless.¹⁴ Each theater also has set an assigned primary mission (the Eastern Theater maintains responsibility for Taiwan and the East China Sea; the Southern Theater, the South China Sea and borders with Southeast Asian countries; the Western Theater, borders with India and Central Asian neighbors; the Northern Theater, Korea; and the Central Theater, the defense of Beijing).¹⁵ Theater commands assume responsibility for aligning training with potential combat operations.¹⁶ This means that intelligence collection against Eastern and Southern theater exercises could provide insights into PLA operational contingencies against Taiwan and in the East and South China seas.

On paper, these reforms should transform the PLA into a joint force, increase its readiness for war, and

prioritize operations in space, cyber, and electromagnetic domains; in reality, the reform will face significant impediments. The first is that classic Chinese fragmented authoritarianism could prove to frustrate reform. An analysis of previous attempts to transform China's military strategy, however, suggests that the two factors needed to best ensure success—a significant change in the character of conflict and a united CCP—are in place (through the heightened importance of information technology and Xi's centralized command, respectively).¹⁷ The second is the organizational frictions typical in any large structural change. These tensions could cause reform to take years to deliver higher operational performance (one commentator considers 2030 a realistic target).¹⁸ It could also prove that the PLA has a reduced appetite to engage in offensive operations until reform is complete and it has full confidence in its new joint force.

Even if these organizational impediments are overcome, structural vulnerabilities within the reformed PLA will still exist. The first is the army's ability to conduct multidomain operations at theater level. Theater commands have been allocated only for ground, naval, and air forces. Rocket Force command and control remains highly centralized, with the CMC potentially directly handling those Rocket Force brigades located within theaters.¹⁹ The SSF's capabilities also report directly to the CMC (most likely through the JSD).²⁰ The result is a significant difference between the commands of the traditional domains (land, marine, air), nontraditional domains (space, cyber, and the electromagnetic spectrum), and missile forces (both conventional and nuclear). These differences have the potential to hinder the integration of effects across all domains at the theater level during both joint training and war. The Eastern Theater commander, for instance, in executing operations against Taiwan, would plan and deliver land, maritime, and air effects but would need to coordinate effects in space, cyber, and the electromagnetic spectrum with the

SSF, and coordinate missile operations with the Rocket Force. This arrangement may work for a relatively short operation, but it is difficult to imagine that anything but a more delegated and decentralized command construct would bring the PLA success in a sustained, high-intensity campaign against a peer.

The second structural vulnerability is that the reformed PLA will remain unable to project, sustain, or command forces across the global spread of its national interests. The number and geographic range of these interests have increased significantly since Xi launched the Belt and Road Initiative in 2013. The PLA, however, does not possess the power projection capabilities needed to secure these forces beyond East Asia, and the PLA Navy, although deploying outside Asia more often than it did before, is incapable of protecting the sea lines of communication across the One Belt One Road infrastructure. It could take decades for the PLA to grow offensive carrier strike capability on a par with that of the U.S. Navy.²¹

Neither could the PLA sustain overseas operations. In 2017, the PLA established China's first overseas military base in Djibouti to support its maritime operations in the Gulf of Aden.²² The commander of the PLA General Logistic Department has written in support of creating further overseas footholds, but there is no evidence of such efforts being carried out.²³ In addition, the PLA has known deficiencies in its strategic airlift capabilities, constraining its ability not only to deploy forces out of area but also to redeploy forces the long internal distances between China's theater commands.²⁴

In terms of command of overseas operations, the responsibilities of the theater commands are limited to China's interior and near abroad, with command of global operations retained by the CMC through the JSD.²⁵ This arrangement would mean, for instance, that although the Eastern Theater commander would control maritime operations during war with Taiwan, the JSD would command the PLA Navy's associated deep operations in the Western Pacific.



Marine Corps UH-1Y Huey from 31st Marine Expeditionary Unit departs USS *New Orleans* flight deck in preparation for Maritime Raid Force training evolution with USS *America* and USS *Germantown*, East China Sea, June 14, 2021 (U.S. Navy/Desmond Parks)

The similarity of Xi's PLA reforms with the command structure changes enacted by the U.S. military under the Goldwater Nichols Department of Defense Reorganization Act of 1986 is clear. It could be the case, however, that the PLA is adopting a similar structure just as the U.S. military is identifying the shortcomings of its own system—particularly its ability to integrate global operations. The U.S. military global campaign and contingency plans coordinate global responses across all geographic and functional combatant commands through a nominated global integrator (typically one of the geographic combatant commanders). It has been suggested, however, that the coordinating authorities granted to these global integrators are insufficient to successfully execute these plans.²⁶ The U.S. military should take all necessary steps to improve its ability to integrate global operations; its ability to hold China's global liabilities

at risk via horizontal escalation of any regional conflict is a competitive advantage it must maintain.

The number of responsibilities centralized and retained by the CMC presents another vulnerability. The post-reform command arrangements are such that in war the CMC is responsible for commanding and coordinating across multiple theaters, retaining direct command of the Rocket Force (conventional and nuclear strike), retaining direct command of SSF capabilities, coordinating Rocket Force and SSF actions with theater commands, and commanding directly any overseas operations beyond China's near abroad. The impact of not delegating more responsibilities to theater commands is that the CMC could find itself significantly overmatched in a conflict that escalates both vertically and horizontally.

The vulnerabilities of the reformed PLA are further compounded by the lack of any meaningful joint operational experience. The PLA last fought a major conflict in 1979, during which an inferior Vietnamese military defeated a larger Chinese force.²⁷ One must look further back to 1955 to see its first and last joint operation (its attack and conquest of the Yijiangshan Islands).²⁸ The PLA has two ways to build its experience base short of actual combat. The first is through demanding and realistic joint training. The scale, complexity, and number of PLA exercises have increased over the past 10 years. It is not clear, however, the extent to which this growth represents meaningful joint training. An exercise in 2015, for instance, saw components fighting one another rather than alongside one another.²⁹ Nonetheless, observation of the scope of the PLA's training could prove a useful indicator of the army's development as a joint force.

The second way the PLA is seeking to build experience is through a relatively modest set of overseas operational tasks (for example, disaster relief and international peacekeeping). United Nations deployments and China's establishment of a Military Operations Other Than War Research Centre in 2011 testify to this effort, as do several disaster relief training exercises conducted with other countries (including the United States).³⁰ The U.S. military and its allies should be cautious of passing competence to the PLA, even in what may appear to be benign areas; such training may simply be its entry point for developing a better joint force.

Disrupting and Defeating the PLA Joint Force

The United States and other countries troubled by the authoritarian nature of China should be wary of a stronger and more effective PLA. To defeat this army in a future confrontation, the U.S. military must consider that it is currently in the shaping phase of that altercation. A future defeat of the PLA comes by taking measures now to better understand and disrupt reforms—and then targeting its vulnerabilities across multiple points in its system.

To better understand the PLA, intelligence collection should observe the nature of crisis decisionmaking at the state level. Natural and human disasters could offer insights as much as security crises. Areas of divergence between the CCP and PLA should be identified for future exploitation. Better understanding is required of the PLA force structure evolution and, in particular, the command relationships among the JSD, theater commands, SSF, and PLA Rocket Force. Finally, training exercises should be monitored to track the PLA's expansion as a joint force and to spot operational contingencies for Taiwan and the China seas.

There are several ways to disrupt PLA reform. One is to prevent the army from achieving its planned technological aims. The development of advanced technology is critically important to delivering PLA reform. Xi has acknowledged this fact

by including at the core of his plan a civil-military integration (CMI) strategy to significantly increase civilian-military synergy across technology development. CMI seeks to merge previously separate civilian and military research and development initiatives for a more synergistic effort, which would deliver “leapfrog” development.³¹ This means that military requirements are introduced at the highest level of state planning.

As an example, the Chinese Next-Generation AI Development Plan named CMI as one of its “six main duties.”³² Dual-use technology already plays an important role in army operations, such as the Gaofen-4 satellite supporting the PLA long-range precision strike kill-chain.³³ The SSF in particular needs CMI to drive the Chinese commercial sector to improve its military command, control, communications, computers, ISR systems; it has signed cooperation agreements with nine research institutions and created informal ties with private enterprises as a result.³⁴ The West can expect the SSF to exploit emerging technologies (artificial intelligence, quantum computing, and space-based ISR) for this purpose. Successful development would allow the PLA to extend the range and lethality of its kill-chain, potentially as far as the Second Island Chain, thus allowing China to further boost the assertiveness of its foreign policy.

Policymakers and private enterprise across the West should understand that the civilian and military sectors in China are fused and that, when dealing with Chinese private enterprise, they are, in effect, dealing with the PLA by proxy. Chinese investments in Western technology firms dealing in sensitive national security areas need to be screened and restricted when necessary. Those governments that lack the legislation to carry out such actions should write and pass it expeditiously.

Forming and maintaining regional allegiances and partnerships across the Indo-Pacific region, together with sharing antiaccess/area-denial capabilities where appropriate, will complicate Chinese escalation, reducing

China's ability to mitigate the PLA's lack of combat experience through a consequence-free operational rehearsal. A combination of dynamic force employment, troop rotations, forward presence, and the expansion of access, basing, and overflight agreements would further this end. In addition, the U.S. military should ensure that it does not inadvertently assist in developing the PLA's joint force expertise, even via seemingly benign matters such as disaster relief or evacuation operations, lest such learning is repurposed to more aggressive ends.

Once in a confrontation, the PLA, with its highly centralized nature of state decisionmaking, will struggle to cope with a complex, sustained, and high-tempo security crisis. The CMC should be stressed to the breaking point. Multiple diplomatic, economic, and security crises, including domestic insecurity, should therefore be provoked to draw the PLA into internal policing. Horizontal escalation, through operations that threaten multiple points around the Chinese periphery, will stress the CMC's ability to coordinate across multiple theaters and the PLA's logistical deficiencies in redeploying forces between them. Deep operations will strain the PLA's ability to both integrate global operations and secure global interests, forcing a yet greater decisionmaking load on the CMC. Operations also must maximize all-domain threats, compounding this overload by exploiting the CMC's lack of delegation across cyber, electronic warfare, and space capabilities. Divisions in the CCP-PLA relationship could also be exacerbated through targeted information operations to reduce Chinese unity of command. All these effects could be compounded by multiple precision strikes across the Chinese system, prioritizing the destruction of communication nodes between the CMC and the joint force, and SSF capability (representing as it does a center of gravity for China's concept of operations).

A successfully reformed PLA backed by an increasingly powerful state will be a potent fighting force, but like any

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Baltics Left of Bang: The Southern Shore

By Marcel Hadeed, Mariusz Kaminski, Monika Sus, Brett Swaney, and Amelie Theussen



Detering and defending against Russian aggression in the Baltic Sea region prior to open hostilities,

or “left of bang,” is a political problem that requires a coordinated regional approach by the Baltic southern shore states—Poland, Germany, and Denmark—in conjunction with their North Atlantic Treaty Organization (NATO) and European Union (EU) allies. Despite common membership in NATO and the EU, the southern shore states hold differing strategic perspectives that reflect the challenges of a coordinated approach. These states should prioritize Baltic maritime security, regional mobility, and unconventional warfare capabilities in coordination with regional allies and partners. They should also leverage or enhance EU capabilities in cyber, information, and strategic communications to better deter and defend against Russian hostile measures.



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fighting system, it will have weaknesses that can lead to its defeat. In the case of China’s new joint force, an incomplete set of theater-level command delegations and the high level of centralization that remains with the CMC could constitute a significant vulnerability. JFQ

Notes

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Air Force and Army Servicemembers carry litter with simulated casualty at Ali al Salem Air Base, Kuwait, November 6, 2020, during training for handling remains after major accident (U.S. Air Force/Kaleb Mayfield)



Green Fields of France

Mortuary Affairs in a Peer Conflict

By Timothy Dwyer

We have gone forth from our shores repeatedly . . . and put wonderful young men and women at risk, many of whom have lost their lives, and we have asked for nothing except enough ground to bury them in.¹

—COLIN POWELL

Secretary Powell's remark highlights an enduring facet of high-intensity conflict between peer adversaries: Past wars between Great Powers generated enormous casualties that far outpaced the ability of the United States to process Servicemembers' remains and return them to their families. These considerable casualties belie a state of conflict that is largely foreign to the modern American military and public alike. Fortunately, the United States has not faced such a challenge since 1945 and has enjoyed an unprecedented streak of asymmetric conflicts since the 1980s. Panama,

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Servicemember holds urn of veteran during burial-at-sea ceremony aboard USS *Theodore Roosevelt*, Pacific Ocean, July 21, 2021 (U.S. Navy/Hayden J. Burns)

Grenada, the first Gulf War, Bosnia, and the ongoing engagements in Iraq and Afghanistan all have pitted lesser powers against the U.S. military juggernaut. American lives were sacrificed in all these conflicts, yet these lives were lost at orders of magnitude less than what is typical in a war with a peer adversary. As a result, operational commanders now have unrealistic expectations of loss and a lack of mortuary affairs capability available to them.

This disparity poses a threat to the future operational effectiveness of American forces. Commanders must integrate realistic casualty expectations into their formations and institute plans that will minimize the impact of high-casualty conflicts on their ability to accomplish

objectives. They can achieve this goal in three key ways. First, to lessen the blow of casualties sustained in a peer conflict, accurate casualty expectations must be part of formations' training and organizational culture. Second, mortuary affairs cannot be a "hand wave" during training exercises; it must be exercised as a crucial function in maintaining a unit's operational effectiveness in combat. Finally, planners must specify organic mortuary affairs capabilities within their organization that can be flexed to fulfill a need beyond what modern experience has demonstrated. Recent history has shown the implications of high-casualty events, and it is essential that American forces are prepared mentally and organizationally to win in the face of tragedy.

Framing the Problem

On the morning of July 17, 2014, Malaysia Airlines Flight 17 (MH17) was struck by a surface-to-air missile over eastern Ukraine. This incident, the result of a misidentification by Russian-backed separatists, killed 298 people from 10 countries as the plane disintegrated over several miles of open farmland.² Hundreds of bodies of innocent men, women, and children were strewn across the debris field, requiring a mass-casualty response by local authorities. Although this event happened in an active warzone that sees regular casualties, the number of dead completely overwhelmed the separatists and regular Ukrainian forces alike. Neither side possessed the capacity to recover, process,

and store human remains on that scale, and the local security conditions forced most of the bodies to lay exposed for several days before recovery efforts could begin in earnest. Local forces did not have any of the materials needed to collect and store the remains with dignity, and many bodies were wrapped in garbage bags before being loaded onto commandeered trains for transport to a nearby airfield.³

This modern failure to properly process remains in a warzone reveals the types of challenges commanders are likely to face on future battlefields. Such treatment of civilian remains was universally viewed as unacceptable, and equal treatment of American war dead would degrade fighting units' morale. The effect would only be exacerbated as photographs, videos, and social media posts referencing the mishandling of casualties became widespread. This type of neglect for human remains and ill treatment of casualties is usually not done intentionally. As stated, recovering and processing human remains is a labor-intensive task that can quickly outstrip local capabilities. Yet such difficulties are not restricted to foreign militaries and insurgents. The U.S. military itself has recently experienced the difficulties associated with correctly remediating mass-casualty incidents—and the amount of effort involved.

At 2:38 A.M. on August 6, 2011, a CH-47 carrying a U.S. Special Operations Command assault force was struck by a rocket-propelled grenade and crashed, killing all 38 on board.⁴ The downing of this helicopter, callsign Extortion 17, was the single deadliest event throughout Operation *Enduring Freedom* and the single deadliest event in the history of the command. Other American forces in the area, along with reinforcements flown in via helicopter, secured the crash site within a few hours. Although all remains were collected at the crash site, they were not extracted until late that day, and the full recovery process took 4 days to complete.⁵ The recovery and site mitigation of the Extortion 17 crash was an extremely difficult operation requiring hundreds of

personnel and dozens of air assets in an asymmetric threat environment. Despite the threat, the recovery operation was largely unhampered by the enemy—fewer than 50 enemy combatants had been in the area when the aircraft was shot down.⁶

Even without enemy interference, the U.S. military and its coalition allies in Afghanistan lacked the resources to separate and identify the Servicemembers' remains once they were recovered. Thus, this operation demonstrated both the effort required to recover remains and the resources needed to process them for transport back to the United States. Unlike in the MH17 example, this operation was undertaken by a professional military with the manpower, air assets, and logistic systems available to transport remains from the point of death to the processing site. Despite such resources, it was reported that “all bodily remains salvaged from the crash site were incinerated in bulk” by the small mortuary affairs team at Bagram Airfield.⁷ This action was viewed as necessary due to the assets available and was in the absence of the types of threats that would be posed by a peer adversary. The mortuary affairs process for Extortion 17 occurred unhampered, yet the number of resources dedicated is not likely to be available to operational commanders in a peer conflict, and alternate capabilities must be identified.

A key component in the combat effectiveness of American military formations, the morale of U.S. Servicemembers is singularly vulnerable to the effects of a high-casualty conflict.⁸ The examples above give a general sense of the complexity and difficulties associated with recovering and processing large numbers of remains in single events. Such challenges would only be exacerbated in continued, high-intensity combat operations, enemy air interdictions, enemy conventional force offensives, and the dynamic nature of war with a peer adversary. There is a chance that mass casualty events such as MH17 and Extortion 17 would be the norm, not the exception, in such a conflict. To maintain combat capability

in such an environment, operational commanders must adapt their approaches to mortuary affairs.⁹

A Look at Current Capabilities

The U.S. Army is primarily responsible for processing and evacuating remains from a theater of operations.¹⁰ This charge is accomplished by mortuary affairs personnel assigned to the Army's two mortuary affairs companies, the 54th and 111th Quartermaster Companies; they are tasked with establishing and operating the entire mortuary affairs evacuation process within a theater.¹¹ These two companies may also have their modular capabilities assigned to specific operational commanders under a geographic combatant command (GCC) in order to affect the collection and processing of remains at the tactical and operational levels. However, these two companies (340 total Soldiers at full manning) represent the entirety of the Army's mortuary affairs capability in the land domain and the primary joint force for the processing of remains.¹²

Every named operation will have an established theater mortuary affairs evacuation point that serves the GCC for the entirety of the operation.¹³ At full capacity, these evacuation points are capable of processing and “coordinating the evacuation for” 250 remains per day.¹⁴ They are also able to embalm up to 50 remains a day to facilitate the dignified transfer of remains from the theater of operation to the point of burial in the United States.¹⁵ If evacuation is not feasible, the GCC is authorized to establish temporary interment sites within the theater.¹⁶ These doctrinal capabilities depend on the manning, equipment, and support provided to the mortuary affairs specialists assigned to these two units. These numbers also rely on the ability of units at the operational level and below to secure the remains of their fallen comrades and evacuate them rearward to mortuary affairs collection points and into the remains evacuation process.

As recent mass-casualty events demonstrated, the recovery and evacuation of remains in a tactical environment is a daunting and labor-intensive process even



Servicemembers assigned to Mortuary Affairs Team at Camp Lemonnier, Djibouti, prepare to transport remains of U.S. Merchant Marine to Dover Air Force Base, Delaware, during repatriation ceremony on base, July 31, 2019 (U.S. Air Force/J.D. Strong II)

without the intervention of enemy forces. The established theater mortuary affairs evacuation point likely will not be the element that hampers the U.S. military's ability to process remains. Rather, one limiting factor will be the ability of units at the operational and tactical levels to secure and evacuate remains at their areas of operations. These are also the units that face the most detrimental effects from incurred casualties and are most at risk of a loss in combat capability due to the physical and mental requirements inherent in evacuating remains. The other limiting factor will be the ability of the GCC to evacuate remains from the theater back to the United States for final disposition. This constraint will likely require the establishment of temporary foreign interment sites, which then frees up intertheater transportation assets.¹⁷

Operational units' ability to evacuate remains in a timely manner is not well established throughout the joint force, and the issues associated with evacuating human remains are exacerbated in the maritime domain. The evacuation of human remains on land, although

labor intensive, follows many of the same processes and logistic pipelines established for an operation. The same is not true for Navy ships, which have limited storage capabilities and are likely to lack air evacuation assets for human remains while engaged in peer conflict.¹⁸ The only naval vessels with designated morgues are the hospital ships USNS *Comfort* and USNS *Mercy*, and each has a mortuary capacity of 22 bodies.¹⁹ Burial at sea, normally reserved for veterans who specifically request this ceremony, is likely to be the most viable option for Navy commanders who incur high casualties in a peer conflict.

Bridging the Gap

Major operations will likely have established theater mortuary affairs evacuation plans and logistic pipelines that facilitate the movement of remains. Burial at sea and temporary foreign interment, seen most recently in the Falklands War, are likely to be used to ease the air transportation requirements placed on U.S. Transportation Command. However, as stated, the

onus will be on commanders at the operational level and below to secure and evacuate their own fallen comrades into the mortuary affairs system. This effort must be accomplished without severely affecting the unit's combat effectiveness and must be addressed prior to the onset of hostilities. Commanders can integrate mortuary affairs into their current formations in three key ways.

First, reasonable casualty expectations must become part of the organizational and training culture of military units across all domains. The reality of peer conflict is that both sides are likely to incur casualties at levels that have not been seen in recent memory. Commanders must strive to drive home the reality that Servicemembers will die in future conflicts. Extortion 17, Operation *Red Wings*, and the USS *Stark* and USS *Cole* incidents all provide examples of the types of casualties that can be expected.²⁰ Rather than disparate and exceptional incidents, such casualty-producing events are likely to be the norm in a peer conflict—and several such events could

occur simultaneously. Commanders can lessen the detrimental psychological impact of such casualties by building a resilient organizational culture that fully understands peer conflict and its human toll. Integrating mortuary affairs into the modern joint training environment will reinforce this awareness.

Second, mortuary affairs must be deliberately and realistically exercised in all combat training events. Few training events treat the evacuation of human remains as anything more than an ancillary task, or a hand wave, that occurs as a series of administrative moves or post-action discussion. Instead, trainings must force units to exercise the evacuation of fallen comrades from the site of death to a mortuary affairs collection point. Such instruction should be facilitated using casualty mannequins and remains pouches, which match the realism applied to medical trauma training.²¹ All Servicemembers must understand and practice the tasks associated with the collection of human remains in a combat environment. Sailors, for example, must know how human remains will be moved and collected on their ship. These essential tasks directly contribute to the combat readiness of all formations and will affect how those units maintain that readiness once hostilities commence.

Third, operational planners must identify organic capabilities within their formations that can be flexed to accomplish mortuary affairs requirements that are beyond what recent experience has dictated. It is not enough for Servicemembers to understand that people will be killed or that they will be responsible for collecting the bodies of their comrades. Commanders must identify assets internal to units at the operational level and below that can be used to facilitate the mortuary affairs process. Ship refrigeration units, company or battalion logistic vehicles, rotary-wing assets, and other capabilities must be specifically identified down to the tactical level prior to the initiation of combat operations. All personnel involved must know and understand these requirements so that the collection and evacuation of high

volumes of human remains become a battle drill, not a contingency.

Commanders can thus minimize the detrimental impact on combat effectiveness by creating an organizational culture that internalizes realistic casualty expectations, training in remains evacuation, and identifying relevant evacuation assets. The psychological impact of seeing friends and comrades die cannot be lessened through culture, planning, and training, but the harm on combat effectiveness can be reduced by building with formations a muscle memory that will allow Servicemembers to continue to operate in the face of tragedy and adversity.

Is This Necessary?

Many counterarguments may be put forward to delegitimize the requirement to achieve further mortuary affairs integration into existing force structures. Chief among these arguments is the consistent inability of researchers, analysts, planners, and leaders to accurately project casualties for an operation. Fortunately, these estimates are consistently higher than the number of casualties actually incurred, and this inaccuracy casts doubt on the likelihood of future conflicts outpacing current mortuary affairs capabilities. This line of argument continues that additional mortuary affairs requirements are unnecessary because they are addressing a problem that does not exist. Operation *Desert Storm* offers a poignant example of the level of overestimation that is likely to occur when assessing the cost of a future armed conflict.

On the eve of the first Gulf War, military planners and leaders were projecting total American casualties between 30,000 and 40,000 for the effort to expel Iraqi forces from Kuwait.²² Those in the military were not alone in these high estimates. Open-source reports and civilian analysts expected “160 to 170” American fatalities a day for the entirety of the operation.²³ American forces in fact suffered 147 hostile deaths for the entirety of the conflict, well below the prewar estimates.²⁴ Some may

argue that this type of overestimation is still rampant in casualty projections and that any peer conflict is likely to result in casualty levels far below current dire projections. Therefore, the existing mortuary affairs force structure is adequate for future conflicts, and any attempt to normalize combat fatalities within organizational cultures would, in and of itself, be both alarmist and detrimental to morale.

Although casualty estimates for *Desert Storm* were off by orders of magnitude, the disparity between the combat capabilities of the two opposing forces was equally large. *Desert Storm* was not a peer conflict; therefore, it cannot act as a corollary for future casualty projections against a peer adversary. Correlating the Gulf War with a future war between Great Powers mistakes the nature of peer conflict. A future war against a peer adversary will see the U.S. military contested in every domain in a theater of operations. Rather than *Desert Storm*, one must look to the Falklands War and the Yom Kippur War for contemporary examples of the human cost of peer conflict. Both involved adversaries to whom the outcome of the conflict was not a forgone conclusion, and the resulting casualties belie a combat intensity beyond recent American experience. Casualty estimates for a future peer conflict may still miss the mark, but it is a mistake to assume that the first 21st-century war between superpowers will be anything less than devastating. American military units at all echelons must internalize this reality to ensure they remain combat capable while enduring—according to modern eyes—enormous casualties.

Further Research

The long-term detrimental effects of combat casualties on military Servicemembers are well established. However, how those casualties immediately impact units’ operational effectiveness requires more research.²⁵ Although these detrimental effects are difficult to quantify, it remains probable that Servicemembers all would see a substantive erosion of

their combat effectiveness when faced with the deaths of their comrades. Commanders at all levels will continue to strive to reduce casualties to the best of their abilities, but Servicemembers who are killed in combat must be recovered and evacuated with the utmost respect and dignity. The handling of Servicemembers' remains from the point of death to the point of interment is a critical process that directly contributes to combat readiness. Current military systems lack adequate capacity to evacuate human remains at scale from combat units to the mortuary affairs evacuation pipeline, and this deficiency must be addressed.

A future peer conflict is likely to cause casualties far in excess of those of recent asymmetric conflicts undertaken by the United States. Enemy airstrikes, antiship missile attacks, large-scale offensive operations, long-range precision fires, and other peer capabilities all pose significant lethal threats. The Falklands War and the Yom Kippur War demonstrate the enhanced lethality of peer conflict, with hundreds or thousands killed in short time frames.²⁶ The American military has not faced such a peer threat since 1945 and is therefore ill prepared organizationally and culturally for what high-intensity peer conflict entails. Operational and tactical commanders must make mortuary affairs and remains evacuation a priority *now* so that those future requirements are not eroding their combat capabilities when those capabilities will matter most. JFQ

Notes

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Senior Enlisted Advisor to the Chairman of the Joint Chiefs of Staff Ramón "CZ" Colón-López speaks with Servicemembers and Capitol Police Officer in Capitol building, Washington, DC, February 25, 2021 (DOD/Carlos M. Vazquez II)

History of the Senior Enlisted Advisor to the Chairman of the Joint Chiefs of Staff

By Christopher D. Holmes

Every organization's leadership must understand the issues and concerns of its workforce to help that workforce meet its mission. This is particularly true in military units, where enlisted men and women

constitute most of the personnel. In the past, senior officers at military Service headquarters usually received advice on handling the concerns of their enlisted workforce informally. It was not until the early 1950s that a position on headquarters staffs was created to provide such counsel officially, a role complete with distinctive insignia to denote the unique status

of representing a Service's entire enlisted complement. Decades later, the combination of legislative reform that emphasized Services working together (*jointness*) and combat operations in the war on terror highlighted the need for a position that could best represent enlisted concerns common to the joint force. Because the role of Chairman of the Joint Chiefs of Staff (CJCS)

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Marine Corps General Joseph Dunford, then Chairman of the Joint Chiefs of Staff, speaks to Army Command Sergeant Major John W. Troxell, then Senior Enlisted Advisor to the Chairman during tour of Andersen Air Force Base, Guam, February 8, 2018 (DOD/Dominique A. Pineiro)

addresses jointness, it made sense to identify a senior enlisted advisor to the Chairman (SEAC) who could offer such a perspective across the joint enlisted force. How the SEAC position developed mirrors how other such senior enlisted advisor positions began and reflects the evolution of jointness.

Origins

The first formal position of a Service senior enlisted advisor (SEA) originated at Headquarters Marine Corps immediately after the Korean War. Wartime requirements and increased technical specialization combined to grow the number of noncommissioned officer (NCO) billets in the Marine Corps to “58 percent of the total enlisted force.”¹ With such a sizable number, General Randolph M. Pate, then commandant of the Marine Corps, explored ways to streamline the flow of communications between those NCOs

and Headquarters Marine Corps as well as to recognize top performers.² By 1957, the concept of a focal point for all enlisted issues emerged as a way to fulfill both tasks. General Pate endorsed the idea of a senior enlisted position, having “seen firsthand the value of a senior sergeant major” while commanding a division during the Korean War.³ Accordingly, on May 23, 1957, Pate approved the establishment of a “principal advisor for issues affecting the enlisted men and women of the Marine Corps” and named Sergeant Major Wilbur Bestwick to the job as the first sergeant major of the Corps.⁴

Not to be outdone, the other Services followed suit. Each Service recognized the value of such a position that served as an “ombudsman and spokesman” for their enlisted force.⁵ The Army established a sergeant major of the Army (SMA) position on July 11, 1966, first filled by Sergeant Major William O. Wooldridge.⁶

Next came the Navy, appointing Master Chief Gunner’s Mate Delbert D. Black as master chief petty officer of the Navy on January 13, 1967.⁷ The Air Force subsequently appointed Chief Master Sergeant Paul W. Airey as chief master sergeant of the Air Force (CMSAF) on April 3 of that same year.⁸ A few months later, while not a part of the Department of Defense (DOD) but still an Armed Force, the Coast Guard established the position of master chief petty officer of the Coast Guard, with Master Chief Charles L. Calhoun appointed to the position on August 1, 1967.⁹ With each Service possessing a SEA, an overall joint SEA seemed unnecessary. But as joint warfare grew in importance and practice after the implementation of the 1986 Goldwater-Nichols Department of Defense Reorganization Act, and particularly after the onset of the war on terror in 2001, the need for a joint SEA became more apparent.

Evolution

By 2004, matters regarding a joint SEA gathered momentum after originating within the Joint Staff. An internal climate survey conducted earlier that year revealed deep-seated complaints. Enlisted members reported a perception that Joint Staff leadership “[did] not adequately address enlisted issues.”¹⁰ Respondents also pointed out a lack of a “single enlisted point of contact to address enlisted issues or concerns for all services/combatant commands.”¹¹ The J1 division chief tasked with tackling the matter pointed out that the Joint Staff had attempted to handle these concerns previously—with the creation of a senior enlisted council in 1996 and a proposal in 1998 for the designation of a single SEA for the Joint Staff.¹² Both efforts, however, had gained little traction by the time of the 2004 climate survey. Accordingly, J1 recommended the Joint Staff establish a SEA to the CJCS position.

The CJCS, Vice Chairman of the Joint Chiefs of Staff, and director of the Joint Staff met on June 15, 2004, to discuss the J1 recommendation. They agreed that the senior enlisted member filling that position might “improve communication” with enlisted members assigned to the Joint Staff and provide “military advice” on enlisted issues to senior leadership.¹³ The three senior officers agreed to create a SEAC position to “give CJCS a dedicated voice on enlisted matters, visibly demonstrate CJCS support for the enlisted force, provide a direct counterpart to service SEAs, and streamline means to identify and adjudicate key Joint Staff enlisted issues.”¹⁴ But as the three originally conceived, the SEAC’s focus would be merely the Joint Staff itself. The Chairman also requested the reestablishment of an enlisted council on the Joint Staff headed by the SEAC. General Peter Pace, then the Vice Chairman, endorsed the idea and proposed expanding SEAC’s responsibilities, stating a SEAC might focus on enlisted issues “outside the Pentagon as well as inside . . . and could deal directly with his counterparts at the combatant commands.”¹⁵

In early December 2004, seemingly unaware of activities already under way on the Joint Staff, Congressman Ike Skelton (D-MO) wrote the CJCS a letter soliciting his views on establishing a SEA position like that of each of the Services. Skelton indicated such an advisor would be a “prime advocate” for enlisted members in “joint military affairs.”¹⁶ He rationalized that “as warfare becomes more joint at lower levels . . . the time has come to more actively include [senior noncommissioned officers] in that evolution.”¹⁷ Skelton further explained his vision of what such an advisor might do, such as developing joint courses for enlisted professional military education (EPME) or promoting the inclusion of senior enlisted billets on “joint battle staffs.”¹⁸ Skelton’s letter served as a prelude to cosponsored language in the fiscal year 2006 National Defense Authorization Act to formally create a joint SEA position. The Joint Staff congressional liaison office noted that both Republican and Democratic leaders of the House Armed Services Committee supported Skelton’s proposal.¹⁹

Each of the Service chiefs weighed in on the proposal. General John P. Jumper, chief of staff of the Air Force, best summed up their thoughts in his letter to the Chairman. He first stated such a proposal ought to be formally vetted through each Service chief and SEA.²⁰ He further noted that, although he did not oppose the idea, specifics were needed on how such a position differed from the Service SEAs.²¹ The Army cautioned about the “uncertain” relationship between this new position and the Service SEAs, while the Navy stated simply that what was not being done currently that could be done by an individual in this new position needed to be better articulated.²² The Office of the Secretary of Defense (OSD) reinforced these views, arguing the legislation had to clearly define the roles and responsibilities of not only the new position but also those of all SEAs, whether at the Service or the unified command level.²³

The concept went before a “tank” meeting of the CJCS and the Service chiefs on January 28, 2005. The

J1 presented slides that addressed General Jumper’s concerns. Overall, the argument for the position was that the joint SEA, much as its Service counterparts, could provide “unfiltered advice on enlisted and force cohesion issues . . . [and] on joint enlisted and force integration issues.”²⁴ The argument further claimed that, unlike a Service SEA who focused solely on his or her Service’s needs, a joint SEA could deliver an overarching view across the joint force on a variety of morale and welfare issues, from operations tempo to quality of life to advising the United Service Organization and the American Red Cross.²⁵

General Richard B. Myers, serving as the 15th CJCS, subsequently asked to meet with Service and combatant combat SEAs to gauge their opinions. Although the meeting scheduled for March 7, 2005, ultimately did not occur due to other events, written input submitted to the Chairman echoed the Service chiefs’ sentiments. Of note was the addition that such a SEA could also liaise with SEAs in foreign militaries.²⁶ Because operations in Iraq and Afghanistan at that time greatly involved coalition partners, this additional task made sense. Furthermore, the advisors recommended creating a nominative process to select an individual for the position. They argued that this method would present the best candidates from whom the Chairman could select an advisor—and by not allowing the Chairman simply to select an individual, the Service chiefs could eliminate any perception of a “good old boy network” and avoid placing someone who is “close to the boss,” which might cause the enlisted force to “distrust” the position.²⁷

The Service chiefs and the Chairman met on March 21, 2005, to formalize and finalize their positions. Among the settled recommendations was that this new SEAC would “be equal in stature” to the Service SEAs but “senior” to those in the combatant commands.²⁸ The chiefs also agreed to the roles and responsibilities of the SEAC. The position’s primary focus was to be the enlisted force as a whole, with the SEAC

...serving as a “tangible and special link” between that force, the CJCS, and the Secretary of Defense.²⁹ Moreover, the SEAC was to concentrate on joint enlisted matters, particularly to ensure continuity across combatant commands and to collate inputs on policy decisions that crossed Service boundaries.³⁰ The SEAC was also to foster the inclusion of joint concerns in EPME and represent the enlisted perspective in matters of joint force readiness.³¹

After agreeing to the SEAC concept, the Chairman sent Congressman Skelton a letter on April 8, 2005, confirming his support. He told Skelton he agreed that a SEAC “would provide critical advice and perspective on joint and combatant command issues that impact the enlisted force.”³² General Myers pointed out the role such an advisor could play in developing joint EPME and how enlisted Servicemembers might be utilized on joint battle staffs.³³ Finally, he noted that a SEAC might aid the Chairman in better meeting his legal responsibilities in Title X.³⁴

With the Chairman’s support, establishment of the SEAC rapidly moved along two parallel and simultaneous tracks. On the legislative side, OSD enthusiastically telegraphed its support for the position, remarking that “the importance of this new position cannot be overstated.”³⁵ OSD went on to articulate the duties of the SEAC: first, serving

*as an advisor to the Chairman on all matters concerning joint and combined total force integration, utilization, and development. Additionally, the incumbent will help develop NCO-related joint professional education, enhance utilization of our senior NCOs on joint battle staffs, and support the Chairman’s Title X responsibilities.*³⁶

Finally, OSD noted that, because of the “immense importance of these duties, combined with the elevated status of this senior enlisted position,” pay and allowances of the position should match that “afforded all of the Service senior enlisted advisors.”³⁷

Concurrently, armed with the knowledge that Congress would shortly vote the SEAC position into law, Lieutenant General Norton A. Schwartz, director of the Joint Staff, met on May 16, 2005, with a senior enlisted advisory panel comprising the Service operations deputies to map out a way ahead.³⁸ Panel members drafted a detailed plan of how the position might operate. Their deliberations resulted in a recommendation on August 31, 2005, to formally establish an office of the SEAC, with the SEAC assisted by three E7s.³⁹ General Pace, who had by then become the Chairman, appointed Army Command Sergeant Major William J. Gainey to become the first SEAC on October 1, 2005. This, coupled with the passage of the fiscal year (FY) 2006 National Defense Appropriation Act and its signing into law by President George Bush on January 6, 2006, formally created the position of a SEAC who took a position equal to that of his Service peers.

Sergeant Major Gainey served until his retirement on April 25, 2008. The CJCS at the time of Gainey’s retirement, Admiral Michael Mullen, elected not to fill the position during his tenure as Chairman. He believed that SEAs could best use their leadership and experience to address issues by being among the troops rather than serving on a staff.⁴⁰ Upon replacing Admiral Mullen as Chairman on October 1, 2011, General Martin Dempsey revived the SEAC position and selected Marine Corps Sergeant Major Bryan Battaglia to fill it. He deeply believed that senior NCOs gave invaluable “support and guidance” throughout all levels of command and consequently believed it important to have such a position accompany him as Chairman.⁴¹ Battaglia served until he retired on December 11, 2015. CJCS General Joseph Dunford replaced Battaglia with Army Sergeant Major John W. Troxell, stating he wanted an enlisted leader with a “wide range of experience, a proven track record as a leader, a teacher, a mentor, and a warrior,” and someone who would provide him “advice with candor.”⁴² Troxell also served 4

years. The CJCS at the time of Troxell’s retirement, General Mark Milley, selected Air Force Chief Master Sergeant Ramón Colón-López as Troxell’s replacement because he desired someone who would “lead by example” and who possessed a “wealth of operational experience.”⁴³ Chief Master Sergeant Colón-López took the oath of office to become the fourth SEAC on December 13, 2019.

Order of Precedence

After creation of the SMA position in 1966, Army protocol conferred on it a significantly high status. This came about due to the “prestige and importance of the office” in representing the Army’s entire enlisted force.⁴⁴ As such, the Army order of precedence enumerated the SMA as “just beneath” the director of the Army staff and “above all lieutenant generals on staff.”⁴⁵ The other Services afforded no similar privileges to their senior enlisted leaders, sowing resentment. CMSAF Frederick J. “Jim” Finch recalled a meeting with CJCS General Hugh Shelton in mid-2000 at which the SEAs aired their grievance about this unequal protocol treatment, particularly at joint events.⁴⁶ Shelton agreed that Service SEAs should receive equitable treatment and wrote OSD recommending a change to put all Service SEAs on the same level. The responsible office at OSD acquiesced, and the 2001 official OSD order of precedence included for the first time “senior enlisted advisors” at the distinguished visitor code 4 level, just above lieutenant generals and vice admirals.⁴⁷

Because the FY06 act made the SEAC equivalent to the other Service SEAs, the SEAC’s protocol precedence automatically became equivalent to that of the other Service SEAs. It meant that the SEAC, too, was considered under distinguished visitors code 4, just above lieutenant generals and vice admirals. In March 2018, the Joint Staff requested OSD slightly amend the order of precedence to move the director of the Joint Staff and equivalent Service staff directors ahead of the SEAC and Service SEAs



Then—Senior Enlisted Advisor to the Chairman Major Bryan B. Battaglia addresses audience during roll out for *The Noncommissioned Officer and Petty Officer: Backbone of the Armed Forces*, published by NDU Press, in Pentagon Auditorium, December 17, 2013 (DOD/Sean K. Harp)

to “ensure consistent precedence across the Department as well as highlight the unique role of the director of the Joint Staff and directors of the Service staffs.”⁴⁸ The DOD order of precedence issued on May 10, 2019, reflected this change. The specific wording directed that the SEAC and other Service SEAs “may be afforded the precedence of their principal, if the principal is in attendance when participating in some national level events and ceremonies. . . . [But] when not accompanied by their chiefs, [they] may be afforded precedence immediately after lieutenant generals and vice admirals.”⁴⁹

Insignia

SEAC’s Flag. One of the most visible ways to identify a senior position in the military is via flags. The SEAC has a positional flag; its origins come from a similar flag for the SMA. In 1992, the NCO in charge of Army staff pro-

ocol recommended the SMA have a positional flag to match that of other senior Army positions.⁵⁰ This move complemented other aspects of protocol regarding the “prestige and importance” of the SMA position.⁵¹ Though flag creation and approval took 7 years, the SMA officially possessed positional colors by 1999.⁵² The SMA flag is “divided diagonally in scarlet and white [bearing] the SMA’s shield insignia at its center.”⁵³ It also incorporates four stars to symbolize the chief of staff of the Army’s office, since the SMA serves as the chief of staff’s principal enlisted advisor.

Concurrent with his appointment of Sergeant Major Gainey as SEAC in 2005, General Pace authorized the creation of a positional flag for the role. He approved the creation of a flag that illustrates the position’s prestige just like the one the Army Institute of Heraldry created for

the SMA, particularly because of the “symbolism and tradition a flag holds in the military.”⁵⁴ Instead of the scarlet and white of the Army, the SEAC’s flag incorporates a base “diagonally divided” between the “defender’s blue” and white colors used for the CJCS flag; the DOD eagle stands in the center.⁵⁵ Also like the SMA flag, the SEAC flag incorporates four stars to represent the rank of the office the SEAC advises.

The Air Force later recognized the importance of a flag to visibly identify its most senior enlisted member. As such, it requested the Institute of Heraldry’s assistance in designing a flag for the CMSAF. CMSAF James A. Roy unveiled the flag on January 24, 2013, during a ceremony when he transferred responsibility of the CMSAF office to Chief Master Sergeant James A. Cody.⁵⁶ The colors of the CMSAF flag incorporate the blue and white from the positional colors for



U.S. Army Sergeant Major William J. Gainey, then Senior Enlisted Advisor to the Chairman meets with Army recruiters during visit to East Wichita Recruiting Station with Secretary of Defense Robert M. Gates, in Wichita, Kansas, August 9, 2007 (DOD/Cherie A. Thurlby)

the Chief of Staff of the Air Force. In the center, a representation of the unique cap badge worn by the CMSAF connotes the position; the flag also bears four stars, signifying the level at which the position serves.

Distinctive Rank Insignia. Though the SEAC serves as the SEA to the highest-ranking officer in the U.S. military, the actions of 2005 did not develop a unique or distinctive rank insignia to identify the position, though Service SEAs wear such insignia. In fact, in 2005, the Army disapproved of designing unique rank insignia.⁵⁷ By 2018, however, it had become clear that, without a distinctive rank insignia, the SEACs wore their respective Service's E9 chevrons, meaning they displayed a rank technically inferior to the SEAC's Service counterparts.⁵⁸ As such, Sergeant Major Troxell called together the Service SEAs, and in April 2019 the group collectively agreed on the concept of a unique rank insignia for the SEAC position. The group proposed several options that

Troxell then outlined to General Milley in November 2019. General Milley opted for insignia that incorporated the DOD's eagle and four stars, both of which represent the office SEAC advises.⁵⁹ The Army Institute of Heraldry created formal designs for each Service, which Troxell then coordinated with each Service's SEA. Because Troxell was close to retirement and being replaced by Air Force Chief Master Sergeant Colón-López, the Army and the Air Force were the first to approve the design, with the Army doing so on December 9, 2019, and the Air Force following suit in the subsequent days. With CJCS approval and Service concurrences, the director of the Joint Staff officially established the unique rank insignia for all Services on December 17, 2019.⁶⁰

Army Distinctive Insignia. Finally, for Soldiers serving as SEAC, the Army designated a unique collar device as well as a distinctive unit insignia. While developing the flag for the SEAC, the Army Institute of Heraldry concurrently

designed these special Army insignia. Like the flag, the insignia incorporates the DOD eagle on a base "divided diagonally" with the "defender's blue" and white of the CJCS flag, and it has four stars to represent the position the SEAC advises.⁶¹ The Army formally approved both insignia in December 2005.⁶²

This brief history of the SEAC position demonstrates the evolution—and arguably institutionalization—of jointness. That it took 18 years after the passage of Goldwater-Nichols for the idea of a joint SEA to emerge indicates how much the concept of jointness needed to mature and take root. But this history also illustrates the continued commitment of the military's senior leadership to those whose work enables the joint force to meet its mission day in and day out. This is evidenced not only by the SEAC position but also most recently by the appointment of Chief Master Sergeant Roger A. Towberman to serve as SEA of the newest armed force—Space Force.

He took office exactly 53 years to the day after the first CMSAF.⁶³ Most of all, what the SEAC story clearly demonstrates is that jointness is a concept applicable to all Servicemembers, regardless of rank or Service. JFQ

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⁴⁴ Robert M. Mages et al., *The Sergeants Major of the Army*, CMH Pub. 70-63-1 (Washington, DC: U.S. Army Center of Military History, 1995), 44.

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USS *Tinosa* (SS-283), steaming to her berth at Pearl Harbor following war patrol in Japanese home waters, flying her battleflag and several small Japanese flags representing her “kills,” ca. 1939–1945 (Naval History and Heritage Command/ National Archives and Records Administration)

Wartime Innovation and Learning

By Frank G. Hoffman

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Wars are the ultimate test for any armed service. They reveal how well military institutions perceived the context of future conflict, how they prepared for war, and how their force design and development processes succeeded

in anticipating threats and exploiting emerging technologies. The strategic environment characterized by the 2018 National Defense Strategy is one of significant technological change and diffusion, opening new opportunities for improving U.S. military effectiveness. But the same disruptive advances are also available to potential adversaries.¹ This reality led to then-Secretary of Defense James Mattis’s injunction in the National Defense Strategy “to create a culture of experimentation and calculated risk taking” to construct new sources of advantage by combining material, conceptual,

and organizational change to generate innovative warfighting capabilities and sustain our competitive edge.²

Pursuant to the strategic direction outlined by the Department of Defense, the Joint Staff evolved its Joint Force Design and Development activities to better enable the joint force to generate and maintain its competitive advantage, improve force posture, and increase the joint force's responsiveness in this dynamic environment.³

The Joint Chiefs have operationalized the strategic direction in the National Defense Strategy via the latest vision for joint professional military education (JPME). That vision defines a key learning objective for U.S. military officers, tasking them to “[a]nticipate and lead rapid adaptation and innovation during a dynamic period of acceleration in the rate of change in warfare under the conditions of Great Power competition and disruptive technology.”⁴ That vision is further reinforced in the latest version of the Officer PME Policy issued in 2020, which defined the requirement to prepare officers to recognize the need for change and to lead transitions as desired educational outcomes.⁵ However, these are not just peacetime tasks distinct from warfighting. As recent scholarship demonstrates, the side that is open to self-assessment in wartime—and reacts faster—increases its chances of prevailing in peace and in war.⁶

The following case study details how one leader effectively integrated new operational concepts with a novel technological device to generate a capability in a combat theater. A collection of adaptations produced a new military innovation that was developed and tested incrementally and then applied in wartime. It is a great example of the integration of the research and development community operating forward in time of war to improve a new technology. A few insights regarding leadership and JPME can be drawn from this example. There are no detailed blueprints that we can draw upon for how to best exploit new technologies in every case, but history remains our best source for generating the right questions in the future.

Learning in Action

There is a lot of scholarship that details the enormous value of the U.S. Navy's pre-World War II learning system and how well the Service forecasted the contours of the tough Pacific campaigns. The Navy's interwar development of a campaign strategy known as War Plan Orange, its longstanding plan for responding to Japanese aggression in the Pacific, is well chronicled.⁷ More recently, Trent Hone extended this narrative, focusing on the achievements of the Service's surface force before and during World War II.⁸

An appreciation of the development and exploits of the U.S. submarine force in the Pacific campaigns is emerging,⁹ and the learning within the “Silent Service” is the focus of this article. Operational leaders recognized that critical challenges limited our submarines against the Japanese empire, and they overcame these with creative plans and rigorous experimentation.¹⁰ These developments culminated in not only a daring operation that could be the Navy's greatest raid but also a model for combat leadership and adaptation in wartime.

The principal actor in this case study is Vice Admiral Charles Lockwood. He was considered among his peers as the chief advocate for the long-range fleet submarine during the interwar period and was called “Mr. Submarine.”¹¹ Postwar reports comment positively on Lockwood's operational leadership. Known for an informal style and for being a gentle critic and dedicated mentor, he defended subordinates and reflected “loyalty down” rather than just demanding compliance.¹² He deferred to his commanders because he understood that they had the best insights, once noting, “I make my decisions based on reports from boat commanders sent through their superiors, not from intuitive estimates or guesses. I rely heavily on the judgments of those in command of the submarines on the spot, and wholeheartedly support their decisions because they are there.”¹³

Lockwood was open to new ideas and actively sought out commanders such as

the highly successful Commander Dudley “Mush” Morton for personal interviews. He read and commented on the reports written by the boats after each patrol. Lockwood attempted to ensure he had the best information from the fighting units of his command. He would personally meet each boat as it returned to port and would go over reports with the commanders.¹⁴ He also repeatedly sought to get operating time inside the more modern boats being deployed with new technologies such as the Torpedo Data Computer and sonar radar. He collected insights and evidence from many sources and even sought contradictory information. In doing so, this hands-on approach ensured that new concepts for fighting the war came not just from the top down but also from the bottom up and middle out.¹⁵

His subordinates described him as “not conformist and against rule book thinking.”¹⁶ Lockwood was willing to experiment in theater with live ordnance under realistic conditions, whether to fix faulty torpedoes or to adapt new weapons and detection systems. He was also willing to press hard to get necessary changes and confronted Admiral Chester Nimitz and the naval bureaucracy to get the support he needed.¹⁷ Lockwood was persistent in trying to enhance the effectiveness of his force and was open minded about new tactics and new technologies. As a model for wartime adaptation, one is hard pressed to find a better example than Lockwood.

Context

While the contours of War Plan Orange and the Navy's extensive wargaming played out in the early stages of the war, the submarine force had to adjust its doctrine and rectify several material deficiencies.¹⁸ In particular, flaws in their torpedoes marred the forces' performance. This led to a lot of frustration in the fleet, but solutions were found by the middle of 1943 to correct these shortcomings. By the end of 1943, the Submarine Force, U.S. Pacific Fleet (SUBFORPAC), was carrying out an aggressive campaign of attrition on Japan's sea lines of communication.¹⁹



USS *Sea Dog* (SS 401) on war patrol, May 1945 (Naval History and Heritage Command/National Archives and Records Administration)

Admiral Lockwood, commander of SUBFORPAC since February 1943, realized that the closer the campaign moved toward Japan's home islands, the harder resistance would be. Operations would be conducted in shallow and possibly mined waters, and with far greater exposure to land-based air reconnaissance. Moreover, the Japanese were becoming more effective at antisubmarine warfare. He anticipated his force would need to seek out new methods and capabilities to improve its offensive and defensive tool kit.

The initiation of wolf packs by SUBFORPAC was one of these new methods. They were directed from Washington by Chief of Naval Operations (CNO) Admiral Ernest King in April 1943. The submarine community had been skeptical of Collective Action Groups, as King called them, due to poor ship-to-ship communications and the

potential for inadvertent "blue-on-blue" incidents. The community recognized that it had different operational conditions (longer ranges, less maneuver space, and fewer targets) than the German navy faced in the Atlantic. Its problem was not with large convoys; it needed to find small targets in a big ocean. Rather than embrace the German *Kriegsmarine's* melees at sea, SUBFORPAC staff members evolved their own approach.²⁰ These tactics overcame Lockwood's skepticism, using improved radios and a training program crafted by combat veterans. These tactics were employed for the first time in October of 1943 and refined well into 1944.

Partly due to better torpedoes, as well as more boats and updated tactics, the results generated by Lockwood's command were much improved in 1944. More submarines, with shorter transit distances from Guam and Saipan, produced

intensive patrols in closer contact with Japan's defense. SUBFORPAC reported 520 combat patrols, 50 percent more than 1943, using an increased number of submarines with shorter routes. With torpedoes now both plentiful and functioning, the Navy's submarines surged against their targets. They fired more "fish" in 1944 than in all of 1942 and 1943 combined. They sunk more than 600 ships and put 3 million tons of shipping to the bottom of the Pacific. Japan's imports were slashed by one-third, and its commercial fleet was reduced by half, from 4.1 to 2 million tons. Oil imports dropped sharply, which severely impeded Japan's military operations and training. But the force's aggressive attacks were met by new Japanese interest in antisubmarine capabilities, including patrol planes and better radars. In 1943, the fleet lost 16 boats and their

crews—including the highly regarded Commander Morton and his boat, the famous USS *Wahoo*.²¹ The following year, another 19 U.S. boats were lost.²² Operational success was being achieved, but at a price.

New Opportunities

These losses troubled Lockwood, but they also made him redouble his efforts to enhance the capabilities of his force. For some time, Lockwood had worked to create an innovative plan to unlock the Sea of Japan, a triangle-shaped area covering nearly 400,000 square miles, bordered by Korea, Russia, and the Japanese islands. The seeds of that operation can be traced to a trip Lockwood made to San Diego in April 1943 to visit the shipyards and infrastructure supporting his force. The admiral paid a visit to the University of California's Division of War Research, which was run by Dr. George P. Harnwell, a physicist. Harnwell gave an overview of the various technologies being explored to support the Navy. Lockwood recalled their briefing as a "Wonderland of Ideas," but many were not yet mature or seaworthy.²³ One of these was a new detection sensor they called Frequency Modulated Sonar (FMS), which was still in its infancy. Lockwood admitted later that he did not anticipate how valuable FMS might become at the time.

FMS operated like regular sonar, transmitting a signal that returned to its originating source where the echo produced a visual display on an indicator plot screen. What was unique about FMS is that its signals were silent and did not emit an audible ping that could be detected by the opponent. The system showed an ability to locate subsurface objects, including nets, whales, schools of fish, and rocks/shoals, all of which were displayed in bright green pear-shaped signals on the screen. The system included a speaker that would make a distinctive tone when it identified a hard object. The intensity of the tone and clarity of the green pear display alerted the operator to the presence of submerged objects such as mines. One

veteran sonarman stated, "It sounded like a chamber of horrors, it howled something awful."²⁴ The laboratory at San Diego named the bell tones "Hell's Bells," and the name stuck when FMS was introduced.²⁵ The initial range of the signal from FMS was limited to a few hundred yards, but the value was evident if all the kinks could be worked out.

Lockwood was impressed enough to begin the bureaucratic maneuvering to ensure that the first available FMS sets would be assigned to his command for testing. The first tests occurred about a year later, with SS-411, *Spadefish*, under the command of Commander Gordon "Coach" Underwood, with a deck-mounted FMS. *Spadefish* tested the device off San Diego against dummy minefields before reporting to Pearl Harbor in June 1944. Lockwood immediately interrogated Underwood on his impressions. He went aboard *Spadefish* and directly observed the new sonar, as Underwood's crew put it through its paces. These trials convinced him that the doors into the Sea of Japan could be unlocked and that "FM Sonar was the magic key that could perform the marvel."²⁶

Lockwood was satisfied enough to brief his boss, Admiral Chester Nimitz at Pacific Fleet, who approved efforts to gain additional FMS sets to accelerate their introduction into the Pacific theater.²⁷ At an arranged meeting during the CNO's visit to Hawaii in July 1944, Lockwood gained King's support for shifting FMS production of 12 sets from minesweepers to his command.

The gears of the Navy's acquisition bureaus ground slowly but surely, and Lockwood got one dozen sonar sets for his force. He continued to invest his personal time and attention in the introduction of sonar and the development of tactics with a series of experiments out of Pearl Harbor. When he could, Lockwood himself observed the experiments. Ultimately, the testing evolved, with one submarine, *Tinosa*, taking FMS on a combat patrol. *Tinosa*, skippered by Commander Richard Latham, patrolled an area off Formosa and the East China Sea where mines were likely to be found.²⁸ Latham identified 200 mines

at range and gave an enthusiastic report on FMS. Other boats testing the system, however, reported discouraging failure rates. Lockwood's faith in sonar was strained by uneven quality largely due to faulty vacuum tubes. The admiral stated that sonar showed "streaks of mulish obstinacy."²⁹

But as new boats came in with keel-mounted and increasingly effective FMS sets, Lockwood's confidence grew. He sketched out an operation to penetrate the Sea of Japan to the CNO in December 1944. By striking into the heart of the last sinews of communications and logistics between the Asian mainland and Japan, Lockwood hoped to sever those lines of communication and make Tokyo realize that the war was irrevocably lost. Arguably, the Japanese would be forced to dilute their defenses on the Pacific Ocean side of their country, which was the major target for U.S. air and sea operations. Cutting off Japanese sources of rice, construction materials, ore, and reinforcements from Asia could also materially aid the U.S. war effort. The mission was approved the same month and kicked off the formal planning for a complex raid.

Operational Concept

The raid employed a novel approach. Rather than have a pack of attack boats concentrate on a single target set like a large convoy, the concept of operations had nine boats entering the Sea of Japan and then distributing themselves for simultaneous attacks at a set time. This is essentially the opposite of the German navy wolf pack tactics, which patrolled widely and then aggregated upon slow-moving convoys.

"I want to send all the boats we can muster in at the same time," Lockwood summarized years later, "hit the [Japanese] like a ton of bricks, and pull out before they can properly organize their opposition."³⁰ This concept would overwhelm the Japanese navy and dilute its counter-responses. Lockwood sought to maximize surprise and destruction with a sudden set of attacks, which would hopefully reduce the ability of the Japanese to quickly react effectively.

Map. Operation Barney



Source: Nations Online Project

The plan was devised by Captain William “Barney” Sieglaff, a veteran submariner with 15 vessels sunk to his credit. Somewhat comically, the operational plan was titled Operation *Barney* in honor of its initial designer. The plan was framed around three major events:

- transit through the mine-strewn straits (Fox Day, June 4)
- initial attack time (Mike Day, June 9)
- exit (Sonar Day, June 24).

The entire task force of nine boats would sail from Guam. It was titled the “Hellcats” and divided into three smaller groups under the command of the most senior boat captain. The three groups were called the Hepcats, Polecats, and the Bobcats (see map).

As part of the plan, the Hepcats would sail on May 27, followed by the other groups over the next 2 days. This plan allowed 3 days for the treacherous penetration of the straits, a precarious 16-hour event for each pack. The passage through the mined straits was further complicated by the steady Kuroshio current that would push them along. The intelligence gained from prior patrols identified four belts of mines, 50 to 75 yards apart. Once that barrier was pierced, the task force would maneuver to its attack positions. The task force was given 2 weeks to attack military and commercial shipping before regrouping and exiting via La Pérouse Strait on Sonar Day.

Execution

The three packs carefully made their way through the minefields, with only a few daunting incidents. Without FMS, Fox Day could have been a finale for any of the Hellcats. The Hepcats steamed north into the northeastern part of the Sea of Japan with assigned target areas off Hokkaido. *Crevalle* hunted off Suneko Saki, and *Spadefish* stalked near Otaru, at Ishikari Bay. *Sea Dog* struck first on June 9 against three cargo ships, but a hurried attack failed, and in escaping Commander Earl Hydeman dived too fast and too deep. *Sea Dog* ran aground in a soft seabed and had to slowly back off minus a few sensors. Despite numerous mechanical casual-

Table. Operation Barney: Key Players

Boat	Commander	Results
Hepcats		
Sea Dog SS-401	Earl Hydeman	6 Marus, 7,928 tons
Crevalle SS-291	Everett Steinmetz	3 Marus, 1 frigate, 6,643 tons
Spadefish SS-411	Bill Germershausen	4 Marus, 6,300 tons
Polecats		
Tunny SS-282	George E. Pierce	None
Bonefish SS-223	Lawrence Edge	2 Marus, 12,400 tons
Skate SS-305	R. B. (Ozzie) Lynch	4 Marus and I-122, 6,400 tons
Bobcats		
Flying Fish SS-221	Robert Risser	2 Marus, 4,113 tons
Bowfin SS-287	Alec Tyree	2 Marus, 6,300 tons
Tinosa SS-283	Dick Latham	4 Marus, 6,690 tons

ties, Hydeman sunk six small merchants in shallow water. *Spadefish* was almost as successful, eliminating four ships and 6,000 tons. *Crevalle* took on three targets the first 3 days and put them to the bottom of the sea with only five torpedoes. Over the next week, 5 different attacks and 11 “fish” produced no hits. Torpedo failures still plagued the crews. Then on June 22, Commander Everett Steinmetz’s firing team successfully attacked the frigate *Kasado*. It was later recovered from the bay but was never operational again.³¹

The east coast of the Korean Peninsula was assigned to the Bobcats. They had a more difficult passage through the treacherous minefields. At one point, the crew described hearing “the squeal of steel on steel” working down port side of *Tinosa*; a mine cable was passing alongside the length of the boat, sounding like fingernails across a blackboard for what seemed like several minutes.³² Fortunately, they did not activate any mines. After successfully navigating the narrow Tsushima Strait, Commander Richard Latham, commanding *Tinosa*, moved to his sector off the port of Bukuko Ko. With numerous visible targets, he could not contain himself. He launched an attack at exactly 1503 hours, well before sunset on Mike Day, and sunk an unsuspecting freighter.³³ Latham’s crew successfully bagged three more during the operation. *Flying Fish* and *Bowfin* proceeded to stand off Seishin and Rahshin harbors until they could begin their attacks.

The Polecats were assigned to cover the west coast of the major island of Honshu. *Tunny* staked out Kyoga Misaki outside the bay of Wakasa Wan. The skipper, Commander George Pierce, found few targets off the coastline, despite his efforts to lean into shallow water. *Skate* fared better. On June 10, it ambushed a submarine, *I-122*, running on the surface and sent it to the bottom. Later, R.B. Lynch’s team on *Skate* attacked and claimed four cargo ships. Three were sunk with a spread of six torpedoes Lynch fired from long distance at several cargo vessels hiding in a cove on the west coast of Honshu.

Bonefish was initially ordered to Toyama Bay but found no targets. Subsequently, the captain, Commander Lawrence Edge, requested to move to a more productive area. Edge successfully attacked and sunk the 6,892-ton cargo vessel *Ojikasan Maru* on June 13, 1945. On June 16, 1945, he kept a rendezvous with his Polecat leader, Commander Pierce, and informed him of this sinking. He also asked for permission to conduct a submerged daylight patrol back in Toyama Wan, which had a depth of 600 fathoms in the mid-part of western Honshu. *Bonefish* successfully attacked and sank a ship, the 5,488-ton cargo vessel *Konzan Maru*, in Toyama Wan on June 18. However, Japanese records show that the next day a Japanese frigate and several corvettes depth-charged a submarine in Toyama Wan, and extensive debris and an oil slick were recorded

by the Japanese. There were no more reports from Commander Edge, and *Bonefish* did not join the rest of the task force at their rendezvous.

After sunset on June 24, Hydeman led the remaining eight boats out of La Pérouse Strait with a high-speed, night-surface dash. They passed through the strait and its strong current into safety. *Tunny* stayed for a few days, hoping that *Bonefish* had been forced to delay its exit due to an engineering problem. The rest of the task force sped home. They arrived July 4 to a hero's welcome at Pearl Harbor. The celebrations were restrained once *Bonefish* was declared as lost.

Overall, two Japanese naval craft, 28 modest-sized cargo ships, and numerous small craft were sent to the deep bottom of the sea—for a total of 65,000 tons. The operational results of each boat in the operation are detailed in the table.

Assessing this mission's results is difficult at the operational and strategic levels. The raid did overwhelm Japan's defense. Regrettably, there were few major targets, and even fewer once the Japanese knew their sanctuary had been compromised. The loss of *Bonefish* and her gallant crew was a calculated risk that offset the gains from the attack. This loss was a gut punch to the small submarine force, but the pending invasion of Japan in Operation *Downfall* posed far more horrific costs.³⁴ Lockwood hoped to further isolate Japan, materially and psychologically, with this daring raid. Ultimately, the indirect impact on Japanese strategic calculations and morale are unknown, but Lockwood concluded the operation was worth the risk.³⁵

Insights

Professor I.B. Holley warns that “it is folly to expect the record of the past to deliver us neat little packages called ‘lessons of history’ with exacting prescriptive detail. Instead of tidy answers that alleviate inquiry, we explore history to stimulate our thinking and to get better questions to probe the present with.”³⁶ With this caution in mind, some insights can be drawn from Operation *Barney*. These insights include the value of the enduring necessity of rapid

wartime learning, the role of leaders and culture that embrace openness, and the importance of technological literacy.

Operational Learning and Adaptation. The Navy's learning system before and during World War II is worthy of study and emulation. The ultimate weapon throughout the Pacific campaign was the Navy's learning culture and mechanisms. The velocity of learning across the Pacific force contributed to a growing overmatch between the respective navies.³⁷ The Navy systematically gathered operational experience or lessons learned from the fleet in patrol reports and from tests and trials that Lockwood conducted out of Perth, Pearl Harbor, and Guam.³⁸ As one recent historical account of the early stages of naval warfare in the Pacific notes:

*If the navy did one thing right after the debacle of December 7, it was to become collectively obsessed with learning, and improving. Each new encounter with the enemy was mined for all the wisdom and insights it had to offer. Every after-action report included a section of analysis and recommendations, and those nuggets of hard-won knowledge were absorbed into future command decisions, doctrine, planning, and training throughout the Service.*³⁹

This meant that the Navy's tactical development was thorough and grounded in a realistic understanding of the battlespace, and it was generated from the middle out by operators.⁴⁰ In an excellent example of double-loop learning, where operator input makes it all the way to headquarters and is recycled out to the fleet, the SUBFORPAC commander identified key operational challenges and used a campaign of deliberate experimentation by operational commanders to determine the best combination of organizational, tactical, and technological change to resolve its challenges.⁴¹ The concurrent development of both “American wolf pack” tactics and sonar reflects this approach. Such an approach reinforces key insights of wartime and interwar innovation.⁴² Lockwood also promoted “horizontal learning” between

boats in order to accelerate learning and increase operational effectiveness.⁴³ The Navy fostered this technique by distributing war patrol reports across the fleet and by having formal endorsements of the conduct of attacks and proposed tactical fixes after each patrol. Historians find both formal and informal mechanisms are necessary to distribute new ways of fighting.

Leadership and Technological Literacy. We operate today in a period often described as an era of disruptive change. Lasers, rail guns, artificial intelligence, and hypervelocity missiles generate new opportunities and threats to the fleet. In World War II, our submarine force operated in a similar era, with radar, tactical data computers, electric homing torpedoes, and various sonar options emerging in a compressed time. Fortunately, our leaders were well trained; they not only knew their seamanship, but they were also well educated in naval engineering. As Wayne Hughes notes, the Navy's best tacticians, from admirals William Sims to Bradley Fiske to Arleigh Burke, knew the benefits and limits of current and prospective technology.⁴⁴ Current Navy doctrine notes that “tactics and technology are two sides of the same coin” and enjoins leaders to “inculcate a culture of lifelong learning to foster innovative thinking, adaptability, [and] technical expertise.”⁴⁵ Like Lockwood, today's leaders must be tech-savvy and understand the potential of emerging technology to be able to adapt it in new ways to solve future problems, even problems for which that technology may not have been originally designed.

With his open learning approach, Lockwood is an outstanding example of a leader of innovation. Current research suggests that openness is invaluable as a leadership attribute. This is manifested in a strong intellectual curiosity, creativity, and a degree of comfort with novelty and variety. Leaders high in openness search for a range of relevant and conflicting perspectives and often spot opportunity earlier than others.⁴⁶ Military historians also find this style of leadership as a key variable to promote the requisite critical



Japanese freighter *Nittsu Maru* sinks in Yellow Sea after being torpedoed by submarine *USS Wahoo*, seen through its periscope, on March 23, 1943 (U.S. Navy/National Archives and Records Administration)

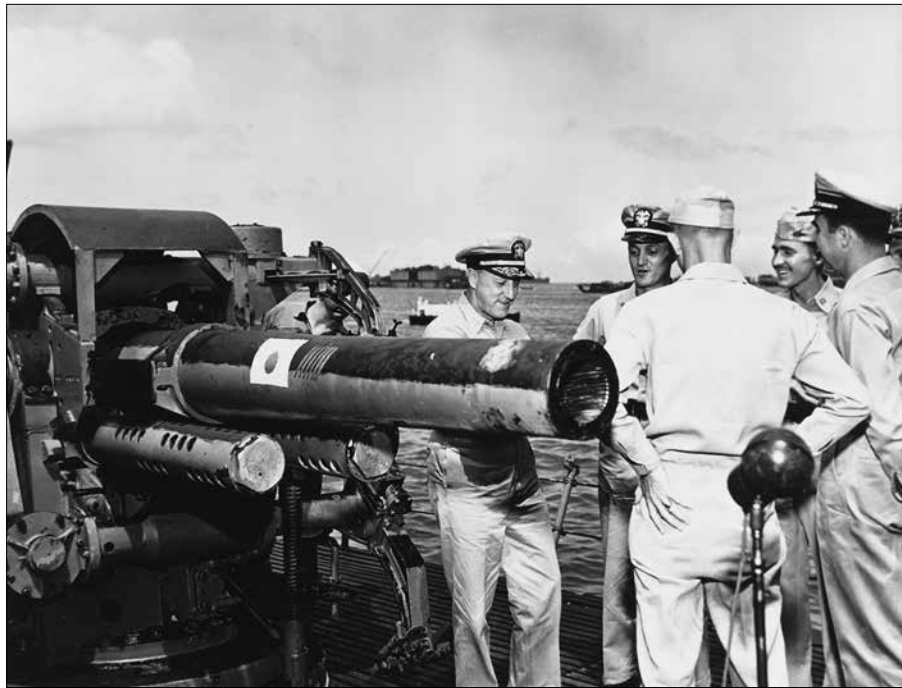
thinking and open debate needed to assess and implement innovation.⁴⁷

Changes in the character of war demand literacy in the implications of ongoing technologies. This is a new objective for our PME institutions, one that should be reflected across the entire system. As noted by Australian Major General Mick Ryan in the pages of this journal, “Over the coming years, at almost every rank level, military personnel will require basic literacy in a spectrum of new and disruptive technologies.”⁴⁸ Providing this degree of basic literacy to mid-career officers is needed but poses challenges to the Services with near-term readiness demands. Yet the study of innovation and adaptation should be a core component of senior leader education, in addition to introductions

to military-relevant emerging technologies.⁴⁹ Graduates of top-level schools are going to be leaders in innovation in this era of disruptive change, and their education must reflect that.

The key leaders in this case were also barrier busters and champions for change, willing to overcome slow-moving bureaucrats when needed. Most relevant to today’s strategic competition, Lockwood recognized the opportunity presented by the technology as it matured and fought aggressively to get this technology to his operators to exploit it. Not content with isolated development by technicians, he got the San Diego scientists to bring their expertise to Hawaii and other forward bases to merge development and tactics to maximize learning, while also training his people to maintain the new equipment.

Joint Warfighting Culture. This case study does not indicate much appreciation for joint operations. The operation was planned solely as a Navy submarine operation from beginning to end. It could have been a much larger joint operation applying a more integrated approach that would have enhanced the effectiveness of the offensive mission and reduced some of the operational risk. Today, such a mission would be designed as a joint operation, with special operations forces helping distract the adversary, perhaps by attacking a land-based radar site, with U.S. Cyber Command disorienting the Japanese command and control systems, and with the Air Force conducting strikes on Japanese airfields to negate maritime reconnaissance flights over the area being launched. This was a high-risk operation that could



Vice Admiral Charles A. Lockwood, USN, Commander Submarine Force, Pacific Fleet (center), on board USS *Balao* (SS-285), with *Balao*'s Commanding Officer, Lieutenant Commander Robert K.R. Worthington (right of Lockwood, facing camera), welcoming submarine back to port from successful war patrol, ca. early 1945, probably Guam (U.S. Navy/National Archives and Records Administration)

have benefited from a joint combined arms approach.⁵⁰

But 75 years ago, the Services were not always ready to operate as a joint team. Nor was America prepared to operate jointly later in Korea or Vietnam.⁵¹ In the future, globally integrated operations across domains and geographical boundaries are expected to be the norm, mandating increased attention to joint and combined opportunities. Fortunately, we have a much stronger degree of jointness today at the operational level. Yet joint acculturation and education are perishable competitive advantages today and should not be taken for granted.⁵²

Conclusion

Admiral Lockwood's vision about Frequency Modulated Sonar and his careful nurturing of the technology offer a valuable case study for today's joint warfighting community in a looming era of potentially disruptive change. The concurrent adaptation of new technology, operational concepts, and organizational change was evident in the submarine force. Operation *Barney* offers a periscope view into the Navy's learning

system, from which we can draw some probing insights. Our current conception of operational competence must extend to learning how to innovate in contact with the enemy and deal with new technologies. "Learning under fire" can be a force multiplier if commanders are well educated in historically informed patterns of innovation and adaptation and develop a modest degree of technical literacy.

Overall, this operation exemplifies adapting to the always evolving character of warfare and highlights the application of innovation in combat leadership by senior leaders. It exemplifies how creative solutions to tough operational challenges in the Pacific were pursued and continuous adaptation obtained in a contested environment. We can all learn much from Vice Admiral Lockwood's leadership and the adaptive learning and valor of the Hellcats. JFQ

The author would like to gratefully acknowledge extended assistance from Dr. Bryon Greenwald, Colonel Pat Garrett, USMC (Ret.), and an anonymous peer reviewer in preparing this article.

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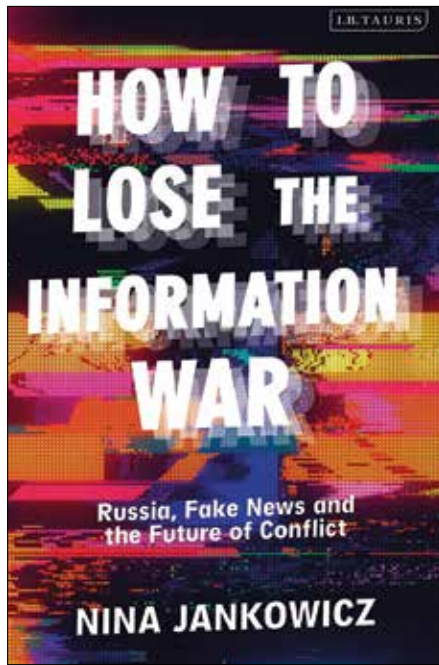
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How to Lose the Information War: Russia, Fake News, and the Future of Conflict

By Nina Jankowicz
I.B. Tauris, 2020
288 pp. \$27.00
ISBN: 978-1838607685

Reviewed by Sarah Gamberini

In a time with both a global pandemic and a U.S. Presidential election characterized by manipulated narratives, a fresh perspective contemplating disinformation—false information knowingly shared to cause harm—is both timely and important. A book, however, about how to *lose* the information war, as framed by author Nina Jankowicz, is exactly the perspective needed to highlight the high stakes and growing threat of disinformation. *How to Lose the Information War* examines the experience of countries targeted by Russian disinformation, provides needed context for Russia's tactics, and draws potential solutions into focus. Such a unique thought exercise is of immediate value as a new administration seeks to grapple with emerging Great Power competition and

the malicious and expanding use of tools of deceit to undermine democratic societies.

Jankowicz, the Disinformation Fellow at the Woodrow Wilson International Center for Scholars, offers lessons on disinformation from Russia's early "beta tests" in Eastern and Central Europe. Jankowicz's experience managing democracy assistance programs to Russia and Belarus allows for unique insights along the way as she highlights the erosion and crippling of core democratic processes and institutions. The first six chapters offer a breakdown of Russian information warfare efforts in Estonia, Georgia, Poland, Ukraine, the Czech Republic, and a fascinating examination of the 2016 U.S. Presidential election. The deliberate erosion of trust in institutions and poisoning of civil discourse in these Eastern and Central European cases, including the way Russia capitalizes on homegrown conspiracy theories in Poland or amplifies racial and ethnic divisions in Estonia, eerily parallels the current U.S. struggle on the information battlefield.

Jankowicz warns readers that information warfare has no borders and that valuable lessons from Eastern Europe are being ignored. Unfortunately, Russia has already applied these methods of sowing chaos, diminishing faith in government, and dividing societies along preexisting fault lines in the United States, Western Europe, and around the world. While Eastern European case studies are valuable, Jankowicz could also have assessed the many ongoing cases of disinformation observable throughout the West, which might have offered unique insights and perhaps interesting contrasts. Regardless of this quibble, Jankowicz drives home the importance of media literacy, public awareness, and educated electorates to inoculate against disinformation.

The challenge of language to describe information warfare is highlighted with a problematic misnomer in the book's subtitle. The term *fake news* tends to drive further confusion and societal division since it is often used to classify anything that is politically inconvenient.

However, Jankowicz adeptly unpacks the issue of disinformation diction early on and notes that a lack of common definition and revision to these buzzwords may hinder the West's ability to appropriately respond to Russian information warfare, which attempts to confuse facts and opinions and has encouraged a rejection of science during a global pandemic. Precise language, as Jankowicz points out, is the first step to improving media literacy.

Another timely contribution of the book is a discussion of the roles and responsibilities of social media companies in the spread of disinformation and misinformation. Adversary disinformation efforts seek to leverage social media and other tools and platforms to exploit divisions within the body politic of the United States and its allies. While social media companies have taken some important steps to flag manipulated media or remove harmful falsehoods, online echo chambers that perpetrate disinformation will continue to pop up despite regulation because of the prolific and inexpensive nature of online media. This compromises the healthy public discourse required for a functioning democracy, thus weakening the ability of the United States to address either its own internal challenges or coordinate a response to the multivariate threats posed by Great Power competitors.

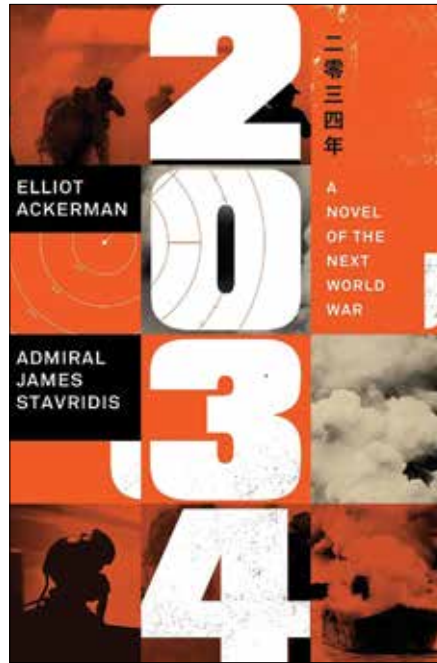
How to Lose the Information War offers many useful recommendations for government, industry, and American society. While no agency or organization can solve this problem alone, the Department of Defense (DOD) plays an important role in countering Russia's information warfare tactics and can begin by codifying Russia's cyber and online influence efforts as dangerous attacks on American society and democracy. Jankowicz's recommendations for the Department of Education to focus on digital and media literacy, for example, can serve as inspiration for similar updates to joint professional military education and to better prepare the joint force for operating in environments shaped by disinformation campaigns. In addition, DOD can better support allies

and partners by training and sharing information and best practices to counter Russia's influence together. To effectively combat disinformation abroad, though, the United States must address it at home, or the division and doubt sown by disinformation will inevitably weaken U.S. efforts to combat enemies whose information warfare campaigns transcend borders and undermine democracies across the globe.

U.S. adversaries and rogue regimes will continue to propagate disinformation to divide and conquer. Russia will relentlessly attempt to widen fissures within U.S. society and separate the United States from its allies. The lessons and insights offered by Jankowicz are a valuable intellectual resource for determining how to combat Russian disinformation and collaborate with partners and allies who have tools and insights from their own battles in the information war.

Reading *How to Lose the Information War* is beneficial not only to those in the national security community, but also to all citizens seeking to understand their information environment. Strong media literacy, as Jankowicz concludes, is crucial to a healthy democracy and is the first and most important step to winning the information war. JFQ

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2034: A Novel of the Next World War

By Elliot Ackerman and James Stavridis
Penguin Press, 2021
320 pp. \$27.00
ISBN: 978-1984881250

Reviewed by John A. Nagl

After 20 years of grinding war in Iraq and Afghanistan, the Pentagon is trying hard to turn away from counterinsurgency in the Middle East to focus on deterring conventional conflict with Russia and China. Into this situation, Marine combat veteran Elliot Ackerman and retired Navy Admiral James Stavridis have dropped—with impeccable timing—a novel that imagines what could go wrong if that pivot fails to deter America's near-peer adversaries.

To say that *2034* is torn out of today's headlines does not do it justice. This page-turner—I finished it in 24 hours—projects an America unable to recover from its current political divisions, leaving the Nation vulnerable to the more focused will of our authoritarian adversaries. The American President is not named, although we learn that the President is a woman as well as an independent, neither

major party being able to unite enough of the country behind its candidate to win in 2032. We also know that she followed a single Michael Pence Presidential term. We also learn that Vladimir Putin is still in charge of an expanded Russia, well into his eighties.

None of that seems entirely implausible in light of the recent Colonial pipeline hack. Neither does the major plot point that renders America's military vulnerable to attack through expanded cyber capabilities from our adversaries. Without giving away too much of the plot, a destroyer squadron *Commodore* in the South China Sea discovers something aboard a distressed Chinese fishing trawler that sets in motion a conflict that spans the globe. The downing of a Marine F-35 in Iranian airspace is a significant complicating factor, as is the Russian desire to cause problems for America wherever possible. The U.S. National Security Council has its hands full, and the Indian-American Deputy National Security Advisor relies on family connections to try to limit the damage.

This is a rip-roaring yarn that should be read by every officer in the U.S. military. It is a classic tale of hubris, overreliance on technology, failure to understand one's adversary and think strategically, and the damage that those mistakes can inflict on a fragile international system. It is sadly plausible and hence an important warning for those entrusted with national security responsibilities.

The book is not perfect. It would benefit greatly from maps laying out the zones in which conflict happens, and a cast list to keep the characters' names straight. The National Security Advisor plays a larger role in the plot than is strictly plausible, and it is unlikely that America's cyber defenses would be as vulnerable to surprise attack as *2034* suggests. But these flaws do not distract from the novel's importance at a time when defense budgets are likely to be substantially reduced—and not evenly across the Armed Forces.

The authors also steer closely toward their Service prerogatives. To my memory, the U.S. Army and Air

Force are literally *not mentioned* in a book about a coming world war. Worse, in a book that features politicians and military officers from China, Russia, India, and Iran, the key villain is not just an American, but a former West Point football player. Apparently, the shutout in last year's Army-Navy game left more of a mark than I had realized.

2034 is a good companion read to *Unrestricted Warfare*, written by People's Liberation Army colonels Qiao Liang and Wang Xiangsui in 1999. This book argues that the United States remains vulnerable to an indirect approach, including cyber and network attacks. MIT's M. Taylor Fravel, whose recent book *Active Defense: China's Military Strategy Since 1949* (Princeton University Press, 2019) would add additional depth to the discussion of the *2034* scenario.

Scenarios for war and operational art in an era of globalization are exactly the subjects that should be discussed in the Pentagon and in our institutions of professional military education. The beauty of *2034* is that it raises issues of such importance in a compulsively readable way that it makes a terrific book for an Officer Professional Development session. But bring your own maps. JFQ

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Proxy War: The Least Bad Option

By Tyrone L. Groh
Stanford University Press, 2019
264 pp. \$65.00
ISBN: 978-1503608184

Reviewed by Tobias B. Switzer

If proxy wars will haunt the future, as Tyrone Groh suggests, then *Proxy War* will prove to be not only useful but also essential. Writing to policymakers and strategists, Groh offers many valuable considerations for clear and sober thinking about the employment of a proxy and, conversely, how to overcome a proxy threat.

There are innumerable options available between direct military intervention and doing nothing, including proxy war, for a country with national security concerns abroad. As Groh defines it, *proxy war* is the act of “directing the use of force by a politically motivated, local actor to indirectly influence political affairs in the target state.” A proxy war is a discrete policy choice within a more extensive set of indirect approaches. However tempting it may be to outsource violence to achieve the desired outcome in another state,

proxy war policy is complicated and fraught with peril.

Groh warns that proxy wars are neither cheap nor riskless, but when employed under narrow conditions, a proxy war policy can help states secure their interests. In situations where outcomes short of a total military defeat of the target state are acceptable, a proxy can be effective. Groh makes an insightful contribution to proxy war policy by classifying these different objectives and their accompanying risks into four categories: “in it to win it,” “holding action,” “meddling,” and “feeding the chaos.”

Another strength of *Proxy War* is Groh's convincing argument, threaded throughout, that “the complexity of proxy war, like any social interaction, quickly overwhelms the human brain.” In unpacking the different aspects of an intervening state's relationship with its proxy, Groh stresses that employing a proxy is not as simple as hiring a teenager to mow one's lawn. Policymakers and strategists must consider the dynamics within the target country, the intervening country, and across the international community, as well as the capability and goals of the proxy. These factors and the ability to surveil and direct the proxy's actions contribute to the likelihood of success or failure.

The most important contribution of *Proxy War*, however, is that while most of these factors are environmental and out of the control of the policymaker, Groh identifies two key variables an intervening state can alter to help ensure a more successful outcome: policy coherence and proxy control. In no uncertain terms, Groh asserts that “an intervening state intending to engage in a proxy war must assess its ability to control its proxy and limit its objectives commensurate with that ability.”

Left unmonitored, a proxy will likely use intervening state resources toward different objectives. The intervening state must exploit the proxy's “constant fear of being abandoned,” as Groh describes, to keep the proxy working toward the desired outcome. With too many resources, a proxy may deviate from the

intervening state's direction; with too few resources, the proxy will be unable to do its job. This delicate tension often requires an intervening state to commit its resources, such as advisors, airpower, and intelligence support—the shadow costs of a proxy war policy—to observe, control, and enable the proxy.

Policy coherence is the other lever the intervening state controls, and its importance is easy to overlook. Contravening policy goals at different levels of governance will undermine the proxy war policies. One of *Proxy War's* most insightful points is how policy drift—known to military strategists as mission creep—can set in and undermine the effort. Keeping a leader's expectations in check is half the battle for strategists and policymakers. Many states began a proxy war with modest goals in mind, but its leaders shifted to a more ambitious vision on seeing initial success and ended up empty-handed.

To cut through the complexity and ensure the greatest leverage for a policy, *Proxy War* offers three heuristics: “know your enemy, but know your proxy even better,” “let the proxy lead, but only so far,” and “cultivate proxy dependence.” Before a state hands over guns and money, it should have a deep understanding of its proxy's objectives, Groh argues. Aligned goals imply fewer requirements to supervise the proxy. However, when goals diverge, then the price is higher oversight costs.

Letting the proxy get too far in front of the intervening state can result in total loss of control, potentially genocide and other atrocities, Groh warns. Worse still, an unleashed proxy can potentially turn on its client. Finally, a lonely proxy is a good proxy. A proxy's incentives to comply with any single state's directives diminish when multiple states offer assistance. Isolating the proxy from other sources of support and supplying the minimal resources needed to accomplish the intervening state's objective are crucial for coercing the proxy, Groh asserts.

Proxy War suffers from one early distraction in the form of a 40-page chapter that advertises itself as a

description of how proxy wars evolved since the end of World War II. While Groh serves up many interesting examples of proxy war, he also includes a complicated academic model, leaving solid ground for the ethereal. Departing from the book's intended purpose, it drifts into a confusing international relations theory that attempts to link world order and a state's vital and desirable interests to explain its proxy war decisions. This section may fall flat for generalist readers, but press on or skip ahead.

One of *Proxy War's* many treasures is its three detailed case studies: the United States in Laos, South Africa in Angola, and India in Sri Lanka. By giving each lesser known example an entire chapter, Groh provides rich texture and variation to the book and illuminates his concepts more thoroughly. For readers seeking more information, Groh offers over 25 pages of notes and a table summary of 33 separate proxy wars that occurred between 1945 and 2001. In all, *Proxy War* is a praiseworthy book that I urge national security policymakers and irregular warfare practitioners to read. JFQ

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Strategic Forum 307

Baltics Left of Bang: Comprehensive Defense in the Baltic States

By Dalia Bankauskaite, Janis Berzins, Tony Lawrence, Deividas Šlekys, Brett Swaney, and T.X. Hammes



Since regaining independence in 1991, the Baltic states' (Estonia, Latvia, and Lithuania) foreign and

diplomatic main objective has been full integration with the West. Each state has adopted comprehensive defense to coordinate the actions of its military, civilian government, private sector, and the general populations to deter and defeat Russian aggression. In applying comprehensive defense, each state has improved its armed forces, strengthened its ability to counter Russian information warfare, coordinated security measures with its neighbors, deepened its integration with European and international organizations, and worked to reduce its economic and energy dependence on Russia.



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Girls wave and flash victory signs at passing helicopter during military parade in western city of Zawiya, Libya, held to mark anniversary of uprising last year that cleared way for anti-Qadhafi forces' march on Tripoli, June 11, 2012 (United Nations/Iason Founten)



Read the Manual

Reversing the Trend of Failure in NATO Humanitarian Interventions with Airpower

By Michael Clark, Erik Jorgensen, and Gordon M. Schriver

Lieutenant Colonel Michael Clark, USMC, is a Defense Attaché at the U.S. Embassy in Monrovia, Liberia. Lieutenant Colonel Erik Jorgensen, USA, is a Joint Action Officer at the Air Land Sea Application Center. Commander Gordon M. Schriver, USN, is the Executive Officer at Airborne Command & Control Squadron (VAW) 117.

In 1999 and again in 2011, North Atlantic Treaty Organization (NATO) leaders employed unique military means to try to achieve similarly unique strategic ends. During Operation *Allied Force* (OAF) in Kosovo and the military intervention in Libya, which included Operations *Odyssey Dawn* and *Unified Protector*, NATO leaders attempted to use airpower without a conventional

ground force in place to protect civilians and set conditions for a lasting, self-sustaining peace.¹ Neither intervention achieved these objectives, and, based on its poorer performance in Libya compared with that in Kosovo, the Alliance appears to have become less capable of using airpower for humanitarian purposes. Significant literature written about both interventions cites ways that NATO

leaders can reverse this negative trend; however, none of the literature examines the military doctrine already available to Alliance leaders that, with increasing wisdom, sought to guide them to conduct these operations more effectively.²

To reverse this trend of NATO failures, Alliance leaders should more heavily weigh insights from their own military doctrine when deliberating if and how to embark on another humanitarian intervention using airpower without a conventional ground force. At a minimum, such consideration should give NATO leaders a better sense of what is realistically possible with airpower. With this better sense, they should be able to make more effective decisions on, if, and how to use the military instrument to achieve humanitarian objectives if airpower is the most robust military means available to them.

The Kosovo intervention proved ineffective at protecting civilians, but it effectively contributed to a lasting peace. The Libya intervention proved unsuccessful at both protecting civilians and contributing to a lasting peace, even though substantially more refined doctrinal recommendations were available to NATO leaders before conducting it. Had the leaders not chosen to deviate from these recommendations as wildly as they did, they likely could have come closer to achieving their strategic objectives in Libya; reversed NATO's trend of failure in conducting humanitarian interventions primarily via airpower; and made it harder for strategic competitors, particularly the Russian and Chinese governments, to stymie future efforts at conducting similar interventions. Because modern doctrine is even more robust, well researched, and accessibly written compared with what NATO leaders had available to them before the Libya intervention, it should provide an even better guide for contemporary leaders—if they heed its advice more carefully than they appear to have done in the past.

Operation Allied Force

On the night of March 24, 1999, NATO military forces initiated Operation *Allied Force*, primarily employing airpower to stop an ethnic-cleansing

campaign in the Federal Republic of Yugoslavia's (FRY's) Kosovo province. The operation initially failed to protect Kosovo's civilians and likely incentivized those perpetrating the genocide. Months later, OAF finally helped bring about the end of this campaign, and since the operation's conclusion, NATO and other international partners have deployed conventional ground forces as peacekeepers. As a result, Kosovo's civilians have seen far less violence.

In the 1990s, the FRY was a Serb-majority country led by a Serbian nationalist, Slobodan Milosevic. By 1998, levels of violence in Kosovo had increased between FRY and Kosovo Serb security forces and ethnic Albanian militant groups, most notably the Kosovo Liberation Army (KLA). The FRY and Serb forces responded by initiating an ethnic-cleansing campaign in the province against its ethnic Albanian majority. KLA forces also committed war crimes during this period, but neither with the same intensity nor body count as the FRY and Serb offensive.³

To address the deteriorating situation in Kosovo, the UN Security Council (UNSC) passed UN Security Council Resolution (UNSCR) 1199 on September 23, 1998. It called for an immediate ceasefire, internationally mediated negotiations between FRY and ethnic Albanian leaders, and Milosevic to withdraw FRY security forces from Kosovo. The resolution did not explicitly authorize force if Milosevic did not comply with its demands, largely due to Russian support of his regime and Chinese obstruction.⁴ After repeated ceasefire agreement violations by FRY and Serb forces, NATO leaders decided to enforce UNSCR 1199 themselves with military action by initiating OAF. They claimed legitimacy for the operation by interpreting UNSCR 1199 more liberally than did Russian, Chinese, and other international leaders. In the 2 years before the NATO air campaign began, FRY and Serb forces killed more than 2,500 ethnic Albanian Kosovars.⁵

In April 1999, the U.S. military deployed an Army task force to neighboring Albania to assist in the operation, but

diplomatic constraints kept these forces from being employed. Later that month, bolstered by growing domestic political support, NATO leaders expanded the air campaign's targets in an attempt to reduce Serbian domestic support for Milosevic. NATO domestic support increased in part due to the UN War Crimes indictment of Milosevic and other Serbian leaders for crimes against humanity on May 27.⁶

Although NATO leaders were confident that OAF would compel Milosevic to capitulate quickly, he resisted. The operation also failed to protect Kosovo's ethnic Albanian population and likely incentivized Milosevic to intensify the ethnic-cleansing campaign.⁷ Several factors led to OAF's failure to protect civilians: bad weather; FRY and Serb forces effectively camouflaging themselves; FRY and Serb forces dispersing and hunkering down during airstrikes; NATO leaders conducting only limited coordination with KLA militants on the ground; and coalition airstrikes initially targeting command and control nodes, which had minimal control over the decentralized field units conducting the atrocities.⁸ Such futility likely incentivized Milosevic to intensify the ethnic-cleansing campaign in the hope FRY and Serb forces could remove as many ethnic Albanians as possible from Kosovo until either he was content with the level of genocide or NATO leaders finally employed a more successful strategy.⁹ Over the course of OAF, FRY and Serb forces killed approximately 7,000 ethnic Albanians.¹⁰

Despite OAF's operational failures, in early June 1999, NATO finally compelled Milosevic to cease the ethnic-cleansing campaign and begin FRY's withdrawal from Kosovo; however, OAF's air campaign was not the only contributor to this outcome. The negotiators who delivered the terms that Milosevic ultimately accepted were representatives from the Russian and Finnish governments, the latter representing the European Union. The choice of these non-NATO negotiators was the result of robust Alliance diplomatic efforts during the operation. Ultimately, Milosevic never offered a concrete explanation for why he accepted the

terms when he did. His rationale likely factored in a loss of Russian diplomatic patronage, personified by the Russian envoy sent to deliver the terms; his seeing the U.S. deployment of Army forces to Albania as a precursor to a ground invasion; a loss of Serbian national support, stemming from the expanded bombing campaign; fear of a more expansive bombing campaign if he continued to reject the June ceasefire agreement; and a belief that the June terms were likely the best he could get.¹¹

When OAF ended on June 10, 1999, the UNSC adopted UNSCR 1244, authorizing the creation of an international peacekeeping force dubbed the Kosovo International Security Force (KFOR). Its primary mission was—and remains to this day—to foster a “safe and secure environment” to enable political efforts that promote a stable and peaceful Kosovo.¹² The period immediately after OAF saw a rise in violence. By the end of 2000, this fighting had largely stopped: It was forcing an internal displacement of Serbs that effectively partitioned Kosovo along ethnic lines, and KFOR had enough troops, including Russian ones, to offer adequate security for the province. In the 5-year period after OAF ended, just over 200 fatalities were reported in Kosovo.¹³ Low-level violence has remained there after OAF through 2019 largely due to its unresolved political status.¹⁴

The Libya Intervention

Almost 12 years to the day after OAF began, on the night of March 19, 2011, NATO forces initiated strikes against the Libyan regime. The U.S. component was called Operation *Odyssey Dawn*. At the end of the month, the NATO-led Operation *Unified Protector* began, and just like during OAF, the combined NATO intervention in Libya primarily used airpower. Also like OAF, the Libya intervention failed to adequately protect civilians, but unlike after OAF, NATO leaders did not dispatch conventional ground forces to a peacekeeping force, leaving behind a violent and unstable environment in Libya. There, the Alliance ultimately failed to achieve any of its strategic objectives.¹⁵

The “Arab Spring” came to Libya in February 2011, when protests broke out in the city of Benghazi. These quickly became a rebellion and spread nationwide, with the Benghazi-based National Transitional Council (NTC) emerging as the voice of the rebels. Libyan security forces, led by Muammar Qadhafi, responded to the rebellion harshly, and by early March these forces initiated a counteroffensive, rapidly reasserting control over the country as they approached Benghazi.¹⁶

In response to the crisis in Libya and the growing threat to Benghazi’s citizens, the UNSC adopted UNSCR 1973 on March 17, 2011. The resolution authorized member states to take all necessary measures “to protect civilians and civilian populated areas under threat of attack in the Libyan Arab Jamahiriya.” It explicitly banned foreign troops from the country and called for the establishment of a no-fly zone over Libya “to help protect civilians.” The resolution’s primary strategic objective was finding a “peaceful and sustainable solution” to the political crisis that precipitated the violence.¹⁷ Between the 5 weeks when the protests began and the day before the UNSC approved the resolution, approximately 1,350 people had been killed in the fighting between regime forces and rebels.¹⁸

Two days later, on March 19, French forces initiated the first airstrikes to enforce UNSCR 1973. They were followed later that night by airstrikes and naval cruise missile attacks from U.S. and British militaries. Shortly thereafter the Alliance established a naval blockade to embargo arms and fighters from entering Libya, enforcing an earlier UNSCR. Within 3 days, the coalition achieved its initial objectives by stopping the regime’s armored advance on Benghazi, protecting the city’s inhabitants, and establishing a no-fly zone over Libya. Aircrew over Libya had greater success than did their Alliance counterparts over Kosovo because they experienced better weather and could find and fix regime targets more easily by using improved aircraft sensors over more open terrain.¹⁹ After achieving their initial objectives, coalition aircraft quickly shifted from targeting

regime forces that were directly threatening civilians to regime forces that were threatening the overall rebel offensive.

On March 31, NATO assumed responsibility for the campaign, and *Unified Protector* began. Weeks later, French President Nicolas Sarkozy, British Prime Minister David Cameron, and U.S. President Barack Obama expanded their support to the rebels by supplying them with arms, essentially violating their own blockade and the UNSCR that authorized it. They did this while making seemingly paradoxical public statements to deny the coalition was supporting regime defeat. They declared, “Our duty and our mandate under UN Security Council Resolution 1973 is to protect civilians, and we are doing that. It is not to remove Qadhafi by force. But it is impossible to imagine a future for Libya with Qadhafi in power.”²⁰

Rather than help protect civilians in Libya, such statements, along with NATO actions to impede a negotiated solution, likely did the opposite by extending the violent conflict. NATO leaders denied multiple African Union leaders’ requests to mediate negotiations between the Qadhafi regime and NTC representatives to end the fighting, even during periods of no immediate regime threat to Libyan civilians. By providing direct support and arms to the rebels, NATO likely disincentivized them from engaging in a negotiated solution. If rebel leaders thought they could defeat Qadhafi outright, then they would have little to gain by negotiating with him.²¹ In April 2011, NTC leaders rejected a ceasefire agreement that Qadhafi had accepted.²²

Also likely extending the violent conflict were NATO leaders’ increasingly aggressive statements, NATO support for the rebels, and the International Criminal Court indictment of Qadhafi, his son, and the Libyan intelligence chief on June 27. All these actions could have made it clear to Qadhafi the only way to ensure an outcome that did not result in his incarceration or unnatural death was a regime military victory, even an increasingly unlikely one.²³ Qadhafi likely felt more threatened by his International Criminal Court indictment than Milosevic did of his



President Barack Obama and Secretary of State Hillary Rodham Clinton visit with State Department employees in Washington, DC, September 12, 2012, one day after J. Christopher Stevens, U.S. Ambassador to Libya, and three others were killed at consulate in Benghazi, Libya (The White House/Pete Souza)

own. Milosevic was not living in Kosovo when he was indicted; Qadhafi lived in Libya. With all the impediments to finding a negotiated solution, the conflict persisted for more than 7 months with sustained levels of violence against Libya’s civilians. Over the course of NATO’s combined intervention, approximately 4,140 people were killed in the country by all sides of the conflict.²⁴ According to a 2012 UN Human Rights Council report, both Qadhafi’s and rebel forces committed war crimes and broke international human rights law “in a climate of impunity.”²⁵

In August 2011, Tripoli fell from regime control, and on October 20, NTC forces captured and killed Qadhafi after a NATO airstrike stopped his convoy. Alliance leaders denied knowing Qadhafi was in the convoy, reiterating the Alliance’s policy not to target individuals. The very next day, NATO leaders began deliberations to end the air campaign.

On October 31, they declared the Libya intervention complete. The timing of the campaign’s end—so soon after Qadhafi’s death—makes their denials that the intervention did not seek regime change ring hollow.

As mentioned above, no international peacekeepers deployed to Libya when the Libya intervention ended. The near total disintegration of a well-armed Libyan state meant that almost every type of conventional weapons system, including attack aircraft and tanks, became available to Libya’s various militant groups, exacerbating the violence. Since the end of the air campaign in 2011 through 2019, more than 15,500 people have died in Libya—an average of about 1,900 fatalities a year.²⁶

Doctrine and Decisionmaking

Since the 1990s, NATO’s understanding of how to employ the military instrument of national power, including

airpower, to protect civilians and set conditions for a lasting peace has significantly evolved. One measure of this understanding is Alliance and U.S. joint military doctrine. Before OAF, minimal doctrinal guidance was available to inform NATO leaders on how to use military force to achieve these objectives; however, before the Libya intervention, considerably more insightful doctrine existed. Alliance leaders deviated from this more astute doctrine in Libya and suffered strategic failures as a result, but doctrine is not the only influence that shapes NATO decisions about employing military power. Perceptions on the use of force and domestic political concerns also inform these choices.

Prior to March 1999, there was no NATO and minimal U.S. joint doctrine to shed light on how to conduct military operations that protect civilians and enable a lasting peace. Published in 1995,

U.S. Joint Publication (JP) 3-07, *Joint Doctrine for Military Operations Other Than War*, broadly discusses achieving these objectives. It defines one of the military operations other than war, peace enforcement operations (PEOs), as operations that use or threaten to use military force “to compel compliance with resolutions or sanctions designed to maintain or restore peace and order.” JP 3-07 does not specify if using airpower is sufficient to conduct PEOs, but the two examples of successful PEOs that it provides had extensive conventional ground intervention forces.²⁷

Because of its objectives, OAF was a PEO. The operation ultimately furnished enough military force, alongside other instruments of national power, to compel Milosevic to comply with UNSCR 1199. The operation, however, proved insufficient to protect civilians, in large part due to a lack of extensive conventional ground forces. Only after OAF did Kosovo human security markedly improve with the introduction of the UN peacekeeping force.

As mentioned, considerably more doctrine was available to NATO leaders prior to the Libya intervention. Published in 2001, NATO Allied Joint Publication (AJP) 3.4.1, *Peace Support Operations*, defines success for peace support operations (PSOs) as being “related to the daily circumstances of the local populace in the former conflict area and the realization of a situation in which ‘conflicts are no longer solved using force.’” It warns that “the achievement of the military objectives and the creation of a secure environment do not guarantee the establishment of a self-sustaining peace.” It also argues that PEOs specifically, one type of PSO, should not be designed to defeat or completely destroy belligerent parties “but rather to compel, coerce, and persuade the parties to comply with a particular course of action.” One primary PEO task might be protecting civilians.²⁸

AJP 3.4.1 also specifically addresses airpower, which includes maritime strike assets. It presents enforcing no-fly zones as an example of a stabilizing measure that “may represent the first step towards . . . negotiations for a political

settlement.” The publication also promotes offensive airpower’s ability to apply “the appropriate force in any kind of conflict and to rapidly escalate or de-escalate according to the situation.” AJP 3.4.1 adds that “diplomatic activities should continue to run in parallel with military operations, and every pause in the operation should be viewed as an opportunity for further diplomatic initiatives.”²⁹

JP 3-07.3, *Peace Operations*, published in 2007, does not deviate significantly from the 1995 version of JP 3-07 or AJP 3.4.1. Like its predecessor, JP 3-07.3 does not directly discuss airpower’s role in conducting PEOs, but it does state that the objective of joint fire support, including aviation fires, “is to compel or coerce the belligerents to disengage, withdraw, and comply with the mandate.”³⁰

The Libya intervention was also a PEO, using military power to compel Qadhafi to comply with UNSCR 1973 and with a primary task of protecting civilians in immediate danger. During the intervention’s opening days, NATO military power proved sufficient to achieve this primary task. The Alliance employed airpower according to doctrine, including cruise missile strikes from naval vessels, by taking advantage of its ability to rapidly escalate to neutralize Qadhafi’s forces around Benghazi, effectively protect the city’s inhabitants, and establish a no-fly zone across the country in just 3 days.

Despite initial operational successes, NATO’s intervention in Libya failed to effectively protect civilians throughout the rest of the intervention and achieve UNSCR 1973’s objective of finding a peaceful and sustainable solution to the Libyan conflict. The intervention also did not achieve strategic success as defined in AJP 3.4.1 and JP 3-07.3. The daily circumstances of Libyans are no better—and may be worse—than they were before the NATO air campaign.³¹ Libyan conflicts are still solved using significant force, and the intervention did not restore peace and order. NATO leaders’ failure to achieve these objectives also validated AJP 3.4.1’s guidance that mere attainment of military operational objectives

may be insufficient to guarantee a self-sustaining peace.

These failures were likely not due to purely insufficient military means but to an overall imbalance of the means NATO leaders had available to them, the ways they used their forces, and the strategic ends they eventually sought to achieve. All decisions deviated from doctrinal recommendations. NATO leaders did not build off the operation’s initial successes as a first step to initiate a negotiated solution. When Alliance airpower ensured there were no immediate threats to civilians, NATO leaders did not execute operational pauses to facilitate diplomatic efforts, and they did not rapidly activate or deactivate airpower in concert with diplomatic progress. Instead, NATO leaders expanded the scope of the air campaign to assist the rebels with destroying Qadhafi’s military capability and defeating his regime, while arming the rebels and actively impeding diplomatic efforts.

Prior to OAF and the Libya intervention, NATO leaders did receive and consider advice consistent with doctrine, but doctrine is not the only factor they evaluate when reaching a consensus on if and how to employ military force. They are influenced by many factors that likely weigh more heavily than military doctrine, such as each member state’s leaders’ and senior advisors’ individual perceptions on the use of force and domestic political concerns. Prior to OAF, the chairman of NATO’s Military Committee, German General Klaus Naumann, had been warning NATO leaders for months that they should be prepared to deploy ground troops to achieve the Alliance’s objectives.³² NATO leaders believed, however, an air campaign was the most aggressive form of intervention for which they had the domestic political support. They expected NATO citizens would find unacceptable the casualties that would likely accompany a ground intervention force.

Alliance leaders at the time also overestimated the ease with which they could employ airpower as the primary tool to compel Milosevic into compliance with a UNSCR. Four years prior, a weeks-long



F-16 Fighting Falcon pilot with 31st Fighter Wing receives handshake from member of his flight crew at Aviano Air Force Base, Italy, after returning from supporting Operation *Odyssey Dawn*, March 20, 2011 (DOD/Tierney Wilson)

NATO air campaign over Bosnia did just that. This earlier victory, however, included the participation of a sizable UN conventional ground force, which was bolstered by 4,000 NATO ground troops and local military and paramilitary forces far more capable than those of the KLA.³³ After OAF, the Alliance had domestic support to deploy peacekeepers.

During the Libya intervention, NATO leaders also felt they lacked the domestic support for employing a conventional ground force into Libya, under the same assumption that NATO citizens would be unwilling to accept casualties to protect Libyans. Prior to the intervention, there were intense internal debates in the White House over whether U.S. forces should intervene. Those who conceded that political realities would prohibit deploying a conventional ground

intervention force and doubted the ability of Libya's rebels to protect Libyan civilians advised against military intervention at all, particularly if the intervention led to regime change. Secretary of Defense Robert Gates led the faction advising against intervention.³⁴ President Obama ultimately sided with Sarkozy and Cameron who, again, overestimated the ability of airpower to achieve humanitarian objectives.³⁵ After the intervention, there was no domestic support for deploying NATO peacekeepers to Libya.

Current Doctrine

As of May 2020, the most recent NATO and joint doctrinal publications addressing the use of force to protect civilians and enable a lasting peace continue to evolve by incorporating several lessons from OAF and the

Libya intervention, among other PEOs. Well researched and written, these publications are often released prior to peer-reviewed academic literature that identifies similar lessons and recommendations. Consequently, modern doctrine offers new insights on how NATO leaders ineffectively balanced military ways and means with the Alliance's strategic ends in 1999 and 2011.

The updated title of NATO's 2014 AJP 3.4.1, *Allied Joint Doctrine for the Military Contribution to Peace Support*, emphasizes the military instrument being only a contributor—and not always the most important one—to restoring lasting peace. AJP 3.4.1 dedicates an entire paragraph to enforcing no-fly zones, warning they have a limited effectiveness and could even be counterproductive when used alone to conduct PEOs. It also



Airmen with 28th Maintenance Squadron prepare B-1B Lancer aircraft, March 27, 2011, at Ellsworth Air Force Base, South Dakota, to support Operation *Odyssey Dawn* in Libya (DOD/Marc I. Lane)

advises that no fly-zones “should only be adopted as part of a wider strategy.”³⁶ OAF was part of a wider strategy that included efforts across the instruments of national power, including diplomacy, to convince Milosevic to submit to UN demands. In 2011, by contrast, NATO leaders eschewed and disincentivized diplomacy, and they failed to ever convince Qadhafi to submit to UN demands.

With respect to protecting civilians during PSOs, AJP 3.4.1 advises that the “likely consequences of military activity should not be worse than the likely consequences of inaction.”³⁷ In Kosovo, the outcomes of military action were likely better than the outcomes of inaction. Even though OAF failed to effectively protect civilians during the operation, more civilians likely would have died had NATO never intervened at all. Milosevic

probably did not concede when he did because he had completed his ethnic-cleansing campaign. After OAF, KFOR was in place to effectively protect the civilians who survived.³⁸

Whether Libyan lives would have been better had NATO not intervened is more difficult to determine.³⁹ What is easier to conclude is that Alliance leaders knowingly ceded the ability to have a meaningful impact on the consequences of the Libya intervention. They did this when they deliberately expanded NATO’s mission to include regime change—knowing full well that they and the UNSC lacked the political will to deploy peacekeepers to substantially influence events on the ground after Qadhafi’s regime fell.

Deposing Qadhafi and Alliance inaction, however, were not the only choices available to NATO leaders. They could

have decided to strictly employ airpower within UNSCR 1973’s mandate and, in accordance with doctrine, helped facilitate a political solution by using military force to incentivize all sides to negotiate, rather than disincentivize and actively impede it.⁴⁰ NATO’s interventions in Libya and Kosovo arguably exceeded the UN mandates and had other negative consequences. For example, Russian and Chinese leaders now had diplomatic cover to justify vetoing future humanitarian military interventions, most recently in Syria, on the grounds that such interventions invariably exceed their mandates.⁴¹

U.S. doctrine has also progressed since the Libya intervention ended. The 2018 version of JP 3-07.3 echoes many of the recommendations of prior U.S. and NATO publications on how to effectively conduct PEOs. It also features an

eight-page annex that lists seven general operational approaches to conduct military operations with the primary purpose of protecting civilians. These approaches are taken directly from *Mass Atrocity Response Operations: A Military Planning Handbook*, to which JP 3-07.3 (2018) directs the reader for more information.⁴² The Harvard Kennedy School's Carr Center for Human Rights Policy and the U.S. Army Peacekeeping and Stability Operations Institute published this handbook in 2010 to promote a "common military approach" that addresses the unique challenges of conducting mass atrocity response operations (MAROs) to stop genocides, crimes against humanity, war crimes, and ethnic cleansing.⁴³ These organizations developed the handbook with representatives from U.S. European and Africa Commands, the UN, and other international organizations. Although technically available to the Libya intervention's planners, the handbook was first incorporated into U.S. doctrine after the intervention, in the 2012 version of JP 3-07.3.⁴⁴

The MARO handbook provides the clearest guidance yet on how to optimally balance military means with different operational approaches to protect civilians and enable a lasting peace. *Containment* is one of these approaches, and it seeks to isolate mass atrocity perpetrators with blockades and no-fly zones, making it an appropriate approach to use with airpower without a conventional ground force. Disadvantages to containment include its ineffectiveness if regime targets are not clearly identifiable from afar, its futility if regime leaders do not directly control the mass atrocity perpetrators, and the possibility it incentivizes perpetrators to accelerate mass atrocities.⁴⁵ NATO leaders employed this approach during OAF, but OAF aircrew encountered all three of the listed disadvantages. NATO leaders initially employed containment during the Libya intervention, and it initially worked.

Partner-enabling is another approach that seeks to enhance local actors' capabilities to conduct ground combat operations. This support can include advising, equipping, and providing

supporting fires, and partner-enabling can be conducted with airpower without a conventional ground force. This approach's primary disadvantages include giving enhanced capabilities and ceding operational and strategic decisionmaking to the local actors on the ground who might commit their own atrocities, have strategic interests at odds with NATO interests, or are incapable of adequately protecting civilians even with NATO assistance.⁴⁶ NATO forces encountered varying degrees of these disadvantages with the KLA and Libyan rebels.

Defeating perpetrators is a third approach that directly targets perpetrator leaders and seeks to render them completely incapable of committing mass atrocities. To be effective, defeating perpetrators requires an extensive conventional ground force during the operation, and this approach may lead to regime collapse, which would require a similarly extensive conventional ground force in the postconflict phase to ultimately enable a lasting peace. The MARO handbook warns that defeating perpetrators is costly and could result in "increased levels of conflict and chaos in the country" if done improperly.⁴⁷ NATO leaders did not employ this approach during OAF. Early on during the Libya intervention, Alliance leaders appeared to shift their approach from containment to a combination of partner-enabling and defeating perpetrators. NATO lacked a conventional ground force to defeat the regime during or after the intervention, and the disadvantageous qualities in the Libyan rebel groups meant that NATO lacked the requisite military strength to successfully facilitate a lasting peace after killing Qadhafi. Just as the handbook predicted a year before the Libya intervention, these deficiencies led to increased levels of conflict and chaos that remain in Libya to this day.

Conclusion

Operation *Allied Force* failed to protect civilians but contributed to Milosevic eventually complying with UNSCR 1199. The operation set conditions for the lasting peace to which NATO still contributes military forces. The

Libya intervention neither effectively protected civilians nor set conditions for a lasting peace, and the violent disorder the intervention left in its wake still affects regional and Alliance security. Prior to OAF, NATO understanding of how to use force to achieve humanitarian objectives, as captured in NATO and U.S. joint doctrine, was immature and did not offer much direction to Alliance leadership. Prior to the Libya intervention, however, NATO understanding was far more refined.

It is often said that military publications, including doctrinal ones, are written in the blood of those servicemembers who made fatal mistakes. The doctrine that covers how to protect civilians, however, is written in the blood of those innocents the servicemembers failed to protect. NATO leaders should more carefully consider this doctrine when forming their opinions on the use of force and weighing their political options about using the military instrument of national power to protect civilians. When political and other factors constrain the military means that NATO leaders have available to them, such as employing airpower without a conventional ground force, greater familiarity with the doctrine of protecting civilians would likely enable leaders to balance these means more effectively with ways and strategic ends. Greater doctrinal familiarity would likely also allow leaders to more thoughtfully assess if the balance among these factors is too askew, perhaps driving them to prioritize using other instruments of national power to achieve their objectives. NATO leaders disregarding this doctrine as fervently as they did during the Libya intervention could risk the Alliance repeating the mistakes of the past, resulting in even more robust and refined doctrine borne from the blood of those whom NATO, yet again, failed to protect.

Furthermore, as the U.S. and other NATO governments' defense establishments reorient themselves toward strategic competition with the Russian and Chinese governments, they should recognize the role these operations play. Seemingly flaunting UN limitations on military power, including limits that



F-16C/J Fighting Falcon from 52nd Fighter Wing based at Spangdahlem Air Base, Germany, breaks away from KC-135R Stratotanker after inflight refueling during NATO Operation *Allied Force*, on March 31, 1999 (DOD/Brad Fallin)

agree with NATO and joint doctrine, makes it easier for competitors to deny any future humanitarian interventions the legitimacy that comes with the authorization of a UN Security Council Resolution. Similarly, when NATO fails to protect vulnerable populations and enable lasting peace, particularly when it has a better understanding of how to do both, it makes a significant unforced error in the global competition for ideas and influence. JFQ

Notes

¹We do not consider the North Atlantic Treaty Organization's (NATO's) Operations *Deny Flight* and *Deliberate Force* in Bosnia and Herzegovina from 1993 to 1995 to meet these criteria. Although NATO as an alliance did not employ conventional ground forces to complement the air campaign, NATO member countries did employ conventional ground forces as part of the United Nations (UN) Protection Force to create safe areas to protect civilians before and during the NATO air campaigns. The UN Protection Force also coordinated with NATO aircraft during the operations.

²See Nicholas J. Wheeler, *Saving Strangers: Humanitarian Intervention in International Society* (Oxford: Oxford University Press, 2000), 242–284; Alan J. Kuperman, “A Model Humanitarian Intervention? Reassessing NATO's Libya Campaign,” *International Security* 38, no. 1 (2013), 105–136; Alan J. Kuperman, “Obama's Libya Debacle: How a Well-Meaning Intervention Ended in Failure,” *Foreign Affairs* 94, no. 2 (2015), 66–77; Arash Heydarian Pashakhanlou, “Decapitation in Libya: Winning the Conflict and Losing the Peace,” *The Washington Quarterly* 40, no. 4 (2017), 135–149; Astrid Stuth Cevallos and Bryan Frederick, “Implementing Safe Areas: Lessons from History,” *Survival: Global Politics and Strategy* 60, no. 6 (2018), 159–180; Arash Heydarian Pashakhanlou, “Air Power in Humanitarian Intervention: Kosovo and Libya in Comparative Perspective,” *Defence Studies* 18, no. 1 (2018), 39–57; David Brown, “Kosovo and Libya: Lessons Learned for Limited Humanitarianism?” *Comparative Strategy* 38, no. 5 (2019), 467–482; Martin A. Smith, “Taking Stock After Twenty Years: The Mixed Legacy of Kosovo,” *Comparative Strategy* 38, no. 5 (2019), 483–496; Anthony M. Schinella, *Bombs Without Boots: The Limits of Airpower* (Washington, DC: Brookings Institution Press, 2019), 43–95, 223–286.

³Human Rights Watch, “Human Rights Watch Investigation Finds: Yugoslav Forces Guilty of War Crimes in Racak, Kosovo,” January 29, 1999, available at <<https://www.hrw.org/news/1999/01/29/human-rights-watch-investigation-finds-yugoslav-forces-guilty-war-crimes-racak-kosovo>>.

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⁴UN Security Council Resolution 1199, “Situation in Kosovo, Federal Republic of Yugoslavia,” September 23, 1998, available at <<https://digitallibrary.un.org/record/260416?ln=en>>; Jason E. Fritz, *Stability Operations in Kosovo 1999–2000: A Case Study* (Carlisle, PA: U.S. Army Peacekeeping and Stability Operations Institute, 2018), 18, available at <<https://publications.armywarcollege.edu/pubs/3525.pdf>>.

⁵Steven Erlanger and Christopher S. Wren, “Early Count Hints at Fewer Kosovo Deaths,” *New York Times*, November 11, 1999, available at <<https://www.nytimes.com/1999/11/11/world/early-count-hints-at-fewer-kosovo-deaths.html>>.

⁶Benjamin S. Lambeth, *NATO's Air War for Kosovo: A Strategic and Operational Assessment* (Santa Monica, CA: RAND, 2001), 38, available at <https://www.rand.org/pubs/monograph_reports/MR1365.html>; Fritz, *Stability Operations in Kosovo*, 31–32.

⁷Elaine M. Grossman, “‘What If . . . We Were Still Fighting in Winter Weather?’: For U.S. Commander in Kosovo, Luck Played Role in Wartime Success,” *Inside the Pentagon* 15, no. 36 (1999), 12–13; Fritz, *Stability Operations in Kosovo*, 31; Phil Haun, “Attacking Fielded Forces: An Airman's Perspective from Kosovo,” *Joint Force Quarterly* 95 (4th Quarter 2019), 74, available at <<https://ndupress.ndu.edu/Media/News/News-Article-View/Article/2018960/attacking-fielded-forces-airmans-perspective-from-kosovo/>>.

⁸Pashakhanlou, “Air Power in Humanitarian Intervention,” 43; Haun, “Attacking Fielded Forces,” 71.

⁹Wheeler, *Saving Strangers*, 269; Brown, “Kosovo and Libya,” 473; Lambeth, *NATO's Air War for Kosovo*, 28; Julie Kim, *Kosovo, Review and Analysis of Policy Objectives, 1998–June 1999*, RL30265 (Washington, DC: Congressional Research Service, July 21, 1999), 7–8; Grossman, “‘What If . . . We Were Still Fighting in Winter Weather?’” 13; Tony Mason, “Operation Allied Force, 1999,” in *A History of Air Warfare*, ed. John Andreas Olsen (Washington, DC: Potomac Books, 2010), 234–236.

¹⁰Erlanger and Wren, “Early Count Hints at Fewer Kosovo Deaths.”

¹¹Lambeth, *NATO's Air War for Kosovo*, 67–86; Fritz, *Stability Operations in Kosovo*, 32–33; Wheeler, *Saving Strangers*, 283–284; Michael J. Boyle, *Violence After War: Explaining Instability in Post-Conflict States* (Baltimore: Johns Hopkins University Press, 2014), 175; Benjamin S. Lambeth, “Lessons from Modern Warfare: What the Conflicts of the Post-Cold War Years Should Have Taught Us,” *Strategic Studies Quarterly* 7, no. 3 (2013), 39; Stephen T. Hosmer, *The Conflict over Kosovo: Why Milosevic Decided to Settle When He Did* (Santa Monica, CA: RAND, 2001), available at

<https://www.rand.org/pubs/monograph_reports/MR1351.html>; Mason, “Operation Allied Force,” 244.

¹²JFC Naples–Allied Joint Force Command Naples, “Mission,” available at <<https://jfcnaples.nato.int/kfor/about-us/welcome-to-kfor/mission>>.

¹³Boyle, *Violence After War*, 175–178; Brown, “Kosovo and Libya,” 477–478.

¹⁴Heidelberg Institute for International Conflict Research (HIK), *Conflict Barometer 1999* through *Conflict Barometer 2001* (Heidelberg, Germany: HIK, Department of Political Science, University of Heidelberg), available at <<https://hiik.de/conflict-barometer/bisherige-ausgaben/?lang=en>>; HIK, *Conflict Barometer 2002* through *Conflict Barometer 2019* (Heidelberg, Germany: HIK, Department of Political Science, University of Heidelberg).

¹⁵Kuperman, “Obama's Libya Debacle,” 67; Dianne Pfundstein Chamberlain, *Cheap Threats: Why the United States Struggles to Coerce Weak States* (Washington, DC: Georgetown University Press, 2016), 143.

¹⁶Human Rights Watch, “Libya: Governments Should Demand End to Unlawful Killings,” February 20, 2011, available at <<https://www.hrw.org/news/2011/02/20/libya-governments-should-demand-end-unlawful-killings>>.

¹⁷UN Security Council Resolution 1973, “On Establishment of a Ban on Flights in the Libyan Arab Jamahiriya Airspace,” March 17, 2011, available at <<https://digitallibrary.un.org/record/699777?ln=en>>.

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¹⁹Pashakhanlou, “Air Power in Humanitarian Intervention,” 51.

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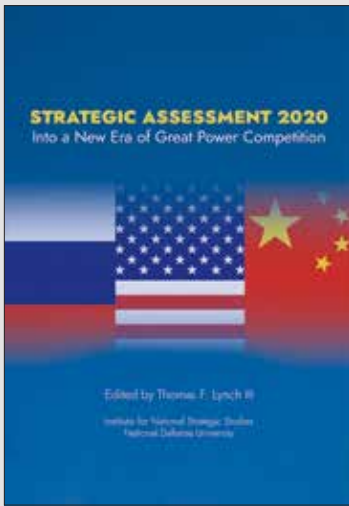
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