Military Power Reimagined

Hydrocarbons and Hegemony

Force Integration in Resistance Operations

Cover 2 images (top to bottom): Airman receives instruction while refueling E-8C Joint Surveillance Target Attack Radar System aircraft during mission supporting Combined Joint Task Force–Operation *Inherent Resolve* over U.S. Central Command area of responsibility, February 22, 2021 (U.S. Air Force/Trevor T. McBride); Recruits with Delta Company, 1st Recruit Training Battalion, complete obstacle course during Crucible, aboard Marine Corps Recruit Depot Parris Island, South Carolina, April 30, 2021 (U.S. Marine Corps/Samuel C. Fletcher); Soldier from Delta Company, 2nd Battalion, 27th Infantry Regiment, 3rd Infantry Brigade Combat Team, 25th Infantry Division, conducts Turkish get-ups as part of Bronco Fitness Challenge, at F-Quad, Schofield Barracks, Hawaii, March 24, 2021 (U.S. Army/Angelo Mejia)

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Soldiers from 101st Airborne Division, Fort Campbell, Kentucky, receive training on vaccine process from Federal Emergency Management Agency officials at Wolstein Center in Cleveland, March 14, 2021, providing continued, flexible Department of Defense support to whole-of-government response to COVID-19 pandemic (U.S. Army/Robert O'Steen)

Logistics Specialist (Submarine) 1st Class Anna Donelan, assigned to Gold crew of *Ohio*-class guided-missile submarine USS *Ohio*, scans for contacts while standing lookout watch on bridge, Pacific Ocean, January 22, 2021 (U.S. Navy/Kelsey J. Hockenberger)

Executive Summary

In many parts of joint warfighting, getting the right situational awareness (SA) is essential to success, especially to those of us in a position of military or civilian leadership. I must admit to a lack of SA in recent years as I, like many, have been drawn into an information cycle centered around less-traditional media sources. Because I live and work in the Nation's capital area, I fully accept that I live in a "bubble," where I may not have an accurate picture of events. But in recent years, with the rise of social media platforms—including active disinformation campaigns, both foreign and domestic—getting and keeping good SA is increasingly difficult. Where does one

scan to find an objective view? I often turn to the sources that seem the most credible, and that judgment is based on my belief that I have a fairly well-developed set of critical thinking skills. But still, I wonder, what am I missing? It seems that this questioning of my own view of the world is healthy, based on my conversations with experts in this field. Plus, the old-school habit of good leadership—of "leading by walking around"—has been nearly impossible for many during the pandemic.

As a retired officer who served in the Cold War period, before and after *Desert Storm*, in the Kosovo air campaign, and in Afghanistan mid-war circa 2008, my view of things is certainly shaped by

those experiences. As the car commercial caveats used to say, your mileage may vary. I will say the events of the past few years have sharpened my critical thinking in ways that I find essential to my mental health, especially with the way social media tends to "push our collective buttons" emotionally. And that issue of trying to keep my objective mind as separate as possible from my emotions I find increasingly challenging in today's world, where seemingly the collective "truths we hold self-evident" are under assault.

What Department of Defense leaders in recent months have made clear is their focus on getting the joint force's attention on a range of issues that causes concern about whether those in service

to our nation are fully committed to supporting and defending the Constitution. As events on January 6, 2021, seem to show, some Americans have a very different interpretation of how our government should work than what was considered the "norm" in the past. And those serving in the military need to have a clear understanding of their relationship to the Constitution, the chain of command, and the people they serve both in and outside of the military. The moment that becomes unclear in the mind of an oath-sworn person (military, civilian, any rank), then bad things happen. If you have served long enough, you have seen what unacceptable behavior looks like. The question, often asked repeatedly, is "what might you do to stop it?" And yes, any problem with good order and discipline is everyone's problem.

The joint force not only reflects the society it comes from and serves, but it must also demonstrate a certain discipline that honors the rule of law and the norms of behavior necessary to control the awesome power our military is charged with. To allow any kind of behavior outside the norm results in events that we all can identify as immoral and detrimental to the mission of the joint force, from assaults and violent crimes in the barracks and on our bases throughout the world to criminal acts on the battlefield. How those of us in positions of leadership—from the tactical to the Secretary—respond, starting with increasing our situational awareness of these problems and our collective responsibilities to appropriately deal with them, is what will show whether we deserve to be called to serve as leaders. That is my take. Please let us know what you think.

This issue's Forum offers three articles to help you explore and rediscover the dimensions of conflict today. When was the last time you worried about your communication links being jammed by the enemy—or experienced it? Scott Pence suggests that the joint force needs to organize, train, and equip for operating in a more contested environment, where taking modern communications for granted makes warfighters vulnerable both physically and mentally. Related

to communications vulnerabilities, Matthew Prescott has a number of solid suggestions on improvements to the joint force's battle rhythm that drives decisionmaking and force operations. Seeing opportunities to update how the joint force influences potential conflict development, Kyle Wolfley believes shaping operations as critical to success.

JPME Today first offers you an article by Anand Toprani, a longtime CJCS and SECDEF Essay Competition judge and Naval War College professor, who examines the relationship between state power and the resources that fuel our machines. For years, the Defense Department has tried to stress the need for expanded language capabilities across the joint force. Our medical forces team of Douglas Robb, Brian Neese, and Cara Aghajanian shows us how their partners have worked hard to solve the perennial deficient between language requirements and capabilities.

Our Commentary section focuses on another place not necessarily in the middle of the Great Power competition ring. Forcing us to look back to the ancients, Joseph Rudolphi suggests we can find much to consider in how we might approach the concept of enemy retreat and desertion in the future.

We have a wide range of topics in our Features section this issue that I think you will find interesting. Looking to the recent shift in global joint integration, Francis Park offers suggestions on how to maximize the positive results from exercises and experimentation. Continuing our discussions on the medical side of the joint force, James Chambers lays out some important concepts for successful leadership in the increasingly expeditionary world of military medicine. Brent Sadler, a returning alumnus of *JFQ*, draws on history to write us a cautionary piece to help identify avoidable confrontations, and with the Taiwan Straits increasingly in our collective focus, Brent is on to something important. Recent remarks by Secretary of Defense Lloyd J. Austin III and others on updating our views on integrating older strategies and theories into the current environment make Mark Montgomery and Erica

Borghard's article relating cyber issues to strategic deterrence very timely.

Rounding out this issue in Recall, another *JFQ* alumnus, Kevin Stringer, takes us back to World War II to relate Dutch and U.S. military support to local resistance movements to see what we might find useful today and beyond. Plus, you will find four engaging book reviews and the Joint Doctrine Update to further engage your thinking about the challenges today and ahead. As always, we look forward to hearing from you about what you think we need to do in the years ahead. **JFQ**

WILLIAM T. ELIASON
Editor in Chief

U.S. Marine with Marine Air Control Squadron 1, Marine Air Control Group 38, 3rd Marine Aircraft Wing, assembles communication device during Exercise Summer Fury 20, at Naval Air Weapons Station China Lake, California, July 31, 2020 (U.S. Marine Corps/Juan Anaya)

Fighting as Intended
The Case for Austere Communications

By Scott Pence

It is a law of war: The greater the dependency on a capability, the higher the payoff to an enemy who can lessen its utility, in effect turning our strength into a weakness.

—COLIN GRAY

Modern command and control (C2) systems depend on connectivity to collect information, issue orders, detect changes in the environment, and exploit successes. While the United States focused on counterinsurgencies in Iraq and Afghanistan, competitors invested in technologies that can neutralize that connectivity.

In a conflict, adversaries can distort the reliability of data and degrade U.S. technological dominance. If they succeed in causing degraded operations, adversaries gain a temporary window of superiority that they can develop into a permanent relative advantage.[1] This article offers an overview of threat capabilities juxtaposed with current

U.S. joint vulnerability and offers recommendations to reduce risk.

The current suite of digital communications is more advanced and connected than ever before. Investments in network-centric warfare ballooned to the point that all echelons of war, from squad to corps, now possess C2 systems inextricably tied to the space satellite infrastructure and its associated electromagnetic spectrum (EMS) linkages. U.S. C2 systems expedite lethal fire missions from ground, maritime, and air assets;

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enable communications with subordinates to adjust plans and reallocate resources; and integrate intelligence from unlimited sources.

The use of these systems in permissive communications environments obscured their inherent fragility. The 1991 Gulf War highlighted a position of information dominance. When Baghdad fell in 2003 after merely 3 weeks, the commander of Coalition Forces, General Tommy Franks, noted, "The experience was nothing short of religious. I've died and gone to heaven and seen the first bit of network-centric warfare at work!"[2] For a generation, no conventional enemy or violent extremist organization contested U.S. dominance in EMS or threatened the tenuous links to space. Decades of experience in permissive communications environments lulled leaders into thinking perfect situational awareness is a reasonable expectation. It is not. Fog, friction, and uncertainty are intractable features of armed conflict.[3] At the March 2021 Future of Defense Summit, Air Force Chief of Staff General Charles Brown noted, "You can either have information overload or information that is not necessarily clear, or it could be deceptive."[4] An overflow of information is indeed a challenge for today's commanders.

Current C2 systems depend on multiple linkages, and each one is susceptible to enemy disruption. Linkages include the physical network layer (satellites, cables, radio frequencies, routers, switches, and computers), the logical network layer (Web sites and logical programming in cyberspace), and the cyber-persona layer (the digital representation of an individual or entity, email addresses, Internet protocol addresses, and mobile device numbers).[5] Even among the highly digital joint force, the Army depends on space capabilities more than any other Service.[6] Therefore, if an enemy force could deny the reliability and effectiveness of the systems, the disruption would disproportionally affect Army forces.

Known Competitor Capabilities

In 2005, Russian military theorists Makhmut Gareev and Vladimir Slipchenko wrote about the dangers of "non-contact" warfare. They were concerned with the effectiveness of U.S. operations in the Gulf War and later in Serbia: "These wars confirmed [our] hypotheses regarding where we were heading. . . . [The United States] and several NATO [North Atlantic Treaty Organization] countries are moving to a new generation of warfare, the remote, non-contact generation. . . . Those are the types of wars for which Russia must prepare."[7] Gareev and Slipchenko's book, *Future War*, foreshadowed a series of reforms to counter advanced Western technological capabilities. Since then, Russia has invested in cyber warfare, electronic warfare (EW), disinformation campaigns, and the synchronization of each with the others to create lethal strikes.

Chinese doctrine, meanwhile, describes *information warfare* (a combination of electronic warfare and cyberspace operations) as the preeminent form of warfare and explicitly focuses on neutralizing U.S. C2 systems. The 2013 strategy document of the Chinese People's Liberation Army (PLA) stated:

The side holding network warfare superiority can adopt network warfare to cause dysfunction in the adversary's command system, loss of control over his operational forces and activities, and incapacitation or failure of weapons and equipment—and thus seize the initiative within military confrontation, and create the conditions for . . . gaining ultimate victory in war.[8]

A 2015 RAND study reported that the aim of PLA cyber war "is to create information superiority on the traditional battlefield by controlling the flow of information available to the enemy."[9]

Antispace

In 2016, Lieutenant General David Buck, the commander of 14th Air Force, stated, "There isn't a single aspect of our space architecture that isn't at risk."[10] At the time, 14th Air Force was the Service component of U.S. Strategic Command for space operations. Published in 2018, Joint Publication 3-14, *Space Operations*, notes:

Our adversaries' progress in space technology not only threatens the space environment and our space assets but could [also] potentially deny us an advantage if we lose space superiority. . . . Ground segment assets such as C2 facilities are vulnerable to physical attack and cyberspace attack. The space segment may be vulnerable to attacks from [antisatellite] weapons, exoatmospheric nuclear detonations, directed energy weapons, and interference from laser blinding.[11]

These statements and documents are representative of the consensus among security professionals that current global competitors possess potent antispace capabilities.

A direct ascent antisatellite missile, like the one China tested against its own satellite in 2007, is a possible measure; however, the impact and concomitant debris would have adverse impacts on all countries with space assets.[12] More than a decade after China's antisatellite weapon test, approximately 3,000 pieces of debris remain in space. Satellite operators, therefore, have to conduct collision-avoidance maneuvers any time the orbits transit that debris field. Besides creating space debris, any action that physically destroys a satellite alerts U.S. Strategic Command because satellites perform an important missile detection function, so physical destruction poses serious escalation risks to adversaries. Therefore, kinetic satellite destruction carries high costs for states that depend on the global economy. For rogue states or certain nonstate actors, however, catastrophic global disruption could be the objective.

A much more likely method to deny U.S. network advantages is an electromagnetic attack to jam, monitor, or deceive satellite signals. Both Russia and China optimized their EW enterprise for monitoring, jamming, and deceiving U.S. space-reliant devices.[13] Space capabilities depend on the space segment, link segment, and ground segment. Of the three, the link and ground segments are most vulnerable to EW assets.

Meanwhile, natural events could nullify modern C2 systems without human involvement. Space infrastructure

depends on inherently fragile links in an unforgiving environment, and periodic geomagnetic storms can disrupt a wide range of electronic devices. The Carrington Event of 1859 was a geomagnetic storm that caused telegraph communications around the world to fail. Telegraph operators reported sparks discharging from telegraph machines, shocking the operators, and setting fire to nearby paper. A 2008 National Research Council report noted that a similar event would disable power grids, satellites, and the Global Positioning System (GPS)—and cost over $1 trillion.[14] Whether by human intent or by celestial accident, current mission command capabilities could be denied.[15]

Electronic Warfare

Russia's 2008 incursion into Georgia combined cyber warfare with air and ground maneuver. In the aftermath of the Russo-Georgian conflict, the Russian Federation invested in new EW systems and adapted doctrine, organizations, materiel, and training. The result is a highly capable force integrated into Russian ground forces and equipped with the latest electronic intelligence and jamming systems.[16]

Six years later, the 2014 Russian support to separatists in the Donbas region of Ukraine demonstrated the lethal synchronization of Russian disinformation, cyber warfare, space disruption, EMS dominance, and artillery. The Russians pinpointed Ukrainian positions via the Borisoglebsk-2, a multipurpose EW platform that geolocates, jams, monitors, and even deceives radio and GPS receivers. During the one-sided Battle of Zelenopillya, Russian armed forces electronically geolocated the 79th Ukrainian Airmobile Brigade, confirmed it optically with unmanned aerial systems, and destroyed two Ukrainian mechanized battalions within 30 minutes with a high volume of unguided rockets.[17]

The former commander of U.S. Army Europe, Lieutenant General Benjamin Hodges, noted, "The [Russian] electronic warfare capability—that's something we never had to worry about in Afghanistan and Iraq. . . . You cannot speak on a radio or any device that's not secure because it's going to be jammed or intercepted or worse. It's going to be found, and then it's going to be hit."[18] The 2016 book *The Russian Way of War* catalogs the proliferation of Russian EW organizations, increasing in sophistication from platoon to brigade levels.[19] These EW capabilities have the potential to have cross-domain effects, influencing ground, air, maritime, space, and cyberspace operations.

On the highest end of threats to the EMS is a nuclear high-altitude electromagnetic pulse (HEMP). Each nuclear power has the capability to utilize a HEMP to disrupt all advanced electronic devices within a variable radius. For obvious reasons, HEMPs have not been extensively tested and much of the literature is classified. What is known from Cold War experiments in the 1960s is that any electronic devices exposed become vulnerable to a burst of gamma and X-rays that cause instant damage.[20] When detonated over a city, the collateral damage to the food supply, power generation, and water access would be devastating. If detonated over a remote region, however, a HEMP could deny electronics from facilitating C2 without loss of life. This creates an incredible risk to mission but limited risk to force, as the HEMP destroys electronics but is of little danger to humans. For this reason, the probability of a nuclear-armed power employing a HEMP in a remote operational area is moderate because it could be seen as a reasonable, minimal casualty-producing action that could deescalate a conflict (or neutralize the C2 of Western forces attempting a counteroffensive). The U.S. joint force, dependent on higher end technology for C2, would find itself blinded and deafened in the HEMP area of operations. In response, the U.S. military must consider C2 methods that are either hardened to withstand the effects of a HEMP or are inherently not reliant on the EMS.[21]

Cyber Warfare

The cyberspace domain is vulnerable due to ease of access, network and software complexity, rogue users, and inherent security design flaws. A single experienced hacker can neutralize an entire network. Effects generated in the cyberspace domain can have significant impacts on the physical domains. These vulnerabilities require continuous and active risk reduction measures.[22]

Russia's 2007 cyber attack on Estonia demonstrated a single-domain attack on a sovereign state's cyberspace. The attack incorporated a distributed denial-of-service attack and debilitated government offices, schools, banks, and hospitals. Since this attack, cyberspace attacks in Georgia, Ukraine, and even the 2016 U.S. Presidential election have been attributed to Russian hackers.[23] These hackers launched a cyber attack on Ukrainian naval headquarters just prior to the 2018 Kerch Strait incident (the seizure of Ukrainian ships on the Sea of Azov). This synchronization of state-sponsored entities and military planning shows the cyber capabilities that the Russian Federation can employ in any military conflict.[24]

China possesses an array of tactical cyberspace capabilities. Recent military reforms integrated China's space, EW, and cyber forces, uniting them under a single command and streamlining their operations for maximum effectiveness. Chinese cyber operations are known for industrial espionage, theft of intellectual property, and breaches into classified U.S. military networks. A 2013 report confirmed that Chinese military hackers were involved in corporate cyber espionage.[25] Thus, Chinese military cyber operations are actively practicing advanced skills in cyberspace through illicit operations that can be militarized in a period of armed conflict.[26]

This cyber warfare capability, practiced by Great Power competitors, can be used in conjunction with antispace and EW capabilities to blind and deafen opponents during armed conflict. To achieve communications denial, the adversary can use all its tools at once or apply them sequentially until they achieve the desired effect. An adversary can apply modest cyber warfare tools like militarized ransomware, distributed denial-of-service attacks, and other tools to

Falcon 9 rocket carrying SpaceX's Starlink L23 payload launches from Cape Canaveral Space Force Station, Florida, April 7, 2021, propelling 60 Internet satellites into space (U.S. Air Force/James Hodgman)

Enemy Virus Infects
U.S. Computers

Troll Farm Fools
Commander into
Committing Reserve

Satellite
Communications
Monitored

GPS Spoofed —
Leads Unit into Ambush

Deepfake Video Fools
Division Commander —
Thousands Lost

U.S. Denies
Communication to
Prevent Further
Confusion

Rare Weather
Disables
Communications

Low Road
Minimum Resources

Satellite
Communications
Jammed

Mass Jamming
(FM/GPS/Radio/Internet)

Disable Local
Power Grid

Enemy Cuts
Undersea Cables

Enemy Denies
Communication to Prevent
U.S. Information Dominance

Rogue Actor
Disables
Communications

D.D.O.S. Attack
on Network

Antisatellite Missiles
Destroy Overhead
Surveillance

EMP Launched — Destroys
U.S. Technical Equipment

Subsequent
EMPs Destroy
U.S. Redundant Systems

gain access to C2 systems via cyberspace, then progress to unit radios through online routing software. Then an adversary could send viruses via cyberspace to neutralize the connectivity to space assets. Or an adversary could start with a HEMP burst, judge the effects of electronic damage, and use cyberspace and antisatellite tools to complete the communications denial. A sequential method is the most logical because each additional action exposes ostensibly secret adversary capabilities. Alternatively, the adversary could use all capabilities at once to maximize the odds of degrading an opponent's ability to use C2 forces in any coherent manner. The next section postulates how this phenomenon might appear in a future conflict.

Blackout: The Communications-Denied Operational Environment

Competitor states with sophisticated capabilities can create specific zones of communications denial. This militarized blackout condition is a communications-denied operational environment (CDOE).[27] It is an operational blackout that prevents C2 of military forces via space, the EMS, or cyberspace. Within these zones, enemy forces could disrupt, deny, and deceive all communications to the degree that the equipment is

unreliable, inoperative, or immediately targetable by enemy destructive effects. When operating in that environment, the U.S. joint force would be vulnerable to tactical disinformation. Adversaries can create a CDOE as an offensive measure in support of their conventional forces or as a defensive tool to stymie an advancing force. Adversary operations will attack C2 systems in the cyberspace domain and the EMS concurrently with attacks on links to space assets. Meanwhile, adversaries could employ their well-honed social and news media disinformation campaigns against joint force headquarters to embarrass and insert doubt into the international narrative. This possibility is particularly salient in adversaries' near-abroad, where their antispace, electronic warfare, and information warfare can synchronize their operations with nearby ground, maritime, and air units.[28]

None of this comes as a surprise to national security professionals; Russian and Chinese investments in niche capabilities are well known and well published in professional journals and national media. Throughout the Department of Defense (DOD), there is widespread appreciation of the current threat to modern C2 systems. U.S. strategic documents highlight the urgency of defending against

the advanced capabilities of near-peer competitors.[29]

The figure visualizes the high likelihood of a CDOE and threats to the joint all-domain command and control (JADC2).[30] An adversary can take the high road, which is expensive and resource-heavy, and confuse U.S. forces effectively enough that the United States decides to disable advanced communications to prevent being baited into fratricide and civilian casualties. Alternatively, the adversary can use less expensive existing resources to destroy satellites and advanced equipment by resorting to blunt force (antisatellite missiles, high-altitude electromagnetic pulses, and submarines cutting undersea cables). Meanwhile, the less likely possibility of a rare weather effect or a rogue actor could destroy space infrastructure at any time, leaving relative advantage to the side that is most prepared to operate with austere communication methods.

The Challenges of Fighting Degraded

For commanders and staffs accustomed to accurate situational awareness, the sudden absence of space-enabled imagery, EMS-enabled unmanned aerial systems, and cyber-enabled processes and communication can have a

Sailors conduct preflight checks on E-2C Hawkeye assigned to "Liberty Bells" of Airborne Command and Control Squadron 115 aboard aircraft carrier USS *Theodore Roosevelt*, January 30, 2021, Pacific Ocean (U.S. Navy/Zachary Wheeler)

debilitative effect. Even if the staff had anticipated communications denial and maintained accurate maps and tracking systems, the change from digital fire missions, friendly force tracking, orders dissemination, and intelligence updates to an alternate system would fundamentally uproot the standard operating procedures of the headquarters. Given the best of circumstances and a well-trained organization, the changes require time to adjust, creating a window of opportunity for an adversary to exploit.

Most concerning, information collection and target development are the capabilities most at risk in a CDOE. While some fourth- and fifth-generation aircraft retain capabilities in space-denied conditions, U.S. ground headquarters depend mostly on assets that rely on GPS and satellite communications capabilities. Within a CDOE, manned ground and air reconnaissance forces are critical to observe named areas of interest in support of information collection plans. These forces currently do not exist as formations at the corps and division levels.[31] Meanwhile, information

collection processes, analysis, processing, exploitation, and dissemination all require training, standard operating procedures, and organizations that can make sense of the reporting from multiple manned reconnaissance elements. This is a paradigm change from current operations. Manned reconnaissance, on the other hand, depends on human reporting (verbal or written) and relies on the expertise (and cognitive biases) of the reconnaissance scouts. Interpreting information from human sources requires completely different information collection procedures, reporting standards, and intelligence collection matrices that, until trained and rehearsed, will not enable an accurate situational awareness of the operational environment. Fighting with degraded systems, with current organizations that lack manned reconnaissance and security forces at the division or corps level, invites operational surprise.

Recommendations

This article identifies three lines of effort to hedge the joint force against operational surprise:

- continue investments in hardening and countermeasures
- adapt organizations to thrive in CDOEs
- diversify acquisitions with "low-tech" equipment.

Each of these options can be scaled, none is mutually exclusive from another, and prioritization of one or more of them enhances readiness.

Continue Investments in Hardening and Countermeasures. The fiscal year 2020 DOD budget request contained the most substantial investments in research and development request in 70 years, mainly focused on technology.[32] A few of these investments specifically address the vulnerable space, EMS, and cyberspace capabilities of U.S. competitors.[33] DOD requested $1.1 billion to reduce risk to satellite communications jamming, $2.6 billion for cyber operations training, and $5.4 billion to support cybersecurity capabilities.[34] U.S. Army Chief of Staff James McConville noted, "I think what we are trying to do with the Joint All-Domain Command and

Airman uses software to identify interference to specific satellite at Schriever Air Force Base, Colorado, December 16, 2019 (U.S. Air Force/Jonathan Whitely)

Control approach is recognizing that everything we do in the future, we are going to fight jointly." JADC2 will allow the Army to "use all the sensors on the battlefield and get them using technology to get the information to the right shooter," he further explained.[35] These critical investments represent the U.S. Government's commitment to technological dominance.

In the absence of war, advanced C2 systems might appear robust, but warfare exploits every vulnerability. In large-scale combat operations against near-peer adversaries, every technological advance will be met with a countermeasure. Military theorist Edward Luttwak noted that, paradoxically, the best counter to an adversary's strength is not to strengthen the same aspect of one's own forces. He noted, "In the ebb and flow of reciprocal development, the same device could be highly effective when originally introduced, then totally useless, and finally positively dangerous, and all within a

matter of months."[36] During World War II, the British fitted rearward-looking radars to their bombers to warn that fighters were nearby. These saved lives initially, but then the Germans developed a system that honed onto them and pinpointed the bombers at night. This made the rearward-looking radars worse than useless; they were a direct danger if used. Luttwak went on to explain, "As soon as a significant innovation appears on the scene, efforts will be made to circumvent it—hence the virtue of . . . suboptimal but more resilient solutions."[37] Investments in new and better technology are necessary but cannot guarantee a relative advantage.

Furthermore, technological investments are costly to create and to maintain. As anyone who has worked in the "blocks" section of a child daycare knows, it is much easier to destroy than to create or maintain. Systems depending on redundancy for risk mitigation can be parried by repeated destruction.

Therefore, any robust solution must be able to withstand simple destruction by known adversary capabilities.

Adapt Organizations to Thrive in CDOEs. In addition to continued investments in advanced technology, the U.S. military could adapt specific units to accomplish missions with systems that do not depend on space, the EMS, and cyberspace. Given known capabilities, operations within the near-abroad of any current competitor present a significant challenge with existing forces—their antispace, EW, and cyberspace capabilities can neutralize U.S. C2 systems indefinitely. Strategist Everett Dolman wrote, "It is the height of folly for a commander to rely on a capacity that may or may not be available when needed."[38] Therefore, remove the systems from specialized units and man, train, and equip them for mission accomplishment in CDOEs.

By adapting a portion of the joint force to operate without dependence on known C2 vulnerabilities, DOD

could hedge against a likely operational environment—one in which modern communications are denied in whole or in part. And these forces, optimized for operations within an enemy's antiaccess/area-denial (A2/AD) area, could accomplish missions that set conditions for joint all domain operations.[39]

To resolve current shortfalls, organizational adaptations should reduce features with known vulnerabilities (space, EMS, and cyber-reliant C2 systems) and add features that would enhance operations in a CDOE. Changes should retain (or improve) lethality and maneuverability while reducing the electromagnetic signature of the organization. An increase in headquarters personnel for battle tracking and courier operations, for example, could be paired with the reduction in computer network personnel. With a focus on enhancing capability and reducing exposure, leaders could optimize a unit capable of sustained mission accomplishment within a CDOE.

This is not as simple as just taking the vulnerable C2 systems out of formations; the manning, training, and equipment all require integration. The Army's multidomain concept requires "formations that have systems, leaders, and Soldiers that are durable, can operate in a highly contested operational environment, cannot easily be isolated from the rest of the joint force or from partners, and can conduct independent maneuver and employ cross-domain fires."[40] A specialized force, without vulnerable dependencies on satellite, cyber, and the EMS, would begin preparations for the mission using austere tools optimized for mission accomplishment within CDOEs. Maneuvering with minimal EMS emissions, they would frustrate the enemy's preferred methods of detection and approach the threat systems that created the CDOE. The specialized force would use volumes of firepower and maneuver to dis-integrate the enemy's A2/AD assets and deny the ability to sustain the CDOE. Once the operational blackout lifts, follow-on forces with the latest and most efficient suites of C2 systems would arrive to consolidate gains and exploit success with the full convergence of joint force

capabilities.[41] In this way, less connected forces facilitate the entry of the most connected forces to positions of advantage.

Diversify Acquisitions with "Low-Tech" Equipment. Eliminating the reliance on space, the EMS, and cyber does not mean the United States needs to revert to telegraphs and smoke signals for communication. Diverse equipment increases the dilemmas a potential adversary must address. While it is convenient for acquisitions and budget professionals to populate units with like equipment, a homogenous force also enables the threat to focus on a predictable set of targets.

Considerations for material decisions include legacy equipment, complementary equipment, alternative technology, and dual-use acquisition mandates. Legacy equipment includes materiel solutions that no longer reside in U.S. military inventories. Units need communication wire, fiber optic cable, and tactical phones to communicate in assembly areas without transmitting over the EMS. Manual signal operating instruction systems enable operational, secure message exchanges. Light mobility vehicles, rugged 4x4s, and militarized motorcycles can allow effective courier operations for mission orders and information management.

Complementary equipment includes advanced camouflage and decoy systems. These capabilities are expensive to field to the entire force but would add protection in a CDOE. Modern camouflage has varied thermal panels and location-specific color patterns that offer advanced protection from observation by thermal and optical sights. Electronic decoys and EMS-emitting devices that give false targets for adversaries to target enhance a unit's protection plan. Modern EMS-emitting decoys could broadcast headquarters radio and satellite communications signals from a location separate from actual forces, make one headquarters look like many headquarters, or purposely broadcast deception narratives.

Alternative technologies could exploit modern advancements while avoiding an overreliance on space-, EMS-, and cyber-space-based systems. Integrated tactical networks, which create pseudo-cellular

networks with military devices, can provide encrypted communications without betraying locational data.[42] A CDOE-optimized force could use a mixture of austere and modern advanced systems to accomplish missions and provide heterogeneous capabilities to the joint force.

When it comes to partner-nation interoperability, low-tech can result in big gains. The U.S. joint force, with its highly specialized communications platforms, struggles to communicate with international partners. Both the European and Indo-Pacific combatant commands list interoperability as a critical challenge to overcome with partnered units. In Europe, NATO standards allow communications across cyber channels and along the EMS. However, few nations have advanced compatible systems that can communicate with those of the United States. The scale of challenges increases every time the United States issues more advanced technology to its forces. By diversifying C2 technology with less advanced systems, the capacity for interoperability increases.

Positive developments exist in every Service, as leaders reconsider the tactics, techniques, and procedures that worked in a period of information dominance but are uncertain in large-scale combat against a near-peer. The U.S. Air Force Pacific's plan for agile combat employment innovations can provide multiple dilemmas to adversaries.[43] The U.S. Naval Academy in 2016 reinstituted celestial navigation into its navigation curriculum.[44] And the U.S. Space Force deployed ground-based counter-satellite communications stations in 2020.[45]

Conclusion

Because operations in CDOEs are so likely, the joint force requires alternative means to gain access, accomplish missions, and enable all-domain operations within them. As long as competitors possess capabilities that can significantly affect joint operations, the joint force has a responsibility to develop solutions to ensure the accomplishment of missions. And those innovative solutions need not always be new and better technology.

Airman with 379th Expeditionary Operations Support Squadron Silent Sentry adjusts antenna to maximize signal strength from orbiting satellite, May 27, 2015, at Al Udeid Air Base, Qatar (U.S. Air Force/Alexandre Montes)

This article contributes to the body of work on avoiding defeat in the first battle of the next war. The first battle of Savo Island, August 1942, was a tragic failure. The U.S. Navy lost multiple ships and over 1,000 Sailors. Historian Robert Frank noted:

The Navy was still obsessed with a strong feeling of technical and mental superiority over the enemy. In spite of ample evidence of enemy capabilities, most of our officers and men despised the Japanese and felt themselves sure victors in all encounters under any circumstances. The net result of all this was a fatal lethargy of mind which induced a confidence without readiness.[46]

Decades of technological superiority biased our senior leaders with false confidence in modern C2 systems. To avoid accusations of a "fatal lethargy of mind" on the next generation, military professionals should recognize their hubristic biases toward technological solutions. With forces capable of accomplishing missions as intended, not degraded, in communications-denied environments, the U.S. military gains a strength, not a liability. **JFQ**

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Improving the Battle Rhythm to Operate at the Speed of Relevance

By Matthew Prescott

The art and science of decision-making begin with the establishment of an effective, efficient, and agile battle rhythm. Combat and stability operations throughout the past 20 years have enabled commanders and staffs to execute real-world operations based on established battle rhythms. Unfortunately, current operational-level exercises to evaluate joint force commands and their components in the U.S. Armed Forces and the North Atlantic Treaty Organization increasingly observe battle rhythms that do not effectively provide the commander and subordinates with timely information to make decisions.[1] Furthermore, our current joint force battle rhythm design involving numerous briefings, working groups, and boards does not provide the commander with timely analysis and recommendations given the speed and frequency of high-intensity operations. This article is intended for the commander or staff officer who has ever felt the pressure of a compacted battle rhythm and is interested in understanding why and how the battle rhythm is designed to drive the commander's decisionmaking process.

Personal observations from operational-level exercises, best practice reports from the Joint Staff J7, and lessons learned from the Joint Lessons

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Learned Information System reveal that many units enter exercises with fixed battle rhythms that fail to adapt to the complexities of modern warfare.[2] These scheduled battle rhythm events then feed into command-level boards—principally, a coordination and assessment board. However, high-intensity operations are not routine, and many observed headquarters do not account for the speed and frequency of enemy actions and changes in the operational environment (OE). During high-intensity operations, a flexible and agile battle rhythm is required to provide the commander with the best situational understanding of the OE and recommendations from the staff and subordinate commanders to support robust decisionmaking. If a headquarters' battle rhythm does not account for this type of conflict, multiple dilemmas can arise, such as an adversary maintaining the initiative, the commander's decisionmaking cycle remaining ahead of the staff's, or planning from subordinate and component commands outpacing their higher headquarters due to a lack of responsiveness. This article addresses this problem and recommends several ways to adjust the battle rhythm when a joint headquarters operates in high-intensity operations.

The Battle Rhythm

A *battle rhythm* is a deliberate cycle of command, staff, and unit activities intended to synchronize current and future operations.[3] A command's battle rhythm consists of a cyclic series of meetings (including working groups and boards), briefings, and other activities synchronized by time and purpose.[4] Ideally, the battle rhythms of all headquarters in the chain of command are nested within one another so that outputs of one meeting are available as inputs to higher or lower echelons. Inputs and outputs should logically support each other and decision requirements. A unit's battle rhythm manages the most important resource within the headquarters: the *time* of the commander and staff.[5] Regardless of the battle rhythm design, it must be developed to directly support the

commander's ability to make timely, well-informed decisions and to execute effective mission command.

Daily battle rhythm events traditionally consist of a morning and evening command-level update brief, joint effects and targeting meetings, and synchronization meetings among the joint functions to enable executable planned operations.[6] In low-intensity operations, where actions and effects take place at a slower rate, the battle rhythm may be more deliberate, with daily, weekly, and monthly working groups and boards. While the battle rhythm establishes a routine for a headquarters, the unit's battle rhythm is not fixed; commanders modify it as the situation evolves. In other words, the battle rhythm is the heartbeat of the headquarters and can speed up or slow down depending on the activity within the environment.

Left unchecked, a headquarters staff can determine multiple additional meetings that might be productive but not necessarily required to feed directly into the commander's decisionmaking process. These additional meetings should be avoided. If they persist, they inherently lead to time wasted and jam-packed days with the command group, staff principals, and action officers running to meetings throughout the day rather than conducting productive staff work. The desired coordination and staff interaction provided by these additional meetings is better solved by staff interface and collaboration during high-intensity operations. Furthermore, the negative impacts of a compacted battle rhythm go beyond a single unit echelon and affect subordinate units' ability to operate efficiently within a timely orders process. Failing to adhere to a disciplined battle rhythm results in everyone working harder, longer, and less effectively.[7]

Command-Level Update Briefs, Boards, and Working Groups

Daily update briefs provide analysis to the commander on information requirements within the short-term planning horizon. Typically, two command-level update briefs are held each day, with one briefing internal to the

headquarters and one with subordinate and component commands providing short-term horizon analysis and recommendations. The briefing is intended to be short, informative, and selective. A commander does not traditionally make decisions during these briefings but rather gains a current understanding of the OE. This does not preclude, however, the commander from issuing direction and guidance (D&G) for required adjustments within this planning horizon.

Commanders or headquarters establish boards, working groups, and planning teams to coordinate actions and solve problems. The primary difference between boards and working groups is the level of authority granted by the commander during these events. Commanders chair boards or grant decisionmaking authority to senior staff leaders within a specific functional area. Working groups coordinate action and develop recommendations for approval by the commander during a board. The number, type, composition, and frequency of boards, working groups, and planning efforts depend on the type of unit, echelon, and operation. This coordination is traditionally managed by the chief of staff. While some boards and working groups, such as the Information Operations Working Group, the Resource Coordination Board, and the Joint Targeting Coordination Board, are required regardless of the situation, others should be run only as the situation dictates. The challenge is to identify, based on the tempo of the conflict, which meetings are needed.

A board is a grouping of predetermined staff representatives with delegated decision authority for a particular purpose or function. There are two types of boards: command and functional. The command board's purpose is to gain guidance or a decision from the commander. The two principal command boards at the joint level are the Joint Coordination Board (JCB) and the Assessment Board (AB) and traditionally happen at different ends of a battle rhythm cycle. Decisions made from these command boards focus future effects,

actions, and assessment analysis across the joint force command.

The JCB, sometimes called the Commander's Decision Board, is the commander's principal decisionmaking meeting and traditionally occurs at the end of a battle rhythm cycle. Its aim is to direct future joint action, synchronize resources, issue command-level guidance across the echelons, and resolve disputes across the joint force. The JCB is an exhaustive review, covering the overall execution of the campaign. Analysis and recommendations from the staff and components are presented during the JCB, and the commander makes decisions about follow-on actions or adjustments to the plan issued to subordinate commands via a fragmentary order. Outputs from the JCB refine products such as the commander's critical information requirements (CCIR), decision support matrices, requests to higher headquarters, targeting and the defended asset lists, and risk management worksheets. The conclusion of the JCB allows the transition into the next battle rhythm cycle, beginning with the AB and follow-on working groups and functional boards to support the next JCB. The minimum composition of the JCB is the joint force commander; the chief of staff; subordinate commanders (in person, by video teleconference, or represented by their senior liaison officers); the political, strategic communications, and legal advisors; the joint operations center director; and other individuals as required.

The AB is the second principal meeting for the commander and traditionally occurs at the beginning of a battle rhythm cycle. The AB primarily informs the commander if the operation is being conducted according to the plan and if the joint force is achieving desired results. Routinely the AB will recommend what effects or decisive conditions should be the focus for the upcoming battle rhythm cycle. This provides focus to the Joint Staff and subordinate commands. A typical agenda divides the operational assessment across three distinct planning horizons: short, mid, and long term. However, to make this command board as effective and concise as possible, the

operational assessment should focus only on the priority of analysis provided by the commander's D&G during the previous JCB. The desired output is to seek the commander's endorsement of the staff's operational assessment and recommended adjustments to the plan. A commander has the option to either make decisions during this board or wait to issue additional D&G at the next JCB. The desired composition of the AB mirrors the JCB.

Three Considerations for a Unit Battle Rhythm

Developing a battle rhythm is a top-down process, and a strategic-level headquarters must develop and implement its battle rhythm first and quickly to subordinate units. The aim of the higher headquarters battle rhythm is driven by the information necessary for military and political leaders to make decisions. Without these information requirements, driven by the higher headquarters, a subordinate unit or component command is unable to design its battle rhythm to answer these requirements and focus activities within the battle rhythm cycle to coordinate and assess its military actions.

An additional consideration within a command's battle rhythm is the targeting cycle that synchronizes effects and actions in all domains and component commands. Complementing the targeting cycle are the intelligence, surveillance, and reconnaissance (ISR) requirements to plan and execute joint effects. At the joint level, there are risks associated with accelerating the targeting cycle due to the required planning, ISR requirements, resource allocation, and target approval process that must be coordinated and synchronized prior to an operation taking place. The air tasking order is a good example of a cyclic process that sequences required resources to execute effects within a joint operation that has negative consequences if not synchronized properly or sped up.

The third consideration is a joint force commander's planning horizon focus. At the strategic and operational levels, the desired timing of an action drives the

orders process and, subsequently, a battle rhythm. These levels are responsible for shaping the environment for future tactical actions, which, if not properly timed and resourced, will prevent the joint force from executing orders successfully. Military and political considerations, particularly with sustainment, force protection, and civil-military cooperation, all require strategic- and operational-level involvement to shape the environment for tactical units. Shaping desired effects, sometimes known as *notice-to-effect*, takes time and even in high-intensity operations realistically cannot take place within 72 hours. Therefore, a 96- to 120-hour cyclic battle rhythm is appropriate to coordinate and assess the joint effects required to properly shape a high-intensity environment.

The Essence of Decisionmaking and Staying in Front of the Commander

In early 2018, former Chairman of the Joint Chiefs of Staff General Joseph Dunford stressed that leaders in the U.S. military "must be prepared to make decisions at the speed of relevance. . . . We must further develop leaders capable of thriving at the speed of war."[8] As the speed and complexity of war increase, the requirement for faster decisionmaking resides at every level of war and "is as applicable, and dangerous, to battlefield commanders as it is to strategic leaders."[9] In high-intensity operations, speed of action requires timely decisions and adjustments to the joint force plan. As mission command systems improve and information-gathering sources increase, a consistent challenge for a staff is determining the relevant information to analyze for decisionmaking. In contemporary military operations, Chairman of the Joint Chiefs of Staff General Mark Milley notes that "the sheer volume and speed of conflicting information can easily bring decisionmaking to a screeching halt."[10] Normally, proactive commanders do not like to wait for the staff to methodically develop and issue orders to lower echelons. In this environment, the commander often can get ahead of

Coast Guardsmen assigned to Tactical Law Enforcement Team 109, Cape Cod Maritime Safety Security Team, and Sailors assigned to Freedom-variant littoral combat ship USS *Sioux City* participate in noncompliant vessel pursuit tactics exercise in rigid-hull inflatable boat, April 1, 2021, Atlantic Ocean (U.S. Navy/Marianne Guemo)

the staff's decisionmaking cycle. This is not a poor reflection on the staff, but rather falls within the nature of the commander's desire to make timely decisions and execute effective mission command for subordinates.

In most cases, the commander will always have a better situational understanding than does the staff due to his or her experience, the numerous interactions he or she has had with the higher headquarters, and battlefield circulation with subordinate units. Over the course of these multiple higher and lower echelon engagements, a commander may receive new guidance or issue numerous new tasks to subordinate commands that the staff may not be aware of until the commander's return. Using modern command and control technology and available information systems should minimize the lag time between a commander directing subordinates and updating the staff. Once the staff is informed on the outputs of these engagements, it should immediately analyze the new information, update staff estimates, and ensure the entire headquarters is aware of new requirements.

Although the commander may desire to make an immediate decision, there

must be a balance between the effect the commander wants to achieve versus the relevance of that decision within a given time. Within complexity there is an art and science to decisionmaking. Simply acting faster than an adversary may not achieve the desired effect if there are gaps in the commander's situational understanding. Although warfare is arguably more complex today, historically the need to make high-quality decisions faster than an adversary was a fundamental tenet for success.[11] John Boyd, a U.S. fighter pilot during the Korean War, developed his OODA (observe-orient-decide-act) loop decisionmaking theory precisely to outthink an adversary. He believed that by *observing*, *orienting*, *deciding*, and *acting* faster, one can exploit opportunities to defeat an adversary, and this theory arguably applies to all levels of war.[12]

Boyd's theory has theoretical linkages with the purpose of designing a battle rhythm. But within a complex environment, Boyd's theory is effective only when the commander has a true understanding and perspective of what the enemy is doing and the cause and effect of those actions within the OE. Furthermore, if subordinate and component commands do not have

the capability to "act faster," based on resources, geography limitations, and competing tasks, then acceleration could increase the risk to one's force. When discussing opportunities and time-sensitive decisions, General Douglas MacArthur famously stated, "The history of failure in war can almost be summed up in two words: too late."[13]

Instilling the commander's true understanding should be the goal when developing the battle rhythm. Consistent gaps in a headquarters' understanding are indicators that its battle rhythm is not effective. Continuously updating staff estimates and enemy threat templates can assist the commander with understanding friendly and enemy capabilities, opportunities, and vulnerabilities. In addition, assessments that determine what the headquarters has learned from previous actions enable better judgment by the commander. Covering this relevant analysis during the daily update brief will increase the commander's understanding, enable better decisionmaking, and minimize risk.

One method by which the plans section can remain ahead of the commander's decisionmaking cycle is to use the commander's critical information

U.S. Army paratroopers assigned to 2nd Battalion, 503rd Parachute Infantry Regiment, 173rd Airborne Brigade, alongside French paratroopers from 8 Regiment Parachutiste D'Infanterie de Marine, 11 Brigade Parachutiste, conduct airborne assault onto Hohenburg Drop Zone as part of Exercise Rock Topside II, at Joint Multinational Readiness Center in Hohenfels, Germany, March 6, 2021 (U.S. Army/John Yountz)

requirements to anticipate future planning requirements and decisions. Ongoing CCIR and assumptions, analyzed and approved by the commander, should already have branch plans developed based on the likelihood they could happen. As the situation evolves in favor of or against the joint force command, a disciplined staff should anticipate future actions and decisions the command should make. CCIR and the decision support matrix both assist with this anticipation. To remain ahead of the commander's decisionmaking cycle and ensure that decisions flow seamlessly down through the echelons to remain at the speed of relevance, branch plans should include "draft" changes in task organization and in synchronization and troop-to-task matrices.[14] Once the situation dictates a decision by the commander, these prearranged planning products allow the staff to immediately finalize and issue the necessary orders to

any subordinate component commands and minimize the friction of a commander being ahead of his or her staff. Using unit liaison officers will assist in allowing parallel planning with subordinate commands to minimize the notice-to-effect lag time.

Three Recommendations for Improving the Battle Rhythm in High-Intensity Operations

Focus Command-Level Daily Update Briefs to Describe Only the Information a Commander Needs to Know Within the Short-Term Planning Horizon. A concise update brief will keep the commander's attention on providing D&G to assist the staff with making adjustments to the current plan. Every staff principal should not be required to brief if their analysis does not directly assist with the commander's understanding or assist in synchronizing the conduct of the operation. Blending current operational

assessments into the daily update briefings, while ensuring it is focused to answer command-level questions and understanding, will negate the need for short-term assessments during the AB.

Combine the JCB and AB. Although the JCB and AB have different purposes and take place at different times during a unit's battle rhythm, they fundamentally strive to provide the commander with analysis to understand the environment and make decisions. Since both boards require staff-wide collaboration to be effective, the Joint Coordination and Assessment boards should be combined to synthesize this analysis. If the AB explains what needs to be done and the JCB provides the commander with options detailing how it can be accomplished, then combining these two command boards saves time in producing orders and can reduce the battle rhythm cycle. To further streamline the analysis presented in the board, the operational

assessment portion should focus only on the commander's priority of analysis in the mid- to long-term planning horizon. Under this construct, the deputy chief of staff for operations or the J3 should lead this planning effort and direct the necessary working groups across the joint functions to achieve the needed inputs of this singular command board.

Build a Culture Across the Staff That Promotes Interface and Collaboration. To build this culture and minimize stovepiping, use effective collaboration methods rather than scheduled meetings to develop staff inputs. Decision support is enhanced when functional expertise from across the staff is brought together via cross-functional cells to enable unity of effort and direct support to the commander's decisionmaking cycle.[15] Effective cross-functional staff integration will minimize meetings and working groups within a command that do not feed directly into command-level boards. This recommendation can be achieved only if the command group makes this a priority and grants the necessary authorities for staff members to speak on behalf of their respective staff principal. One effective method to create this culture is by locating functional areas such as intelligence, operations, planning, sustainment, and assessments in close proximity to one another. Locating these groups in one area within the headquarters and not distinguishing them as separate staff sections with their own internal meetings should naturally build a cohesive relationship.

Conclusion

The current joint force battle rhythm design involving coordination and assessment boards does not provide the commander with timely analysis and recommendations given the speed and frequency of high-intensity operations. Current designs of battle rhythms involving numerous boards and supporting working groups are tailored to—and should be used only in—low-intensity operations, where changes to the environment occur at a much slower rate.

The strategic-level headquarters must define the character of a conflict

and quickly identify the military- and political-level information requirements while directly supporting the strategic commander's ability to make decisions and execute effective mission command. Therefore, a battle rhythm should be constructed on a hierarchical basis, by managing the time of the staff and commander to interact with higher and subordinate commands. Once complete, the operational-level headquarters can develop its battle rhythm to best answer information requirements and organize the cyclic events required to drive the conduct of operations.

Although not necessarily fixed, the chief of staff should be cautious about making any major alterations to the battle rhythm unless there are clear gaps in the headquarters' overall understanding of the OE. Two broad principles should apply when developing a unit's battle rhythm: It should not be a slave to the rate of information flow, and it should maintain a rate of effectiveness and efficiency that enables understanding across the headquarters and decisionmaking by the commander. It is the headquarters that controls the battle rhythm, not the battle rhythm that controls the headquarters. In high-intensity operations, the battle rhythm should remain adaptive based on the operational tempo and ensure it remains ahead of an adversary and, when possible, the commander's decisionmaking cycle. **JFQ**

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Battle Group Poland—multinational coalition of U.S., UK, Croatian, and Romanian soldiers who serve with Polish armed forces 15th Mechanized Brigade—performs winter live-fire training during Operation *Raider Lighting*, at Bemowo Piskie training area, Poland, January 16, 2019 (U.S. Army/Arturo Guzman)

Military Power Reimagined
The Rise and Future of Shaping

By Kyle J. Wolfley

The belief that the U.S. military finds itself in a "complex environment"—one in which conventional war is rare, but Great Power competition has returned, coupled with the persistent threat of violent nonstate actors—is so commonplace that it can now be considered a truism.[1] The United States, China, and Russia are engaged in a security competition below the threshold of open violence,

yet scholars and practitioners struggle to articulate how these states' militaries attempt to achieve their goals through ways other than warfighting or coercion. This article better conceptualizes a type of military operation that is often misunderstood and understudied and that has the potential to become one of the most frequent tools of interstate competition in the coming decades. This military power logic, known as

shaping, is a category of activity that entered the U.S. military lexicon in the mid-2000s amid a growing realization that nontraditional uses of force were necessary to manage new challenges. I define *shaping* as the use of military organizations to construct a more favorable environment through changing military relationships, the characteristics of partners, or the behavior of allies. There are four primary shaping logics: attraction to change international alignment; socialization to transform a partner's roles and practices; delegation to pass the burden of secu-

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rity; and assurance to reduce an ally's insecurity and manage its behavior. Militaries use shaping in an attempt to exert control over an ambiguous environment in which threats and allies are unclear. Through different activities, such as senior officer visits, exchanges, security assistance, forward presence, and certain types of military exercises, militaries employ shaping almost daily. However, shaping receives far less attention than warfighting, coercion, and other military activities that capture the conventional wisdom of what functions militaries perform. Although the term is used regularly to describe U.S. operations, our understanding of how other militaries use shaping is limited. This article explains the logic, traces the origins, and anticipates the future of this important type of military operation.[2]

Although warfighting and coercion theories are well established, the use of military organizations to construct a more favorable environment suffers from conceptual confusion as scholars and practitioners struggle to define these nonconventional activities. Over the past three decades, the U.S. military has applied various phrases and terms other than *shaping*, such as *military operations other than war*, *preventive defense*, *cooperative security*, *security cooperation*, and *military engagement*, to describe these missions, exposing its discomfort in trying to define these nontraditional tasks. Non-U.S. terminology also varies: British scholars and officers often use the terms *defense diplomacy* or *defense engagement* to describe these tasks;[3] Chinese doctrine and scholarship refer to them as *military diplomacy*;[4] and the Indian government defines them as *defense cooperation*.[5] Given the volume of inconsistent labels, this article makes the case that shaping best represents the overall purpose and logics of these operations, thereby attempting to systematize how we describe these nontraditional military activities.

The use of shaping operations increased substantially following the end of the Cold War, primarily through the U.S.-led North Atlantic Treaty Organization (NATO) Partnership for Peace program.[6] Recently, changes in power and technology have made shaping more attractive for emerging powers such as Russia and China. This is apparent in the expansion of multinational military exercises in two non-Western security organizations: the Collective Security Treaty Organization and the Shanghai Cooperation Organization.[7] The use of shaping by nondemocratic powers also suggests that this activity should not be synonymous with military-led democracy promotion, though the limited literature on shaping seems to imply this relationship.

Shaping is more subtle than overt, more building than breaking, more Sun Tzu than Carl von Clausewitz, and more soft than hard power, qualities that render shaping seductive to state leaders, especially given its underhanded nature and cost aversion. It is often difficult, however, to determine whether shaping is "working" or "successful"; its measures of effectiveness are often elusive.[8] Moreover, the logic of shaping risks being misperceived by adversaries and appearing threatening to their interests. Thus, the stakes of conceptual clarity are high: major powers are exercising shaping with increased regularity, but without a clearer understanding, practitioners (especially policymakers and commanders) risk misperception and misapplication of a prominent source of military power.

This article proceeds in four stages. The article first defines shaping by comparing the concept with other forms of military statecraft—namely, warfighting and coercion—and then offers examples of each shaping logic. Second, the article traces the evolution of shaping operations in U.S. strategy documents and military doctrine. Third, the article argues that, due to systemic forces—the high costs of interstate war, changes in the balance of power, and the consequences of modern globalization—shaping operations will become a more attractive tool to major powers for the foreseeable future. The article concludes by discussing the need for scholars and practitioners to study shaping in the future and for commanders to take the role of shaping in military statecraft more seriously.

Shaping and Other Tools of Military Statecraft

Statecraft involves the use of foreign policy tools to protect a state's interests, in particular national security. Scholars use various frameworks to differentiate among these instruments, but DIME (diplomacy, information, military, and economics) is the most prevalent today.[9] David Baldwin's seminal work on economic statecraft defines *military statecraft* as "influence attempts relying primarily on violence, weapons, or force," effectively capturing the conventional wisdom on the typical "ways" (concepts or logics) and "means" (resources) of military strategy.[10] Yet military statecraft involves far more than using tanks and aircraft carriers to deter and fight adversaries; shaping is key to understanding how militaries achieve their goals in other, cooperative ways.

For simplicity, the tools of military statecraft can be categorized into three overlapping categories: warfighting, coercing, and shaping.[11] *Warfighting* is the use of violence within military organizations to overcome an adversary and achieve a political objective. Clausewitz provides the hallmark definition, noting that the goal of war is to "compel an enemy to do our will" through physical force: In order to do so, an army must "render the enemy powerless."[12] The political goals of wars vary: Total wars demand unconditional surrender from the adversary, while others are more limited by territory, objectives, or types of weapons employed.[13] In U.S. military doctrine, warfare is divided into two major categories: *traditional* and *irregular*. When waging traditional interstate warfare, states use their lethal forces for conquest or protection—offensively or defensively.[14]

Coercing aims to convince an actor—be it state or nonstate—to do something it does not want to do by manipulating costs, benefits, and risks.[15] As opposed to what Thomas Schelling labeled "brute force" (that is, warfighting), military coercion is largely a state's threat of future pain, which can take the form of deterrence or compellence.[16] Deterrence is an attempt to convince an opponent,

Sailors assigned to *Arleigh Burke*–class guided-missile destroyer USS *Carney* pose for command photo during ship's port visit to Naval Station Souda Bay, Greece, November 8, 2018 (U.S. Navy/Ryan U. Kledzik)

through overt or implicit threats, that the costs of invasion—or another undesirable action—outweigh the benefits.[17] While the goal of deterrence is to maintain the status quo, coercers can also compel others to alter their behavior by threatening, demonstrating, or using limited force. Short of violence, states can mobilize troops to persuade an adversary to back down or employ a naval blockade to impose unacceptable costs and thus force a concession from the target. States may also apply selective violence through strategic bombing to deny an adversary its military means or to punish its population to generate demands for surrender.[18] Robert Art and Kelly Greenhill distinguish between this "wartime compellence" and "coercive diplomacy": the former typically combines violent force and economic sanctions, while the latter occurs short of open warfare between two or more actors.[19]

This article defines *shaping* as a state's use of military organizations to carry influence within environments by changing military relationships, the characteristics of partners, or the behavior of allies. The goals of shaping are to prevent threats from emerging and also to set the conditions for maintaining an advantage in case dangers do arise. Major powers use shaping to proactively manage allies, friends, and adversaries in the hope of avoiding the need for warfighting or costly coercion. By using shaping effectively, these powers may obviate the need to react under disadvantageous conditions in the future. Broadly, shaping avoids crises, threats, and violence and, as a recent U.S. military operational manual explained, keeps "adversary activities within a desired state of cooperation and competition."[20] Shaping relies primarily on attraction, legitimacy, persuasion, and positive incentives rather than the use or

threat of force. As Derek Reveron notes, shaping is "different in fundamental ways from warfighting. Shaping is about managing relationships, not command and control; it is about cooperation, not fighting; and it is about partnership, not dominance."[21] While warfighting and coercing are the most familiar tasks assigned to the military—what could be thought of as "breaking" and "bending"—shaping is a rather surprising military task given its emphasis on "building" advantage in the environment.

Given shaping's focus on prevention, there is considerable overlap between its logics and the coercive logic of deterrence (especially extended deterrence over allies); however, there are also several differences worth noting. Shaping primarily targets partners and allies, while deterrence targets adversaries. Shaping is about relationships and is thus necessarily multilateral and cooperative, unlike deterrence.

Moreover, shaping's primary focus is on precluding threats from emerging in the first place; if shaping is effective, there is little need to convince an adversary that the costs of unwanted behavior outweigh the benefits. At the same time, deterrence can be improved by shaping through the attraction or delegation of partners. As a 2008 U.S. joint manual notes, shaping and deterrence are "distinct but mutually supporting."[22]

To achieve the goals of shaping, major powers focus on two targets: the partner's characteristics or the partner's relationship with the major power. *Relationships* refer to the status of relations between the partners: friendly, neutral, or adversarial. *Characteristics* refer to both the partner's combat power and the role the partner's military serves for its society, such as an institution that inculcates national values, an armed force that protects the state from external or internal threats, or an organization that defends a certain regime or set of political interests.[23] States achieve shaping's goals through four main logics: attraction, socialization, delegation, and assurance. To change characteristics, such as the partner military's coercive power or practices, major powers use socialization and delegation. To manage relationships, they employ attraction and assurance. Yet these logics vary in whether they rely on soft power characteristics, such as legitimacy, persuasion, and values. Attraction and socialization rely heavily on these attributes; assurance and delegation do not.[24] Although the terms are sometimes used interchangeably, the U.S. military's categorization of operations as *military engagement* or *security cooperation* can be loosely applied to this distinction.[25] The table depicts the four shaping logics arranged by characteristics and relationships.

The first two logics—attraction and socialization—similarly rely on persuasion and values more than on building or transferring material capabilities. These logics can be considered *engagement* activities, defined by Evan Resnick as attempts to influence other states by establishing and enhancing contacts across diplomatic, military, economic, and cultural domains.[26] *Attraction* is a military's

Table. Logics of Shaping

		Reliance on Soft Power	
		High reliance on soft power "military engagement"	Low reliance on soft power "security cooperation"
Target of Shaping	Relationship	Attraction to change international alignment	Assurance to reduce ally insecurity and manage its behavior
	Partner Characteristics	Socialization to transform values and practices	Delegation to pass the burden of security

attempt to create new allies or coalition partners, to detract from an adversarial alliance or coalition, or to reassure a rival. Using attraction, major powers persuade neutral states into a defense-pact alliance or multinational coalition and drive a wedge between an adversary and any potential partners. The targets of attraction are certain domestic actors, such as politicians, military officers, or the general public, who are skeptical of becoming the major power's allies. Attraction often relies on convincing a weary public that security cooperation is beneficial via public diplomacy—essentially dangling greater security and military effectiveness as the "carrot."[27] The hallmark example of attraction is the U.S.-led NATO Partnership for Peace of the 1990s. This partnership intended to recruit new partners and former rivals for peacekeeping, promote democracy in post-Communist Europe, and prepare select militaries for potential NATO membership.[28]

Socialization is the use of military organizations to instill values, norms, or practices into other militaries through persuasion, teaching, and the building of habits.[29] The goal is to shift the partner military's identity and role to one that is more favorably viewed by the major power. For instance, militaries may encourage the values of democracy or respect for human rights in other armies; conversely, militaries may value state security and promote the protection of autocratic regimes against violent protests. Although socialization overlaps with attraction—in spreading the democratic belief that democracies refrain from fighting one another—the former focuses on transforming the values and character of the partner, while the latter does not. Russian-led Collective Security Treaty

Organization training events to socialize regime protection against future "color revolutions" in the mid-2000s illustrate this logic.[30]

The other side of shaping—security cooperation—relies more on material power and threats of force than on the mechanisms of engagement described herein. *Delegation* is when major powers attempt to transition the responsibility of security, against both state and nonstate threats, to another military. Partner states that are unable to provide their own protection suffer from what Reveron describes as "security deficits," something major powers attempt to overcome with weapons, training, and other forms of assistance.[31] Since 9/11, Western powers have attempted to build the coercive and administrative capacity of weaker states with the goal of creating more stability while preventing the emergence of terrorism and civil war. Additionally, major powers may send advisors, funding, and equipment to another major power to avoid the responsibility of deterring or fighting a powerful opponent.[32] Delegation, similar to assurance, attempts to relieve security deficits; however, delegation attempts to pass this burden to the partner, while assurance assumes the responsibility for it.

Assurance is a major power's attempt to reduce an ally's sense of vulnerability by promising protection through defense commitments and the forward presence of soldiers. Without such signals of support, the ally may act in ways counter to the major power's interest, such as acting aggressively, developing a more independent foreign policy, or considering closer alignment with a rival power. One way to limit this adverse behavior is to send signals of commitment through treaties,

troop deployments, arms transfers, and multinational exercises, thereby reducing the ally's insecurity.[33] By promising protection, major powers aim to influence domestic opinion in favor of the patron or pacify the region by limiting the severity of the security dilemma—that is, when one's states accumulation of security (via increases in weapons or territory) threatens another's.[34] Of course, there is substantial overlap between the concepts of deterrence and assurance, given that the latter involves the extension of security commitment to an ally. Yet assurance differs from the types of deterrence covered under coercion: Not only is the logic of assurance aimed primarily at the *ally* rather than the adversary, but also security commitments often dampen the fears of the *rival* that the ally will not act aggressively. The 2015 U.S.-led Operation *Dragoon Ride*, which intended to prevent Russia's sphere of influence from extending over a weary and uncertain European public, is an example of assurance in action.[35]

This article's definition of *shaping*, which draws on U.S. security and defense documents from the 1990s and joint doctrine from the mid-2000s, differs from other military applications of the term. For instance, a recent *Joint Force Quarterly* article offers *strategic shaping* as a "coercive strategy . . . to complicate an adversary's calculus and target his strategic intentions, not just his forces. The objective is to create a sharp deterrent effect by removing the adversary leadership's sense of control of the crisis or conflict."[36] The authors firmly situate this concept within theories of coercion, which they argue can be improved by imposing multiple dilemmas, posturing assets to threaten what the adversary values, and displaying asymmetric capabilities.[37] This adversary-focused use of shaping differs from this article's conception of shaping as constructing a more favorable environment through changing relationships, transforming partners, and managing allies—which aligns closer to the term's use in U.S. strategy documents, as described in the next section. This definition also draws attention to how shaping is sometimes used at the tactical or operational level—such as when one unit supports the main effort of a mission through preparatory fires to ensure the enemy is degraded before ground soldiers attack, or obscuring the enemy's observation of friendly forces.[38] In earlier doctrine, this activity was often described as "supporting" efforts to increase the odds of success for the "main efforts" in war.[39]

The Evolution of Shaping in U.S. Strategy and Operational Doctrine

Origins. While warfighting is the type of military behavior most commonly associated with Clausewitz, the origins of shaping are drawn from the writings of Sun Tzu. Though his focus was on explaining methods of warfighting, Sun Tzu mentions numerous times throughout *The Art of War* how statesmen and generals can subdue their enemy "without having to fight a battle."[40] He acknowledges the immense costs of war—the "great affair of the state. The field of life and death"—and how engaging in prolonged violent battle is detrimental in terms of both lives and treasure.[41] In light of these potential losses, the preferred approach to defeating one's adversary is to first "stymie the enemy's plans" and "his alliances," even before attacking "his troops" or, reluctantly, "his walled cities" when there is no other option.[42] As one scholar of Chinese strategy explains, "Thus in the *Art of War*, Sun Tzu treats warfare, from its preparation to execution and termination as first and foremost a contest of wisdom. Use of force is secondary."[43] When warfighting is necessary, Sun Tzu emphasizes the concept of *shi*—that is, developing a favorable configuration of power or strategic advantage prior to battle—a term so important that it occurs 15 times throughout the short book.[44]

Though the term does not emerge in official foreign policy discussions until at least the end of the Cold War, shaping in practice holds a long pedigree. One of the oldest forms of shaping is the use of military attachés—liaison officers deployed to the capitals of other nations to observe the military developments of these states, while providing advice to ambassadors and cooperating with host militaries. Though the term and diplomatic status of *attaché* was codified in the 1850s, the stationing of military officers for political or diplomatic purposes dates back to the Roman empire.[45] Another common shaping activity is the use of military assistance and advisers to create stronger foreign militaries. Historical examples include French covert assistance to undermine the British in the early years of the American Revolution,[46] as well as U.S. and Soviet funding proxies to develop spheres of influence and prevent the ideological expansion of China, especially in the developing world.[47]

The End of the Cold War and Indoctrination of Shaping. Despite the common historical use of shaping, the term was not codified into U.S. foreign policy documents until after the fall of the Soviet Union and end of the Cold War. The 1997 National Military Strategy painted a picture of the novel security environment, which comprised numerous nonstate threats: ethnic conflict, transnational crime, proliferation of weapons of mass destruction, and environmental damage.[48] In the preface, the Chairman of the Joint Chiefs of Staff acknowledged that the military instrument of power would need to contribute to the grand strategy of engagement, "helping to shape the international environment in appropriate ways to bring about a more peaceful and stable world."[49] In order to implement this strategy and protect the first core interest of enhancing American security, the document identified three mechanisms: *shaping the international environment, responding to the full spectrum of crises*, and *preparing now for an uncertain future*.[50]

The 1997 *Quadrennial Defense Review Report* developed a more detailed defense strategy that emphasized the "shape, respond, prepare" framework laid out by the National Security Strategy. The report notes that the goals of shaping include the following: "promote regional stability, prevent or reduce conflicts and threats, and deter aggression and coercion on a day-to-day basis" through the use of military activities such

U.S. Navy Divers assigned to Mobile Diving and Salvage Unit 1 and Royal Thai navy sailors assigned to navy diver and explosive ordnance disposal center prepare to conduct joint dive exercise off coast of Pattaya, Thailand, during Cooperation Afloat Readiness and Training Thailand 2019, June 6, 2019 (U.S. Navy/Joshua Mortensen)

as forward-stationed troops, military exercises, and officer exchanges.[51]

Despite the inclusion of shaping in high-level strategy, the U.S. military struggled with defining these types of operations as it found itself responsible for activities other than warfighting or coercion. The military's discomfort with nonwarfighting activities is evident in how it began labeling them. The 1993 edition of Joint Publication (JP) 3-0, *Doctrine for Joint Operations*, distinguished between two main military activities: *war* and *military operations other than war* (MOOTW). The publication noted that MOOTW fell outside of the realm of combat operations, focused on "deterring war and promoting peace," and were intended to "keep the day-to-day tensions between nations below the threshold of armed conflict" and "maintain influence in foreign lands."[52] The Joint Staff's May 1997 *Concept for Future Joint Operations* was the first major joint document that articulated

the concept of shaping. In the foreword, the authors explain, "America's Armed Forces must be able to shape the strategic environment to prevent war, respond when deterrence fails, and begin now to prepare for an uncertain and challenging environment."[53] The doctrine notes that an overseas presence has a "stabilizing effect" that allows peacetime engagement to positively shape the environment.[54]

The 9/11 Attacks and Renewed Focus on Shaping. The al Qaeda terrorist attacks of September 11, 2001, provided the next major impetus for shaping in U.S. military doctrine. Although warfighting would remain the priority focus for the invasion of Afghanistan, there was a sense that military units needed to get *ahead* of these problems in the future. The military began expressing its ideas for operations along a timeline in its 2001 revision of JP 3-0 by laying out four sequential phases in which peace, war, and then peace again would take place: deter/engage, seize initiative, decisive

operations, and transition.[55] Yet military planners wanted to create an environment that would preclude threats from emerging: Commanders and staffs at geographic combatant commands began imagining how to better shape their environment. General Charles Wald, the deputy commander for U.S. European Command (USEUCOM) in the mid-2000s, described the need for a "Phase Zero" that would come prior to combat operations in order to prevent the need for costly military intervention following a future terrorist attack. For Wald, the four-phase campaign model depicted in the pre-9/11 edition of JP 3-0 was insufficient to properly shape the environment and "prevent conflicts from developing in the first place."[56] In order to obviate the need for costly warfighting, he described how USEUCOM imagined Phase Zero as an opportunity for "building capacity in partner nations that enable them to be cooperative, trained, and prepared to help prevent or limit conflict." Instead

of measuring victory in terms of enemy combatants killed during war, success would be determined by how many conflicts were avoided, which would save both American lives and treasure.[57] This understanding of shaping was then implemented in the 2006 edition of JP 3-0, which expanded the phasing model by including Phase Zero to "enhance international legitimacy," "gain multinational cooperation," and "assure success by shaping perceptions and influencing the behavior of both adversaries and allies."[58] This edition discontinued the binary war versus MOOTW framework by creating three new clusters of operations: major operations and campaigns; crisis response and limited contingency operations; and military engagement, security cooperation, and deterrence.[59] The concept of shaping was generally dedicated to the first cluster to describe how joint force commanders could influence their environment before combat operations become necessary. This categorization largely remained intact for the most recent (2017) version of JP 3-0, but with more articulation of shaping's goals: "help set conditions for successful theater operations"; "provide a deeper, and common, understanding of the OE [operating environment]"; and "advance national security objectives, promote stability, prevent conflicts (or limit their severity), and reduce the risk of employing U.S. military forces in a conflict."[60]

Shaping as a More Prominent Foreign Policy Instrument

Although post–Cold War threats of instability and terrorism precipitated an increase in shaping, changes in technology and the international distribution of power will likely continue to make shaping attractive in the future. Specifically, three systemic forces will increase the incentives for shaping.[61] First is the influence of major weapons systems that make conventional war extremely costly. The massive destructiveness of nuclear weapons encourages immense caution among national leaders against interstate war as the primary tool of foreign policy crises.[62] Moreover, the technological progress of air defense weapons,

missiles, and sensors over the past decade has made conquest more challenging and provided at least a marginal advantage to the defense.[63] Because shaping (as well as deterrence) does not require the actual use of violent force, states will be attracted to this less costly option to achieve their goals.

Second are the consequences of globalization—the increase in transactions across national borders, caused by advances in transportation and communication, that provides quicker and cheaper connections for both state and nonstate actors.[64] Advances in overland and sea shipping, as well as in information technology, have given violent nonstate actors (such as insurgents, separatists, and terrorists) increased ability to achieve their goals against states; such actors can now organize, communicate, finance, and transport at much higher rates than in the past.[65] All major powers today use shaping as a way to protect themselves against the possibility of terrorism or separatism in their countries or on their peripheries.

Third, changes in the structure of the international system—that is, the distribution of capabilities between major powers—also encourage the use of shaping activities. The structure of the system during the Cold War was bipolar, which made deterrent activities such as massive conventional exercises more attractive. However, the collapse of the Soviet Union in 1991 and the resultant loss of support for weaker clients by both superpowers created a decrease in state capacity but an increase in weapons available to separatist groups.[66] However, the system appears to be approaching multipolarity in which Russia, China, and to a lesser extent India are acquiring more power; thus, shaping provides a means for states to attract allies and balance against one another.

Conclusion

Changes in power and technology will likely increase the incentives for states to engage in shaping; however, there have been few attempts by scholars or practitioners to examine shaping.[67] This is partly because studying shaping is essentially studying power. Therefore, as in all analyses of power, one must deter-

mine what "success" is and imagine the counterfactual (what would have happened if shaping did not occur) in order to determine effectiveness.[68] The ability to assess whether straightforward shaping activities, such as building partner capacity, are effective in improving security or governance is notoriously challenging.[69] Even determining the most important causes of traditional military power—the ability to win conventional wars—is not uncontroversial.[70]

Despite these research problems, the stakes are high for commanders to understand and plan for shaping: Not only can shaping be misapplied, but it may also result in unintended, negative consequences. Combatant commands generally direct their shaping activities through theater security cooperation plans, creating an opportunity for commanders and staffs to grapple with and articulate the goals of shaping. For instance, are port visits intended to attract new partners, and why do we think these activities would be successful? Should the United States attempt to socialize democratic practices in other militaries, or could this result in resentment or blowback? Are multinational exercises an attempt to assure an ally of a security commitment or to delegate responsibility to it? These two logics are not necessarily mutually supporting. Promising security often removes the incentives for a partner to develop its own security capacity.[71] Moreover, like deterrence, shaping's "prevent but prepare" logic unfortunately provides an opportunity for misperception by competitors and has the potential to elicit negative reactions.[72] For instance, U.S. efforts to encourage democracy in Eastern Europe and Central Asia are viewed by Russia as undermining its own security, while U.S. troop presence in the Middle East may create resentment and invite attack.[73] Commanders should direct their staffs to understand how to not only employ the logics of shaping to create a more favorable environment but also to anticipate how forward presence, engagement, and military exercises are perceived by adversaries. Thus, commanders, policymakers, and scholars would benefit from a clearer focus on this increasingly prominent way of military statecraft. **JFQ**

Notes

[1] For example, see Lisa Ferdinando, "U.S. Military Adapting in Complex Environment, Mattis Says," *DOD News*, October 9, 2017, available at <https://dod.defense.gov/News/Article/Article/1337625/us-military-adapting-in-complex-environment-mattis-says/>; Jim Garamone, "Dunford: U.S. Faces Volatile, Complex Security Situations," *DOD News*, September 26, 2017, available at <https://dod.defense.gov/News/Article/Article/1324953/dunford-us-faces-volatile-complex-security-situations/>; *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), 2–3.

[2] This article was adapted from Kyle J. Wolfley, *Military Statecraft and the Rise of Shaping in World Politics* (Lanham, MD: Rowman & Littlefield, 2021).

[3] *Strategic Defence Review* (London: Ministry of Defence, July 1998), 19, available at <https://fas.org/nuke/guide/uk/doctrine/sdr98/index.html>; Joint Doctrine Publication 0-01, *UK Defence Doctrine*, 5th ed. (London: Ministry of Defence, November 2014), 59–60; Andrew Cottey and Anthony Forster, "Reshaping Defence Diplomacy: New Roles for Military Cooperation and Assistance," *The Adelphi Papers* 44, no. 365 (2004); Juan Emilio Cheyre, "Defence Diplomacy," in *The Oxford Handbook of Modern Diplomacy*, ed. Andrew F. Cooper, Jorge Heine, and Ramesh Thakur (Oxford: Oxford University Press, 2013).

[4] Kenneth Allen, Phillip C. Saunders, and John Chen, *Chinese Military Diplomacy, 2003–2016: Trends and Implications*, China Strategic Perspectives 11 (Washington, DC: NDU Press, 2017), 8–11.

[5] *Annual Report 2018–2019* (New Delhi: Ministry of Defence, Government of India, 2019), 197–204, available at <https://www.mod.gov.in/sites/default/files/MoDAR2018.pdf>.

[6] Kyle J. Wolfley, "Military Statecraft and the Use of Multinational Exercises in World Politics," *Foreign Policy Analysis* 17, no. 2 (April 2021), available at <https://doi.org/10.1093/fpa/oraa022>.

[7] Marcel de Haas, "War Games of the Shanghai Cooperation Organization and the Collective Security Treaty Organization: Drills on the Move!" *Journal of Slavic Military Studies* 29, no. 3 (2016), 378–406. See also Wolfley, "Military Statecraft."

[8] A 2008 manual on shaping cautions, "Commanders and their staffs have to operate in a world of ambiguity and complex relationships with a wide range of partners and where progress toward goals is very difficult to measure." See *Military Contribution to Cooperative Security (CS) Joint Operating Concept*, version 1.0 (Washington, DC: Joint Chiefs of Staff, September 19, 2008), 8n11, available at <https://www.jcs.mil/Portals/36/Documents/Doctrine/concepts/joc_cooperativesecurity.pdf?ver=2017-12-28-162014-213>. On the difficulty in assessing deterrence effectiveness, due largely to selection bias, see James D. Fearon, "Selection Effects and Deterrence," *International Interactions* 28, no. 1 (2002), 5–29.

[9] David A. Baldwin uses the terms *propaganda*, *diplomacy*, *economics*, and *military*, which builds on Harold Laswell's classic framework closest to the diplomacy, information, military, and economics construct today. See Harold D. Lasswell, *Politics: Who Gets What, When, How* (New York: Meridian Books, 1958), 204–205; and David A. Baldwin, *Economic Statecraft* (Princeton: Princeton University Press, 1985), 13.

[10] Baldwin, *Economic Statecraft*, 13–14. In a separate work, Baldwin highlights the preoccupation with "military force" in the majority of international relations scholarship on power, most of which assumes military statecraft is used as the threat or use of force. See David A. Baldwin, *Power and International Relations: A Conceptual Approach* (Princeton: Princeton University Press, 2016), 109–111, 178–188. On ends, ways, and means, see H. Richard Yarger, "Toward a Theory of Strategy: Art Lykke and the U.S. Army War College Strategy Model," in *U.S. Army War College Guide to National Security Issues*, vol. I: *Theory of War and Strategy*, ed. J. Boone Bartholomees, Jr. (Carlisle, PA: U.S. Army War College Press, 2012), 45.

[11] These categories are overlapping because distinguishing them in practice is often difficult and some types of military operations transcend single categories. For instance, wartime compellence straddles warfighting and coercing, while deterrence spans coercing and shaping. For more information, see Wolfley, *Military Statecraft*. The first inclusion of shaping as a military "way" was in the 1997 National Military Strategy, along with two other ways: responding to the full spectrum of crises and preparing now for an uncertain future. See *National Military Strategy of the United States of America—Shape, Respond, Prepare Now: A Military Strategy for a New Era* (Washington, DC: The Joint Staff, 1997).

[12] Carl von Clausewitz, *On War*, ed. and trans. Michael Howard and Peter Paret (Princeton: Princeton University Press, 1976), 75.

[13] See, for instance, John J. Mearsheimer, *Conventional Deterrence* (Ithaca, NY: Cornell University Press, 1983), 28–30. Clausewitz also hinted at this distinction in an incomplete plan for revision. See "Two Notes by the Author on His Plans for Revising *On War*: Note of 10 July 1827," in Clausewitz, *On War*, 69.

[14] Joint Publication (JP) 1, *Doctrine for the Armed Forces of the United States*, Change 1 (Washington, DC: The Joint Staff, July 12, 2017), x, I-4–I-5. Robert Art's use of the term *defense* somewhat confusingly includes both attacks into enemy territory as well as protection of one's own. He notes that states could attack in a first strike *preemptively* or *preventatively* as a form of defense. See Robert J. Art, "To What Ends Military Power?" *International Security* 4, no. 4 (1980), 4–8, 11–13.

[15] Robert J. Art and Kelly M. Greenhill, "Coercion: An Analytical Overview," in *Coercion: The Power to Hurt in International Politics*, ed. Kelly M. Greenhill and Peter Krause (Oxford: Oxford University Press, 2018), 4–5.

[16] Thomas C. Schelling, *Arms and Influence* (New Haven: Yale University Press, 1966), 2–6, 69–78.

[17] Glenn H. Snyder, *Deterrence and Defense: Toward a Theory of National Security* (Princeton: Princeton University Press, 1961), 14–16. Snyder attributes this distinction to Robert E. Osgood, "A Theory of Deterrence," unpublished manuscript, 1960.

[18] Robert A. Pape, *Bombing to Win: Air Power and Coercion in War* (Ithaca, NY: Cornell University Press, 1996), 12–19.

[19] Art and Greenhill, "Coercion," 14.

[20] JP 3-0, *Joint Operations* (Washington, DC: The Joint Staff, January 17, 2017), VI-1.

[21] Derek S. Reveron, "Shaping the Security Environment," in *Shaping the Security Environment* (Newport, RI: Naval War College Press, 2007), 2–3.

[22] *Military Contribution to Cooperative Security*, 3.

[23] Timothy Edmunds, Anthony Forster, and Andrew Cottey, "Armed Forces and Society: A Framework for Analysis," in *Soldiers and Societies in Postcommunist Europe*, ed. Anthony Forster, Timothy Edmunds, and Andrew Cottey (Basingstoke, UK: Palgrave MacMillan, 2003), 8–15.

[24] On soft power, see Joseph S. Nye, Jr., *Soft Power: The Means to Success in World Politics* (New York: PublicAffairs, 2004), 5–15. See also Joseph S. Nye, Jr., *The Future of Power* (New York: PublicAffairs, 2011), 25–49.

[25] See JP 3-0 (2017), VI-3. Reveron, however, argues that these terms often merely reflect the current U.S. administration's preference of language to describe shaping activities. He notes how the George W. Bush administration attempted to limit Clinton-era engagement activities that were not tied to specific security objectives, thus using the term *security cooperation* instead of *engagement*. See Reveron, *Exporting Security*, 49–50.

[26] Evan Resnick, "Defining Engagement," *Journal of International Affairs* 54, no. 2 (2001), 559–561. Several authors have described and advocated for U.S. grand strategic options that use the term *engagement*—notably *selective engagement* and *deep engagement*; these grand strategies

would place a high emphasis on both forms of shaping.

[27] Nye, *The Future of Power*, 47–48, 99–109.

[28] James M. Goldgeier, *Not Whether but When: The U.S. Decision to Enlarge NATO* (Washington, DC: Brookings Institution Press, 1999), 19–30.

[29] This article's use of the term *socialization* mirrors that of Alexandra Gheciu, who builds on other constructivists in international relations. See Alexandra Gheciu, *NATO in the "New Europe": The Politics of International Socialization After the Cold War* (Stanford: Stanford University Press, 2005), 10–14. Regarding how communities instill practices, see Emmanuel Adler, "The Spread of Security Communities: Communities of Practice, Self-Restraint, and NATO's Post–Cold War Transformation," *European Journal of International Relations* 14, no. 2 (2008), 195–230; and Vincent Pouliot, "The Logic of Practicality: A Theory of Practice of Security Communities," *International Organization* 62, no. 2 (2008), 257–288.

[30] Wolfley, *Military Statecraft*, chapter 5.

[31] Reveron, *Exporting Security*, 27.

[32] John J. Mearsheimer, *The Tragedy of Great Power Politics* (New York: Norton, 2014), 157–162.

[33] Roseanne W. McManus and Mark David Nieman, "Identifying the Level of Major Power Support Signaled for Protégés: A Latent Measure Approach," *Journal of Peace Research* 56, no. 3 (2019), 365–366.

[34] See Robert Jervis, "Cooperation Under the Security Dilemma," *World Politics* 30, no. 2 (1978), 167–170.

[35] Robbie Gramer, "Operation Dragoon Ride," *Foreign Affairs*, May 13, 2015, available at <https://www.foreignaffairs.com/articles/baltics/2015-05-13/operation-dragoon-ride>.

[36] Terrence J. O'Shaughnessy, Matthew D. Strohmeyer, and Christopher D. Forrest, "Strategic Shaping: Expanding the Competitive Space," *Joint Force Quarterly* 90 (3rd Quarter 2018), 10–15, available at <https://ndupress.ndu.edu/Portals/68/Documents/jfq/jfq-90/jfq-90_10-15_OShaughnessy-et-al.pdf?ver=2018-04-11-125441-307>.

[37] Ibid., 12.

[38] A recent Army doctrinal manual defines a shaping operation as essentially support to the main effort in combat: "an operation that establishes conditions for the decisive operation through effects on the enemy, other actors, and the terrain." See Army Doctrine Publication 3-0, *Operations* (Washington, DC: Headquarters Department of the Army, 2017), 13–14.

[39] See, for instance, Army Field Manual 100-5, *Operations* (Washington, DC: Headquarters Department of the Army, 1993), 6-6.

[40] Sun Tzu, *The Art of War: Sun Zi's Military Methods*, trans. Victor H. Mair (New York: Columbia University Press, 2007), 86.

[41] Ibid., 76, 80–83.

[42] Ibid, 85.

[43] David Lai, *Learning from the Stones: A Go Approach to Mastering China's Strategic Concept, Shi* (Carlisle, PA: Strategic Studies Institute, 2004), 3–4.

[44] "Introduction" and "Key Terms," in *The Art of War*, xlv, 11, 78.

[45] Alfred Vagts, *The Military Attaché* (Princeton: Princeton University Press, 1967), 3–14.

[46] Jonathan R. Dull, *The French Navy and American Independence: A Study of Arms and Diplomacy, 1774–1787* (Princeton: Princeton University Press, 1975), 33–49.

[47] Michael E. Latham, "The Cold War in the Third World, 1963–1975," in *The Cambridge History of the Cold War*, vol. 2, ed. Melvyn P. Leffler and Odd Arne Westad (Cambridge, UK: Cambridge University Press, 2010), 258–280.

[48] *The National Military Strategy of the United States of America*, preface.

[49] Ibid.

[50] Ibid., 2–3.

[51] *Report of the Quadrennial Defense Review* (Washington, DC: Department of Defense, May 1997), 9. See also Reveron, "Shaping the Security Environment," 4–5.

[52] JP 3-0, *Doctrine for Joint Operations* (Washington, DC: The Joint Staff, 1993), I-3–I-5; Hal Brands, *Making the Unipolar Moment: U.S. Foreign Policy and the Rise of the Post–Cold War Order* (Ithaca, NY: Cornell University, 2016), 274–275.

[53] *Concept for Future Joint Operations: Expanding Joint Vision 2010* (Washington, DC: The Joint Staff, May 1997), foreword.

[54] Ibid., 11.

[55] JP 3-0, *Doctrine for Joint Operations* (Washington, DC: The Joint Staff, 2001), figure III-4.

[56] Charles F. Wald, "The Phase Zero Campaign," *Joint Force Quarterly* 43 (4th Quarter 2006), 72–73.

[57] Ibid., 73–75.

[58] JP 3-0, *Joint Operations* (Washington, DC: The Joint Staff, September 17, 2006, Incorporating Change 1, February 13, 2008), IV-27.

[59] Ibid., chapters V, VI, and VII.

[60] JP 3-0, *Joint Operations* (Washington, DC: The Joint Staff, January 17, 2017, Incorporating Change 1, October 22, 2018), V-9.

[61] Kenneth N. Waltz, *Theory of International Politics* (Reading, MA: Addison-Wesley, 1979), 67–71. See also Jonathan Kirshner, "Globalization, American Power, and International Security," *Political Science Quarterly* 123, no. 3 (2008), 365.

[62] Robert Jervis, *The Meaning of the Nuclear Revolution: Statecraft and the Prospect of Armageddon* (Ithaca, NY: Cornell University Press, 1989), 23–38; Stephen Van Evera, *Causes of War: Power and the Roots of Conflict* (Ithaca, NY: Cornell University Press, 1999), 240–254.

[63] Stephen Biddle and Ivan Oelrich, "Future Warfare in the Western Pacific: Chinese Antiaccess/Area Denial, U.S. AirSea Battle, and Command of the Commons in East Asia," *International Security* 41, no. 1 (2016), 19–22, 47.

[64] Though the authors doubt the degree of the impact of globalization on national security, they provide a useful discussion. See Norrin M. Ripsman and T.V. Paul, *Globalization and the National Security State* (Oxford: Oxford University Press, 2010), 5–10.

[65] Audrey Kurth Cronin, "Behind the Curve: Globalization and International Terrorism," *International Security* 27, no. 3 (2002/2003), 30–58.

[66] Stathis N. Kalyvas and Laia Balcells, "International System and Technologies of Rebellion: How the End of the Cold War Shaped Internal Conflict," *American Political Science Review* 104, no. 3 (2010), 415–429.

[67] Important exceptions include Reveron, "Shaping the Security Environment" and *Exporting Security*; Carol Atkinson, *Military Soft Power: Public Diplomacy Through Military Educational Exchanges* (Lanham, MD: Rowman & Littlefield, 2014); and Alexandra Gheciu, "Security Institutions as Agents of Socialization? NATO and the 'New Europe,'" *International Organization* 59, no. 4 (2005), 973–1012.

[68] Baldwin, *Power and International Relations*, 57–59.

[69] See, for example, Mara E. Karlin, *Building Militaries in Fragile States: Challenges for the United States* (Philadelphia: University of Pennsylvania Press, 2018).

[70] See Ryan Grauer and Michael C. Horowitz, "What Determines Military Victory? Testing the Modern System," *Security Studies* 21, no. 1 (2012), 83–112.

[71] Stephen Biddle, Julia Macdonald, and Ryan Baker, "Small Footprint, Small Payoff: The Military Effectiveness of Security Force Assistance," *Journal of Strategic Studies* 41, nos. 1–2 (2018), 89–142.

[72] Robert Jervis, *Perception and Misperception in International Politics* (Princeton: Princeton University Press, 1976), 58–76.

[73] Darya Korsunskaya, "Putin Says Russia Must Prevent 'Color Revolution,'" Reuters, November 20, 2014, available at <https://www.reuters.com/article/us-russia-putin-security-idUSKCN0J41J620141120>; Robert A. Pape and James K. Feldman, *Cutting the Fuse: The Explosion of Global Suicide Terrorism and How to Stop It* (Chicago: University of Chicago Press, 2010).

Tank driver, at Fort Knox, Kentucky, June 1942
(Library of Congress/Alfred T. Palmer)

Hydrocarbons and Hegemony

By Anand Toprani

There is a widespread notion today that the United States inherited from Great Britain and defended a liberal world premised on the free exchange of goods and capital (particularly by sea).[1] This article suggests we can better understand the origins of this system and its possible future by integrating hydrocarbons—specifically coal and oil—into our analysis. The control of hydrocarbons—both for satisfying domestic demand and for controlling external flows to allies and adversaries—was an essential ingredient of both British and U.S. power. That said, subtle differences exist between the two nations' experiences. Coal sustained and augmented British *primacy*, but British control over coal was also less extensive than that of the United States over oil and afforded it far less influence over the internal affairs of other nations (either through coercion or by consent), which is one prerequisite for a hegemonic power.[2] To simplify, coal contributed to Britain's global power but did not create it,

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"Breaker Boys," from Hughestown Borough Coal Company, Pittston, Pennsylvania, pose for photo, January 1911 (U.S. National Archives and Records Administration/Lewis Hine)

unlike oil, which was a key element in the U.S. rise to genuine *hegemony*.

At a time when there is a great hue and cry within Western capitals about saving the post-1945 liberal international system, those who are planning U.S. operations and strategy—to include the readership of *Joint Force Quarterly*—ought to know exactly what it is they are defending. But military professionals should also have a broader awareness of the other instruments of military power. When we in the national security community study the economic instrument of U.S. power, it is tempting to limit our perspective to economic warfare, most notably sanctions. The U.S. economy and financial system are not only instruments of American hegemony but also constitutive elements of it. Preserving this hegemony requires understanding both

how it came about (which necessitates a critique of the relevant scholarly literature) and how it perseveres, and what systemic changes are undermining it.

Transitions between rising and declining Great Powers tend to be violent.[3] Great Britain and the United States, however, stood for complementary (though not identical) visions of the world order, privileging the interests of *trading* as opposed to *territorial* states. Therefore, unlike past transitions among so-called hegemonic powers and their challengers (Spain, Holland, France, and Germany), the proverbial passing of the torch from Britain to the United States did not require them to come to blows, even if this transition was accelerated by devastating Great Power conflicts in 1914–1918 and 1941–1945. There remain scholarly differences over how consensual the

process was, with some arguing that Britain aided, even welcomed, the rise of American power, whereas others argue that the United States had been pursuing a competitive grand strategy to topple British hegemony since the Civil War.[4]

Originally, the concept of Great Britain passing the mantle of liberal hegemon to its American cousin was an outgrowth of the work of the economic historian Charles Kindleberger concerning the origins of the Great Depression. He argued that Britain, specifically the Bank of England, enjoyed a position of financial supremacy during the heyday of the 19th-century gold standard and operated as a de facto lender of last resort that stabilized international financial markets, usually by coordinating interest rate adjustments among central banks. The ebbing of British financial power

during World War I, and the failure of the United States (in this case, the Federal Reserve) to undertake similar burdens, despite its then considerable gold reserves and status as the world's largest global creditor, doomed the international economy—particularly after the 1931 financial crisis, when the Federal Government raised interest rates to protect U.S. gold reserves and thereafter failed to coordinate a global response to an incipient financial crisis.[5]

Political scientists picked up Kindleberger's evaluation of how a collapse of transatlantic equity and financial markets grew into a global economic crisis that threatened the very viability of liberal capitalism. Robert Gilpin, based on his reading of Thucydides's claims regarding the underlying causes of the Peloponnesian War, articulated a theoretical construct of the international system in which hegemonic powers exercised a stabilizing role, thus mitigating the innate tendency of the system toward anarchy. The waning of a power's hegemonic status, and the waxing of a rival's, created the possibility of a *hegemonic war* either to defend the existing system or to create a new one.[6]

Kindleberger's thesis was an attractive explanation of the Great Depression since it complemented the Wilsonian perspective of U.S. officials during the 1930s and 1940s that the economic crisis and the war that followed it were the result of Americans' failure to accept global leadership after World War I.[7] This might be good strategy, but it is poor history. Many elements of Kindleberger's narrative collapse under close scrutiny, especially his argument that Britain's position in the world before 1914 was analogous to that of the United States after 1918. Paul Kennedy, for instance, demonstrated that the Bank of England was hardly a ruthless instrument of British statecraft. Because of prevailing liberal orthodoxies, the bank maintained relatively small gold reserves. This policy facilitated global trade but came at the expense of Britain's financial health in wartime, when the country could not count on a large trade surplus to finance its war effort.[8]

Barry Eichengreen put the final nail in the coffin of supposed British financial hegemony. He posited that the Bank of England never served as the conductor of an "orchestra" of central banks. Great Britain's economic power had already begun to wane in the late 19th century. Its share of global manufacturing output shrank as rivals such as the United States and Germany rose from behind tariff walls, while the peculiar nature of British political economy (specifically, the nexus between the City of London and financial policymaking at the Treasury and the Bank of England, which P.J. Cain and Anthony Hopkins called "gentlemanly capitalism") starved British industry of investment by diverting savings abroad to chase higher returns within the formal or informal empire, as well as in the United States.[9]

Great Britain's imposing financial position before 1914 actually masked the true state of the nation's diminished economic, industrial, and geopolitical standing. The stability of the global financial system rested, therefore, less on objective criteria concerning Britain's relative power than on a series of implicit assumptions concerning political economy—namely, that national governments would not run persistent budget or trade deficits (the two are closely linked) and would, if necessary, induce involuntary unemployment through higher interest rates to forestall a balance of payments crisis that undermined the peg to gold. These commitments were credible to international financiers and bankers because of the limited extent of the franchise, which privileged the interest of the merchant creditor class in national legislatures rather than those of debtors such as farmers in the United States (following William McKinley's triumph over the forces of free silver led by William Jennings Bryan in 1896) or organized labor in Europe, which lacked a broad national political foundation (in Britain) or was actively repressed (in Germany).[10]

These critiques of British financial supremacy underpinned Patrick O'Brien's comprehensive rebuttal of any hegemonic transition between Great Britain and the United States.[11] O'Brien argued that the narrative of hegemonic transition was an

ex post facto construction that obscured the extent of the massive power differential between the two nations. Compared with American hegemony, Britain's position was really one of primacy—first among equals—whose perpetuation rested largely on a favorable balance of power within Europe following the Napoleonic Wars. Echoing the work of Halford Mackinder, O'Brien argued that British power flourished in the twilight of the Columbian era, when control over maritime trade allowed Britain to augment its meager natural resource endowments. Even at the zenith of British influence, however, the foundations of this world were crumbling thanks to the diffusion of railroads, automobiles, and eventually aircraft; such proliferation allowed better resourced continental powers to chip away at the position of the outlying maritime powers.[12]

Although Great Britain relinquished its role as "workshop of the world" to the United States and Germany in the late 19th century, it certainly remained the world's dominant financial power until World War I. Nevertheless, O'Brien echoed Eichengreen by noting that British officials had neither the intention nor the means to play the role of a global financial backstop or to use access to British markets as an instrument to coerce potential adversaries, like the United States does with financial sanctions today. It is hard to imagine the United States allowing one of its major banks to finance a key foreign policy objective of one of its rivals, as Britain did when Baring Brothers assisted the fledgling United States with the Louisiana Purchase.

British fiscal policy, meanwhile, was a far cry from that of the vaunted "fiscal-military" state of Georgian England, with its high taxes, intrusive regulation, and military Keynesianism avant la lettre.[13] Victorian and Edwardian governments were all in thrall of the liberal credo of retrenchment and sought to curb taxes and expenditures—unlike Americans today, liberal Britons blanched at the thought of running deficits to sustain an empire, believing that peacetime probity was vital to Great Britain's credibility if the nation needed to borrow in wartime. For British

elites, the prospect of resurrecting a fiscal-military state was doubly horrifying at a time of demands for extension of the franchise. They would countenance the latter only by locking in a set of policy preferences that constrained the scope of government spending: adherence to the gold standard, balanced budgets, deflation (to protect creditors), and laissez-faire.

This approach may have preserved some measure of social harmony, but it came at the expense of British strategic interests once rival powers and ideologies emerged. As Michael Howard once observed, resource constraints and an incipient distaste for Europe encouraged British officials to focus on imperial and home defense at the expense of a "continental commitment" to Europe.[14] The failure to invest in a proper army capable of intervening on the Continent may, as O'Brien observed, have backfired by depriving Great Britain of a credible deterrent against German aggression in 1914.[15]

The contrast with American economic, financial, and military power since World War II could not be starker. The United States not only took up the role of the dominant naval power from Great Britain, but it also quickly established its control of the aerial domain of warfare, which was bolstered by a vast atomic arsenal after the Korean War and an extensive set of overseas bases to project power deep into the Eurasian heartland.[16] Its vast military spending has, contrary to the fears of conservatives such as Dwight Eisenhower, not created any "guns or butter" dilemma. Nominal defense spending has risen steadily since the Korean War, even as the defense share of gross domestic product and even government spending has decreased.[17]

One of the factors that made this possible was the remarkable predominance of the dollar in global finance. Across the world an insatiable demand for dollars as a reserve currency or dollar-denominated securities, the liquidity of the market for U.S. treasuries, and the attractiveness of the U.S. market for external investment—no doubt aided by the incomparable reach of American cultural preferences—have provided the United States with the

"exorbitant privilege" of relying on foreign savers to finance its persistent budget and current account deficits.[18] For example, the cumulative U.S. current account deficit from 1992 to 2019 (which is matched by corresponding capital surpluses—that is, capital imports) is equal to 83 percent of total U.S. defense spending during those years.[19]

If anything, O'Brien understated his case by neglecting to pay sustained attention to hydrocarbons, specifically coal and oil, which were also essential ingredients of the industrialization, motorization, and mechanization of warfare.[20] Ample supplies of hydrocarbons do not necessarily make a Great Power so much as they enable or constrain powers from utilizing fully the tools at their disposal.[21] But we should not assume that energy is a uniform commodity—just as the chemical properties of coal and oil differ, so too do their geopolitical effects.[22]

Coal was an essential ingredient behind Great Britain's sustained, exponential growth in the 19th century as a feedstock for factories, railroads, and steamship lines.[23] Coal also allowed Britain to retain its naval superiority as steam-powered ironclads replaced wind-powered sailing ships. Not only could British factories and shipyards produce large numbers of the new ships, but Britain's domestic supplies of coal and stranglehold over maritime coal supplies (through a large fleet of colliers and extensive network of bases) also meant that other navies and merchant marines—including those of the United States in the Pacific before the completion of the Panama Canal—depended on British sufferance.[24]

But while coal solidified British primacy in the 19th century, it did not create Great Britain's geopolitical primacy. Britain was preeminent by 1815 following its victories over France, and economic growth had already begun to take off as a result of the earlier agricultural revolution and the institutional legacies of the fiscal-military state.[25] But British primacy also persisted due to the fragmentation of Europe and the relative quiescence of Asia following the decline

of the Qing dynasty in China and the weakness of Meiji Japan.[26]

Leaving aside that the coal-fired industrial revolution laid the seeds for the continental powers to undermine the Columbian era through the use of railroads to move industrialized armies, the peculiarities of the coal industry and the gradual eclipse of coal as the world's dominant source of propulsion fuel during the first half of the 20th century seriously constrained British power. Although Great Britain did possess large domestic coal supplies, its coal industry (until nationalization) was, due to privatization, fractured into a number of rival companies that never achieved the vertical or horizontal integration of the major oil companies.[27] Coal was also more labor intensive than the capital-intensive oil industry, which left it more vulnerable to coordinated strike or sabotage action.[28] And although coal was a valuable British export, much of it went to nearby markets in Europe, so it never became a globally traded commodity like oil.[29] Finally, while coal enabled fortunate nations to make the transition from organic to mineral economies, it was a source of energy appropriate only to the "Paleotechnic" era of iron, textiles, and steam power—what some historians called the First Industrial Revolution.[30]

By contrast, oil was the quintessential energy source for the "Neotechnic" age of steel, internal combustion, chemicals, and electricity—the Second Industrial Revolution. Without access to patents jealously guarded by German chemical companies through their alliances with oil companies, coal producers had no ability to produce synthetic fuels or enter the petrochemical industry.[31] The latter, in particular, was a major consumer for petroleum besides transportation and power generation. The petrochemical industry that emerged after World War II became the world's primary source of synthetic rubber and helped spearhead the "green revolution" through the diffusion of fertilizers developed from petrochemicals (not to mention the oil-fueled mechanization of agriculture).

The close relationship between the oil industry and the health of the global

economy and petroleum's indispensable role in modern warfare means it is no surprise that the superpowers that emerged from World War II possessed large domestic supplies of oil. But U.S. hegemony depended on more than mere self-sufficiency, which mostly evaporated after 1948.[32] A large U.S. domestic industry created the wherewithal to expand overseas both for markets and for new supplies. This process incentivized American diplomats to solidify U.S. predominance in Latin America and influence over budding oil producers in areas once of marginal interest to the United States (such as the Persian Gulf). Oil also shifted the naval balance in favor of the United States even before World War I, particularly in the Pacific, where Great Britain and Japan were relatively starved of oil while the U.S. Navy enjoyed prolific oilfields in California.[33]

Oil also gave the United States an immense advantage during the Second Industrial Revolution. Germany was a leader in the development of the internal combustion engine and was unchallenged within the realm of chemicals, but it could not keep pace with U.S. motorization or follow Great Britain and the United States into converting its battle fleet to oil before World War I.[34] Even Britain for its oil depended on sources controlled directly or indirectly by the United States and relied after World War I on U.S. security and financial assistance to maintain access. Oil combined with industrial power—both aircraft production and petrochemicals—similarly allowed the United States to exert dominion over the newest domain of warfare—the air—even if the results never matched the claims of enthusiasts such as Giulio Douhet[35] (although recent studies suggest that the firebombing of Japan during World War II was far more effective at producing social disorder than it was in Germany[36]). In effect, American predominance on the high seas and in the air restricted potential rivals' access to oil in the 20th century far more extensively than British control of coaling stations ever did a century prior.

U.S. commercial ascendancy in the oil industry contributed to the pricing of even foreign oil in dollars. Obviously, the fact that oil often required payment in dollars or hard currencies convertible into dollars was a profound handicap for countries suffering from balance of payments deficits. Likewise, reliance on dollars and U.S. banks as financial intermediaries became yet another source of vulnerability for countries such as Japan: Its access to oil in 1941 was effectively blocked without a formal embargo when the United States froze Japanese accounts in the American banks.[37]

The growing demand for oil priced in dollars throughout the 20th century enabled a form of seigniorage whereby the United States could pay for imported oil using dollars that lost some of their value before foreigners could recycle them into U.S. goods and services. The fact that oil is traded in dollars encouraged foreign central and private banks to hold dollars as a reserve currency even after the collapse of the Bretton Woods system in 1971–1973; it also incentivized the use of dollars for cross-border trade even when a U.S. actor is not the counterparty, because dollars can always be exchanged for goods and services around the world. Nations always had an incentive to earn or accumulate dollars even if they traded little with the United States—yet another form of "exorbitant privilege" that so enraged critics of American power, albeit one with major costs for certain sectors of the U.S. economy. Specifically, if the dollar was to retain its predominance after Washington severed the link with gold, the United States had to embrace full capital mobility and commit to providing ample liquidity to satisfy economic growth. These developments depressed domestic manufacturing by artificially raising U.S. exchange rates and encouraged U.S. firms to look for cheaper labor abroad.[38] One of the major beneficiaries of this process was, of course, China.

Furthermore, unlike coal, oil is produced in relatively few geographic locales, two of which (North America and the Gulf of Mexico/Caribbean) were in the U.S. orbit. The United States has (with the assistance of Great Britain at least until 1971) worked consistently to ensure that no rival foreign or domestic power (Nasserist Egypt, Ba'athist Iraq, or revolutionary Iran) could dominate the Middle East, long before President Jimmy Carter articulated his Carter Doctrine in 1980.[39] Most oil is transported by tanker (thanks in part to pipelines' vulnerability to sabotage or economic blackmail), which gives the dominant naval power extraordinary coercive ability in the event of war or crisis since it is difficult for either producing or consuming nations to stockpile more than a few months' worth of oil. Even then, doing so entails a tremendous financial and material cost due to the vast quantity and diversity of petroleum that modern nations require, and because it is impossible to recycle oil or petroleum in the same way as other critical commodities, such as copper, nickel, tungsten, chromium, and others.[40]

Ultimately, oil—its ubiquity in modern societies and centrality to military affairs, the operations of the industry, and geopolitical competition over access—has served to create an American hegemony that has no historical parallel in either its military or financial dimensions. Moreover, hydrocarbons have preserved this power even as the United States, like Great Britain before it, relinquished its status as the world's dominant industrial power and oil producer. While nations such as Saudi Arabia and the Soviet Union overtook the United States as an oil producer in the 1970s, U.S. firms continued to dominate the international trade in oil. Even more important, oil-related transactions continued to be denominated in dollars.

A century before, coal sustained British primacy but ultimately proved to be a hindrance as technological, social, and political change affected the structures of nations, economies, and conventional warfare. Even supplies in coal-rich Great Britain were vulnerable to labor unrest, and the coal unions' close links to the Labour Party forced the government to nationalize the industry even as its profitability declined. To make matters worse, British earnings from coal exports after World War I shrank as new sources came online and demand slackened from the ongoing conversion to oil.

Kuwaiti oil well control specialists direct fire control rig over oil well fire in order to complete water blasting method to extinguish fire at Rumaila Oil Field, in southern Iraq, as part of Operation *Iraqi Freedom*, March 27, 2003 (U.S. Army/James P. Johnson)

Before 1914, this last factor was most pronounced in the naval dimension, but thereafter it spread to other domains of warfare thanks to the internal combustion engine. Coal was not suitable for internal combustion, and the transition away from steam left Great Britain saddled with obsolete infrastructure around the world (coaling stations and mines—a version of the "stranded asset" problem). Finally, Britain had to restructure its naval and maritime power by converting from coal to oil during a period of financial duress. This shift occurred at a time when Britain was already under pressure from rising naval challenges from Germany, Japan, and the United States. Even though Britain managed to defeat its German rival and win Japan as an ally during World War I, it did so with U.S. oil and dollars, while the growth in U.S. naval power and dominance in oil global production meant that the United States controlled Britain's access to oil even

after British firms began developing the Middle East, where security in wartime was always questionable.

Oil, therefore, in many ways created as well as sustained American hegemony. One might assume that the resurgence of U.S. domestic oil production during the "shale revolution" would presage a new era of American geopolitical dominance, but that is a short-sighted perspective that assumes the future will mimic the past. The fact of anthropogenic climate means that any future premised on hydrocarbon-fueled growth is out of the question. Unless the United States recognizes and acts on this fact, oil may end up posing a greater risk to its hegemony than coal did for British primacy.

In the United States, the oil and gas industry has long enjoyed special political privileges (tax breaks and incentives) and has used them to stifle alternatives. Preserving control over the access to oil and the global oil market has also

encouraged the United States to devote vast resources to the strategic sinkhole that is the Middle East.[41] This status quo no longer seems tenable. Even before the recent pandemic, climate change threatened to turn the oil and gas industries' reserves into stranded assets and therefore erode the industry's financial and political power.[42] And the opportunity costs of delaying action must not be overlooked. The United States stopped investing in battery technology after World War II because oil was so cheap and plentiful. Conversely, China currently possesses the lion's share of minerals essential for lithium batteries and has undertaken the leading role in the latter's construction.[43]

Perhaps most important, China is poised to take a decisive role in the global effort to curtail carbon dioxide emissions. On the one hand, this is welcome news from the country with the largest share of emissions. On the other hand, it is worrying because American denialism about

climate change and China's growing importance within the global economy are both forcing stalwart U.S. allies such as the Europeans to seek collaboration with Beijing, even as China's foreign policy becomes more bellicose.[44]

Hydrocarbons were undeniably a necessary condition for Anglo-American predominance, but there is a possibility that the latter can thrive only if the world depends on the former for its energy needs. The era of Euro-American predominance was always an outlier in human history; until at least the 15th century, if not the 18th century, Asia accounted for a larger share of global economy activity because of its larger population and more efficient administrative and production techniques.[45] What if the transition away from hydrocarbons accelerates the process of the world returning to a premodern economic balance of power—that is to say, an Asia-dominated or even Sino-centric world order?

To return to the introductory thesis, it was the combination of American industrial power and American preponderant influence over the global oil trade that served as a key pillar of U.S. hegemony after 1945. If there is indeed a close link between the control of energy and geopolitical primacy or even hegemony, then China appears well positioned to leapfrog the United States in a world that depends on renewables rather than fossil fuels for its energy needs.[46] **JFQ**

Notes

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U.S. Air Force Chief Master Sergeant Mario Aceves, Medical Readiness Training Exercise chief enlisted manager, uses Spanish-language skills to speak with woman during exercise New Horizons 2018, May 14, 2018, in Coclé Province, Panama (U.S. Air Force/Dustin Mullen)

Linking Foreign Language Capabilities with Expeditionary Requirements

By Douglas J. Robb, Brian H. Neese, and Cara Aghajanian

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Whether combined forces are jumping out of airplanes together, turning wrenches side by side, or providing direct patient care as a clinical team, security cooperation activities must bridge the culture and language divides between our partner militaries. It is simply a *requirement*. When our personnel can speak that other language, their value in any shared endeavor goes up exponentially. Language, regional expertise, and culture (LREC) capabilities are "an enduring critical competency" and a powerful force multiplier.[1]

Department of Defense (DOD) efforts to train, track, and utilize members with foreign language competencies are a substantial human capital investment in support of all-domain, globally integrated

U.S. Air Force Master Sergeant Anthony Sepongviwat, linguist augmentee with Defense Prisoner of War/Missing in Action Accounting Agency, directs other team members during recovery mission, in Laos, April 5, 2019 (U.S. Marine Corps/George Melendez)

operations. These competencies strengthen our international alliances and partnerships, inform our joint planning, and create competitive advantages in a rapidly evolving security environment. The full return on this investment occurs when these skilled individuals participate in the combatant commander's security cooperation mission or other military activities in times of peace or war. A *virtuous cycle of LREC capitalization* results, as these participants advance the security cooperation mission as well as enhance their own operational readiness and attest to Service force development efforts.

So it may come as a surprise to discover that personnel with existing language skills are often purposefully *not* employed in the joint expeditionary environment. Two gaps in the joint planning process sideline foreign language capability on missions that this capability is meant to serve: combatant command planning documents do not request language-enabled forces; and planners

at multiple levels do not identify or task language-enabled personnel. Because mission planners compete for limited resources, they prefer to keep manpower requirements as broad and generic as possible. They come to view foreign language capability as extraneous since, technically, missions could be executed without this skill set; however, this wedge separating requirement and capability means that we do not capitalize on the initial skills investment, tabling potential downstream effects on our training, force development, and even the security cooperation mission. We pay the upfront cost; we do not reap the full potential benefit.

The U.S. Southern Command (USSOUTHCOM) annual deployment-for-training exercise known as New Horizons offers a glimpse of this disconnect in real time. Looking specifically at New Horizons 2018 in Panama as a case study, we evaluate a proof-of-concept planning effort that fully leveraged culture and language to accomplish a

security cooperation and operational readiness skills training mission. This analysis informs potential improvements to the joint planning process and ensures that DOD, military Services, and individual joint personnel enter the virtuous cycle of LREC capitalization, receiving the full benefit of human capital investment.

Building the Requirement
Every spring, USSOUTHCOM sends uniformed medical professionals into Central and South America to deliver direct patient care to indigenous, high-need populations. These efforts, often called *humanitarian missions*, are supported by a military training exercise that is driven by legal and military obligations to do two things: develop the joint force's operational readiness skills that our medics need to deploy, execute the mission, and then redeploy home; and advance the combatant commander's theater security cooperation

agenda in the region.[2] The latter objective includes building access and influence for longer term diplomatic efforts. This objective may also strengthen the multidomain networks so important to combatting illicit trafficking in a state or region.[3] This was certainly the case during New Horizons 2018.

As joint operational plans began for New Horizons 2018, task force leadership considered the role of foreign language capabilities in this mission. Leaders saw a preview during planning conferences, when regional health directors from Panama came to Tucson, Arizona, to build the concept of operations. The English language skills of our Panamanian partners varied widely, as did our team's understanding of Panamanian health, ethnic diversity, and geopolitical history. All of these things factored into our decisions. If we needed LREC skills here, in Arizona, at home, how much more would we need them when we deployed hundreds of joint medics on the ground in rural Panama?

For that matter, how did New Horizons military clinicians intend to practice medicine in that country? How would pediatricians develop the clinical history of their patients? How would surgeons garner consent from non–English-speaking patients? The answers to these questions would be the key to mission success or failure. The opportunity to advance operational readiness and the combatant commander's military objectives hinged on our ability to successfully navigate the linguistic matters of the mission.

DOD Foreign Language Program and Capability Overview

The current National Defense Strategy puts a premium on building partners and allies, but this effort is not new to DOD. As U.S. military power began projecting into regions around the globe in the early 20th century, the ability to communicate in native languages became fundamental to our national defense. DOD created various language schools that over time consolidated into today's Defense Language Institute Foreign Language Center.[4]

As the war on terror progressed, DOD accelerated its language acquisition efforts. Although instructional programs such as Rosetta Stone were given away through the base library, it became clear that language skills were not a fungible commodity easily procured. It was also clear that the personnel who needed language and cultural skills were not just the intelligence unit's linguist, the special operator, or the foreign area officer. Language skills were needed, to some degree or another, by all general-purpose forces involved in the counterinsurgency effort. Security forces, medical professionals, and many other occupations were coming into direct contact with village leaders. Successfully communicating across language and cultural barriers could make or break missions where lives were on the line and the commander's theater security cooperation objectives were at risk.

That need for foreign language skills is just as valuable today, in support of the National Defense Strategy's posture of near-peer competition. Language and cross-cultural communication skills guarantee our ability to establish and develop allies and partners who then enable our competitive military advantage and form a "strategic center of gravity."[5] DOD has therefore institutionalized the LREC effort, codifying it in various directives, Chairman of the Joint Chiefs of Staff instructions, and a plethora of other Service and agency guidance documents. More important, the recently completed Capabilities-Based Requirements Identification Process reviewed important combatant command mission requirements and mission-essential tasks and identified the required supporting LREC capabilities.[6] As a result, combatant command operational plans now have the baseline to build an LREC annex and layer foreign language acquisition into U.S. military activities across the spectrum of competition and conflict.

The Sourcing Dilemma

New Horizons mission planners developed a concept of operations that would deploy in multiple provinces more than 100 uniformed medics

across a range of medical, surgical, dental, veterinary, and other health-care specialties. The core mission was health fair–style events welcoming all comers to receive immunizations as well as primary, dental, and optometry care. U.S. teams would coordinate with Panamanian Ministry of Health personnel, local police, politicians, social workers, and other stakeholders to care for hundreds of patients every day in makeshift clinical spaces such as elementary schools.

With this concept of operations formulating, the next operational planning steps were sourcing the personnel who would execute the mission and determine how they would communicate with the Panamanians. In spite of the clear need for personnel with foreign language skills, USSOUTHCOM's planning guidance for building the medical teams did not indicate any language requirements. This was the first of two critical planning gaps.

The plan for communicating with patients, local healthcare workers, and other stakeholders was to rely on local volunteer Spanish language interpreters, usually students from nearby universities; however, experience shows a wide variation in quality of interpretation and even day-to-day event attendance from such a group. Because these groups are not organic assets, New Horizons mission leads have no operational control to ensure the capability is available when or where it is needed most, or that its quality is mission appropriate. In clinical settings, patient-provider communication can determine whether a medical intervention cures an illness or causes harm. High-quality, reliable language interpretation is a mission requirement—and must be considered one.

Between U.S. task force and host-nation leadership, activity coordination is another area fully reliant on language skills and cross-cultural knowledge. Synchronizing mission objectives, building relationships, and coordinating force employment through a range of daily, even hourly, problems depend on effective communication. In this way, language capability has a direct impact on the security cooperation mission.

Without specific requirements in USSOUTHCOM's planning guidance, Service component planners could not justify adding support for foreign language interpreters through either civilian contractors or a request for forces (RFF). New Horizons task force leaders again stepped back to ask a broader set of questions: Does the U.S. military lack relevant language capability in its own inventory? Are there not military doctors, nurses, pharmacists, and medical technicians who speak Spanish? If there are, then tasking Spanish speakers would immediately resolve the vexing question of communication, absolving the need for interpreters. It would also build deeper bonds and trust between patients and medical providers, as well as send a signal to our Panamanian partners that the U.S. military is overwhelmingly committed as a security partner. So, then, if the foreign language capability is out there, how do we find it and put it to best use?

DOD Foreign Language Training Pipeline and Capability Identification

The DOD foreign language training pipeline can be roughly divided into formal (acquiring a new language) and sustainment (enhancing language proficiency) efforts. The Defense Language Institute Foreign Language Center is DOD's premier foreign language training institute. Using both resident and nonresident Language Training Detachments, the institute's efforts are directly tied to requirements around the world for foreign area officers, linguists, cryptologists, and other members going to units with language-coded billets. According to the U.S. Army Web site, on a given day this institute is matriculating approximately 3,500 personnel through curricula in 24 foreign languages.[7]

The Air Force's Culture and Language Center is the premier example of a Service language sustainment program. Part of Air University, the Language Enabled Airman Program (LEAP) enhances proficiency through a variety of training modules, including online classes as well as full-immersion experiences in foreign countries. The focus languages change over time to suit the Strategic Language List and demands expressed by operational organizations to the Air Force Senior Language Authority.[8] Since its founding in 2013, LEAP has matriculated more than 3,000 personnel in 95 target languages.[9]

Outside the boundary of specific training platforms, the language capability of the force is certified and tracked by the Defense Language Proficiency Test (DLPT). This standardized test evaluates proficiency in the domains of reading, listening, and speaking; it reports the results using the Federal Government's Interagency Language Roundtable scale (0 through 5 in ascending level of proficiency). A score of 2 in a language domain is considered functionally proficient. The Air Force LREC office reports that its current inventory has more than 14,000 Airmen who tested at a 2/2 or higher in over 100 languages.

A key incentive in this system is DOD's foreign language bonus pay. Congress mandates this pay and sets the ceiling at $1,000 per month per individual. Determining which languages receive pay and how much each language receives is a matrix that changes over time based on the Service-specific Strategic Language List. This memorandum qualifies a foreign language as Immediate Investment, Emerging, or Enduring, with some languages further qualified as Prevalent-in-the-Force. How a language is categorized, as well as the member's DLPT language score, career field, current job billet, and any number of other Service-specific policies, will determine whether—and in what amount—a member receives bonus pay. Pay rates are, however, the same for officer and enlisted without regard to pay grade.

According to data from the Military Personnel Budget Book, the Services combine to invest about $9 million every month in foreign language bonus pay. The Army leads the way, carrying more than half of DOD's language pay recipients. At the end of fiscal year 2018, DOD had spent $107 million on foreign language bonus pay for more than 35,000 joint personnel. DOD is therefore paying

to keep 120 foreign languages and dialects on retainer when needed across a broad spectrum of missions around the world.

Given this inventory of capable, eager, and financially compensated language-qualified personnel, the question then becomes how to identify and access them for joint mission requirements. Service personnel management systems have ways of marking and tracking individuals with specialized skills that go beyond standard occupational codes. The Air Force, for example, uses Special Experience Identifiers (SEIs) to document regional expertise as well as participation in LEAP and in the International Health Specialist program. The latter is akin to a medical foreign area officer program and requires a minimum level of foreign language capability. The SEIs are tracked in the member's personnel record and can be queried in the Air Force personnel system.

All language proficiency test results are automatically populated in the Defense Manpower Data Center, the central DOD source for human resource management. This repository provides visibility for any stakeholder to identify language capability across DOD. Furthermore, the Defense Readiness Reporting System has integrated the Language Readiness Index, a data visualization tool that shows both the language requirement and the joint force's language capability inventory. These databases highlight individual foreign language capabilities, ensuring their potential identification by joint planners shaping expeditionary force employment.

Tasking the Language Capability

Combatant commanders set the requirement for joint force execution. As such, they are sensitive to disconnects between mission requirements and joint force capabilities, readiness, or force development. When commanders require capabilities from outside of their assigned forces, they look across the joint force by initiating an RFF.

It is this part of the joint planning process, the RFF, that starts a long bureaucratic chain identifying qualified and

Soldier with Joint Task Force Mustang, California National Guard, performs medical screening using American Sign Language interpreter on mobile device, at California State University campus in Los Angeles, February 15, 2021, to ensure accessibility of COVID-19 vaccine (U.S. Air National Guard/Neil Mabini)

ready personnel from the various Services and then deploying them under the operational control of a joint force commander. The RFF must reflect everything a planner desires out of an individual: occupation, rank, and any specialty skills (such as foreign language capabilities).

The Joint Staff J3, as the Global Force Management allocation lead, validates this capability request and recommends a Service to source the manpower.[10] The request flows down the Service's chain of command to a specific unit, which assigns an individual according to the request. The unit then forwards the RFF back the way it came. There is now a name for the combatant command to place on the Time-Phased Force and Deployment Data sheet, ready for employment on the mission.

Two factors hindered the New Horizons joint planning process in finding and tasking language-enabled

personnel. First, as discussed, there was no demand signal for Spanish speakers in USSOUTHCOM's planning guidance. Second, planners were unaware of the language-enabled personnel inventory and how to access it. Under these circumstances, there was little to no prospect of this tasking request delivering a Spanish-speaking healthcare provider. In the end, component planners agreed to add line remarks stating that Spanish language skills were "highly desired."

As a workaround, task force leadership asked permission to design a proof of concept intended to layer foreign language capabilities into the manning solution, which led to implementing two manpower initiatives: pre-source medical taskings based on SEIs and DLPT scores; and access additional interpretation support from nonmedical Airmen with both DLPT scores and additional interpretation training via LEAP.

Working with the Air Force LREC office, planners received data from the Air Force Personnel System listing individuals with qualifier columns such as foreign language, language proficiency test score, and any International Health Specialist or LREC-related SEI. This list included 2,770 language-enabled officers and enlisted medics from every specialty in the Air Force Medical Service. Drilling down further, 1,027 of them were Spanish speakers, and 353 held the International Health Specialist identifier. Also, officer specialty consultants and enlisted career field managers were able to identify additional medical personnel with self-assessed Spanish skills who had not taken the DLPT.

Language-qualified Airmen were then vetted by local command, deployment band obligations, and Major Command Functional Area Managers. Once an Airman was cleared for participation, the

RFF arrived through normal channels to the individual's unit. The unit assigned the pre-sourced name and then returned the request as usual. Finally, the Airman's name was added to the New Horizons Time-Phased Force and Deployment Data sheet for deployment to Panama.

Concurrently, New Horizons task force leadership worked with the Air Force's LEAP office to identify Spanish speakers from any functional community able to provide interpretation support. Certain qualified LEAP participants receive in-country language and cultural immersion training. The program identified three high-quality personnel with DLPT-certified advanced language skills and additional training to support New Horizons. This proof of concept demonstrated a well-suited match—applying training to an operational need.

Layering this language capability into the original RFF took manual control over a systematic, if not automated, process. Vetting individuals was time-consuming and inefficient. Still, the proof of concept demonstrated that the inventory of members with documented foreign language skills was readily available in the force. Uniquely qualified individuals could be systematically identified in the DOD personnel management system. They could also be tasked formally, albeit through a laborious by-name-request basis. This tasking was the second critical planning gap—that between language requirement and capability—brought about by the joint planning process. However, the potential was established for the joint planning process to cast a wide LREC net across a large pool of qualified and eligible personnel. If properly utilized, this net could allow the formal joint planning process to deliver better results than would a manual workaround.

The Language Skills Impact

As planning reached fever pitch just a few months before execution, congressional appropriation delays forced planners to cancel the first medical mission. This operation was scheduled to send 45 medics to execute health fair–style events for 1 month in the Darién region, a strategically important location

bordering the jungle next to Colombia. In security cooperation terms, this was the hot zone for illicit trafficking where our humanitarian outreach would have had tremendous impact. Losing this mission was a significant blow to our overall effort in Panama.

The decision was made to rescope the mission. Although it was true that we could not send a full medical team to deliver high-volume care, what if we sent a small team of three or four physicians to integrate into the local healthcare system? They could partner with Panamanian colleagues to deliver care in hospitals and clinics throughout the region. They could learn how locals treat endemic infectious diseases in a resource-constrained environment. In truth, such a mission might offer unprecedented training opportunities and advance the overall security cooperation effort. It could be done—but not without planners linking directly to the language skills inventory.

Four Spanish-speaking Air Force physicians were identified. They were tasked with and then executed this mission, embedding themselves into three regional health clinics. Over the course of 1 month, they saw 350 patients in busy clinical practices, treating them with local resources and therapies, and collaborating intimately with physicians, nurses, and staff to manage care. The team also took part in a combined medical outreach event with Panama's National Border Service and even linked up with social workers and clinicians to make home visits. Practicing in these resource-constrained environments challenged the Air Force physicians' operational readiness skills, while bilateral exchanges to develop treatment plans strengthened clinical capacities and interoperability for both Panamanian and U.S. clinicians.

The team's Spanish language skills varied from intermediate level to fluent. All were culturally sensitive and eager to engage with their patients and professional colleagues. The task force's public affairs team broadcast these efforts widely through social media. Each physician also was interviewed on a local radio station: The voices of our U.S. Air Force medics were reaching the ears of Panamanians

in a language they could understand. Despite a team composition that was only 8 percent of the originally planned force, USSOUTHCOM made tremendous gains in visibility and access in the region. Where a once-canceled mission threatened our security cooperation objectives, foreign language capabilities enabled an effort of great strategic value.

Fortunately, the follow-on medical and surgical teams were able to execute as planned. This is where the proof-of-concept sourcing intervention fully materialized. Of the durational leadership team, 66 percent of them spoke Spanish, including all members of the command staff. Furthermore, an unprecedented 75 percent of Air Force members on the medical outreach team had Spanish language skills—this directly facilitated the care of 7,200 patients in just 3 weeks.

Still, such a performance measure is routine for these types of missions. The impact of language skills is better reflected in three subtle but important ways: direct and clear communication with patients, expanded medical training opportunities, and intimate collaboration with local healthcare professionals.

In these health fair–style events, clinicians, nurses, and medical technicians process hundreds of patients every day. The team's language skills allowed them to largely bypass the need for interpreters, creating a seamless flow among providers, patients, and Panamanian partners. During patient care episodes, commonly used phrases were understood in their proper cultural context, minimizing the risk of misunderstanding and enabling a deeper connection to patients. In fact, multiple patients and host-nation staff inquired, incredulously, of our Servicemembers, "Do *all* of you speak Spanish?"

Having the agility that comes with foreign language capability, the mission commander carved out small Embedded Health Engagement Teams to work in local area clinics. Ultimately, 27 medics embedded into six clinics across two provinces. This effort exposed members to local disease burdens and pathology not seen in the traditional medical outreach events. As one

Iraqi brigadier general reviews inventory with U.S. Soldier and linguist, as part of U.S. Counter-ISIS Train and Equip Fund program, as U.S. Soldiers provide Iraqi border guard forces more than $2 million of ammunition for weapons from previous divestment at Al Asad Air Base, April 30, 2021 (U.S. Army/Clara Soria-Hernandez)

member's after-action report noted, "The severity and complexity warranted constant requests for consultations and . . . meaningful conversations regarding current clinical practice guidelines, evidence-based medicine, and . . . significant pathology (e.g., lung cancer, elephantiasis, new-onset seizures)."[11] The language and cultural competency of participants and key leaders ensured this improved training experience.

New Horizons clinical team leaders collaborated on the ground with Ministry of Health of Panama personnel to rapidly troubleshoot operational and tactical challenges, of which there were many. For example, medical supply shipments were delayed, leaving veterinary and optometry teams with few services to offer. Spanish-speaking personnel—including International Health Specialists, LEAP-trained interpreters, and the Marine Civil

Affairs team members—saved these missions by facilitating communication with local nongovernmental organizations. Similar logistics delays for the surgical team required heavy LREC lifting to work through challenges and ultimately prevent any mission degradation. Time and again, foreign language capabilities neutralized tactical threats while also forging deep and lasting partnerships with Panamanian colleagues in the public and private sectors.

The three LEAP-trained Airmen drew on specialized training and offered a baseline interpretation capability that could be controlled and relied on every day. These advanced-level Spanish speakers offered a wealth of language and cultural knowledge that facilitated key leader interactions, provider-patient interviews, and public events such as partner recognition ceremonies. Their

force-enabling function was on full display in the Panamanian hospital operating theaters; there they helped process patients, interpret for providers, and communicate constantly with local staff and logisticians. Their efforts maintained clinical workflows and protected patient safety standards, directly aiding 315 eye and ear surgeries.

Conclusion

The National Defense Strategy prioritizes readiness and the strengthening of our international partnerships. Foreign language capabilities cut to the heart of both. DOD and the military Services recognize this fact and consider language skills to be a key readiness component for executing globally integrated operations.[12]

DOD and individual Servicemembers invest heavily in acquiring, enhancing,

and sustaining foreign language capabilities within the joint force. These members and their language proficiency test scores are identifiable within DOD and Service-specific personnel systems. Efforts are increasing to ensure this capability is linked more deliberately to combatant command security cooperation objectives and operational plans. Combatant commanders can now utilize LREC annexes to their operational plans in order to send these demand signals to the force providers.

Two specific gaps in the joint planning process exist, however, and they keep operational requirements separated from the DOD LREC inventory. The combatant commands do not consistently demand this capability in their planning guidance, and joint planners are largely unaware of how to identify personnel with foreign language skills and task them appropriately. The root problem is scarcity of resources; a Servicemember tasked to support a security cooperation mission because of language capability is not available to support his or her unit's operational mission or even other deployments requiring his or her functional expertise. While this resource competition is real, a joint planning process that fully integrates DOD's expansive foreign language talent pool dilutes the burden on any one functional community.

Three deliberate actions to improve the joint planning process could mitigate these gaps. First, combatant commands must demand a more robust utilization of foreign language capabilities in their areas of responsibility. As an example, USSOUTHCOM should look at recurring exercises such as New Horizons as a prime opportunity to send the demand signal for foreign language skills. Planning guidance should compel the use of language-enabled personnel wherever possible, moving foreign language capability from a "highly desired" line remark to an actual requirement. The defense language community could then respond to this increased demand signal by better integrating, strengthening, or expanding its training pipelines.

Second, LREC needs to be a built-in step in the joint planning process.

Language skills, regional understanding, and cultural awareness and its implications on joint operational planning should be reinforced at various education and training levels. When planners move into joint operational planning roles, they should master how to link foreign language capabilities with mission requirements. Training should ensure that any planner involved in the RFF process is comfortable identifying and tasking foreign language capabilities.

Finally, language sustainment programs, such as LEAP, as well as foreign area officer and security cooperation officer training should leverage recurring combatant command deployment-for-training events, such as USSOUTHCOM's New Horizons or U.S. Indo-Pacific Command's Pacific Angel, as capstone training measures for their participants. These events are tailor-made to absorb language capability from across the DOD language training enterprise, providing a real-world culture and language laboratory that supports operational readiness skills development and advances theater security cooperation objectives. It is a lost opportunity not to link these efforts.

USSOUTHCOM's New Horizons 2018 experience in Panama implemented many proofs of concept that leveraged foreign language capabilities in ways that improved operational readiness skills and advanced theater security cooperation objectives. The ability to shape activities to meet a commander's intent, to integrate our forces into a partner nation's healthcare system, and to forge mutual trust with our counterparts all hinged on LREC competency. Simply put, New Horizons joint medical teams realized the full capitalization of DOD's foreign language investment.

Connecting capability to requirement ensures a virtuous cycle of LREC capitalization in which capabilities accomplish theater security cooperation objectives. Such utilization then pays value dividends back to the organization and to the individual Servicemembers. In the case of New Horizons 2018, those dividends are still paying out. **JFQ**

Notes

[1] Department of Defense Directive 5160.41E, *Defense Language, Regional Expertise, and Culture (LREC) Program* (Washington, DC: Under Secretary for Personnel and Readiness, August 21, 2015).

[2] Department of Defense Instruction 2205.02, *Humanitarian and Civic Assistance (HCA) Activities* (Washington, DC: Under Secretary of Defense for Policy, May 22, 2017).

[3] Kurt W. Tidd, *United States Southern Command: 2017–2027 Theater Strategy* (Doral, FL: U.S. Southern Command, April 4, 2017).

[4] Cameron Binkley, *The Defense Language Institute Foreign Language Center: A Pictorial History* (Monterey, CA: Defense Language Institute Foreign Language Center, 2011).

[5] Joseph E. Dunford, "Allies and Partners Are Our Strategic Center of Gravity," *Joint Force Quarterly* 87 (4th Quarter 2017).

[6] Gary D. Bauleke, interview with the Defense Human Resources Activity's Defense Language and National Security Education Office about executing the LREC-related Capabilities-Based Requirements Identification Process, June 29, 2020.

[7] U.S. Army, "Defense Language Institute," available at <https://www.goarmy.com/soldier-life/being-a-soldier/ongoing-training/specialized-schools/defense-language-institute.html>.

[8] Air Force Instruction 36-4005, *Total Force Language, Regional Expertise, and Culture Program* (Washington, DC: Department Headquarters of the U.S. Air Force, May 10, 2019).

[9] U.S. Air Force, "Language Enabled Airman Program," fact sheet, May 2018.

[10] Joint Publication 3-35, *Deployment and Redeployment Operations* (Washington, DC: The Joint Staff, January 10, 2018).

[11] Christopher Segura, comments on the Embedded Health Engagement, New Horizons 2018 Panama, May 2018.

[12] Chairman of the Joint Chiefs of Staff Instruction 3126.01A, *Language, Regional Expertise, and Culture (LREC) Capability Identification, Planning, and Sourcing* (Washington, DC: The Joint Staff, January 31, 2013).

U.S. Special Operations Soldier returns fire while conducting multiday Afghan-led offensive operations against Taliban, in Mohammad Agha District, Logar Province, Afghanistan, July 28, 2018 (U.S. Air Force/Nicholas Byers)

A Lesson from an Ancient
Facilitating Retreat and Desertion Among Insurgencies

By Joseph N. Rudolphi

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Even in our modern age we look to old ideas for wisdom, but *old* does not mean obsolete, and old voices can offer counsel. For instance, today Carl von Clausewitz is held in high regard, though in his own time he was merely a minor player in the Napoleonic Wars. This article has two related objectives: first, to discuss what a specific ancient voice has to offer us, and second, to consider how such old ideas could be implemented today, thousands of years later, in modern warfare.

That ancient voice is Publius Flavius Vegetius Renatus, more commonly referred to as Vegetius, a Roman general who wrote *De Re Militari* in the 5th century, hoping that his counsel would help return Rome to its glory days. One of his main ideas is controversial: An enemy's flight should not be prevented but facilitated.[1] Because Vegetius was writing about conventional warfare, this idea would not seem relevant to the many commanders throughout history who would come to read these words—rarely has a plan to encircle and completely destroy an enemy been replaced with a plan to let them run scared. In World War II, for example, armies made great attempts to encircle enemy forces. It

U.S. Navy Douglas A-4E Skyhawks from Attack Squadrons VA-163 Saints and VA-164 Ghost Riders attack Phuong Dinh railroad bypass bridge, 10 kilometers north of Thanh Hoe, North Vietnam, on September 10, 1967 (U.S. Navy/Jerry Breast)

was of great concern rather than a relief, especially early on for the Axis powers fighting the Soviet Union, that enemies could escape these encirclements.[2] And so, because of a historical lack of implementation, Vegetius's ideas largely faded into obscurity.

Vegetius, though, believed that an enemy, if trapped, with no hope for escape and no hope for mercy, might yet find hope in fighting to the death. He wrote, "Fear itself will arm an enemy, and despair inspires courage." He argued that, if left a chance to escape, an enemy would put all its effort into staying alive. To Vegetius, a perfect victory would look like this: An opposing force would be put into a situation where withdrawal would be seen as a benefit. Rather than cut this withdrawal off, Vegetius would

have the route of its withdrawal made for the opposing force. The opposing force, throwing all effort into a retreat, might succeed in saving some of its own but would be effortlessly cut down. Vegetius would win a battle without forcing a slaughter to the death—an effort that would have the potential to harm his own army. Vegetius's strategy is to tempt an enemy with the idea of saving its own forces. Indeed, this approach worked in conventional warfare recently, when Ukrainian forces, encircled by Russian and separatist armies in Ilovaisk, were offered a corridor for retreat; they took it and fell into an ambush that had decisive results. A humiliating defeat led to a ceasefire.[3]

Equally important is Vegetius's idea that an adversary is more hurt

by desertion than by slaughter. Extermination does not extinguish a cause; in some cases, it may further a cause in the long run. "Remember the Alamo" is a case in which the total extermination of an enemy eventually became a rallying cry. Brutal German atrocities in the Soviet Union during World War II turned enemies of the Communist regime into soldiers willing to fight—not for the protection of the state but for themselves and their families.[4] Showing an adversary that their cause is worthless, though, and getting them to abandon it would be the better strategy.

Can a coalition force create a strategy to put insurgents in a hopeless situation and generate an existential crisis? Can they achieve a victory against an insurgency that Vegetius sees possible against

conventional forces? It is possible. To begin, however, we must recognize that the strategy of state-building is *not* the strategy to achieve peace in places such as Iraq and Afghanistan. The U.S. joint force should instead look to its respective Service mission statements. For example, the U.S. Army mission statement reads, "To deploy, fight and win our nation's wars by providing ready, prompt and sustained land dominance by Army forces across the full spectrum of conflict as part of the joint force." Rather than prop up a state to fight a war via state-building, the U.S. joint force in cooperation with coalition forces must look to win a dominating, and thus decisive, victory. The current strategy of state-building simply props up a state to fight a war, leaving coalition forces in a support role. A support role would be fine if the states could both win in the field and create in the nation an atmosphere less susceptible to enemy recruitment; however, this has not been the case, and this strategy has been in use for too long—and enemies have been emboldened by its failure.

Coalition forces must look to a plan that would match with Vegetius's two ideas: facilitation of retreat and desertion. Insurgents do not fight war conventionally, and so these two ideas could be blended into one: Get the enemy to abandon the cause. Insurgents must be tempted with the idea of saving themselves. Two necessary preconditions must be in place for such a temptation to work: The insurgent must lack the means to effectively fight, and the insurgent must see life outside the insurgency as an improvement to his or her current state.

The first may be achieved by recognizing that insurgents, though they fight asymmetrically, have conventional needs. They need food, money, weapons, communications, supplies, and, most important, manpower. Combined, these elements create and sustain the insurgencies that for years have evaded defeat. Our current strategy seems to do the following: Prop up our state ally while fighting and defeating enemy manpower in search-and-destroy operations. The sole exception in recent years has been the so-called Islamic State (IS), whose

initial power surge allowed it to fight in the field as a conventional force; however, as its territory is diminished and its forces defeated in the field, it will begin to fight more like the Afghan and earlier Iraqi insurgents. Coalition combat operations in the tactical sense seem overly focused on defeating the product of a logistics system capable of making people willing to fight. Despite tactical victories, the strategic plan props up a state unable to achieve its own victories and unable to combat the network that produces insurgents.

To achieve Vegetius's first precondition for power—the insurgent must lack the means to effectively fight—a new strategy must focus on coalition forces combating the logistics. Crippling the logistics of an insurgency is needed to back it into a corner, and then diplomacy will be the avenue out for the lower ranking manpower to take. As Vegetius suggests, desertion of a cause must be facilitated, not prevented. A campaign that successfully brings about high levels of desertion will harm the insurgency beyond repair. This is the overall strategy.

How are insurgents having their logistics needs met? Jonathan Owen, a former Marine officer and security and protection expert, noted that insurgencies, including those operating in Afghanistan, receive support from a neighboring state. This predicament was true in the Vietnam War, the Israeli-Palestinian conflicts, and numerous other battles. IS is likewise reportedly receiving support from other countries in its region, and many foreigners are among its ranks. States that provide support are essential for insurgents; they allow sanctuary, giving insurgents a place to organize for future movements or rest and regroup after a tactical defeat. Osama bin Laden himself was killed not in Afghanistan but in Pakistan, close to its capital and near a military academy. The Barack Obama administration rightly pressed Pakistan for answers on how he could have operated unnoticed.[5]

Removing state support by way of strict border security is Owen's solution to striking at enemy logistics.[6] Owen believes that once insurgents are denied freedom of movement they

will become liabilities to those nations where they have found sanctuary. To restore capability, these insurgents would have to make more conventional moves that would have little chance of success against coalition forces with vastly superior conventional capability. Insurgents may attempt, for example, conventional assaults on border passes, hoping to reopen them.[7] When these assaults fail, insurgents may try to force their needs on their sanctuary state—becoming a liability where it once was a tool.

Forcing a sanctuary state to reverse its policy is not without historical precedent. In the late 1960s, Jordan provided sanctuary to the Palestinian group Fatah, led by Yasser Arafat. Soon, however, the guerrilla group became a liability to Jordan. Fatah disregarded Jordanian law and tried to undermine the government. When Jordan's government decided enough was enough, Jordanian forces struck back in September 1970. Historian James Gelvin put it simply: "As can be inferred from the epithet 'Black September,' the results of Arafat's decision were disastrous for the Palestinians."[8] The Palestinians suffered heavy losses and sought refuge in Lebanon. Contrast the results of having the sanctuary state itself crack down to those of an invasion, an approach Israel took with Fatah's new sanctuary state. The Israeli invasion succeeded in forcing the relocation of the Palestine Liberation Organization (PLO) and Fatah, but Israel also gained new enemies. Arafat, the PLO, and Fatah were able to escape and benefited over the long term from the effects of Israel's invasion.

Past failures to secure borders and cut off logistics have had decisively negative impacts on the ability of U.S. forces to win a war. In Vietnam, rather than secure the border to stop infiltration from the Ho Chi Minh trails, the U.S. Armed Forces chose to just bomb the trails. The effectiveness of this strategy was doubted even at the time, but it proceeded nonetheless. Even with heavy bombing, the number of insurgents getting into Vietnam increased over time. U.S. intelligence estimated that 35,000 guerrillas got into South Vietnam in 1965;

in 1967, estimates put that number at 90,000.[9] The Viet Cong could meet its conventional logistic needs to fight its guerrilla war. Its state support from North Vietnam, Laos, and Cambodia was neither effectively hindered nor removed. Attacking conventional needs would force insurgents to refocus. By putting states supportive of insurgencies into situations where they must choose between their own security or that of the nonstate group, the United States could begin to maneuver insurgents into the trap that Vegetius recommends. While this strategy may have an adverse effect on relations between the United States and those sanctuary states, it has the potential to improve relations—as those sanctuary states come to realize that the dependent insurgents are as much of a threat to them as they are to others.

Pakistan, for example, has already come to this realization. It has been rightfully accused in the past of being a sanctuary for the insurgents fighting coalition forces, just as it was to insurgents fighting Soviet forces. But the situation did not evolve as Pakistan expected; rather than sponsoring other groups as tools for Islamabad's agenda, groups like the Taliban have taken advantage of Pakistan.[10] The Pakistanis themselves have recognized the significance of their border problem and have been constructing barriers on the Durand Line, the border between Afghanistan and Pakistan.[11] This is a great opportunity. Pakistan, previously the haven of bin Laden, is taking steps to address the logistics of the insurgency in Afghanistan. These efforts should be praised by the United States and reciprocated on the Afghan side of the border because they begin to lock insurgents into Vegetius's trap.

Just as the freedom of insurgents to move abroad must be hindered, their local movements must be hampered by addressing civilian security, terrorist recruitment, and even economic concerns. Minimizing the negative impacts of a counterterror campaign on the lives of civilians might help them understand that eliminating terror could improve their lives, which could adversely affect recruitment efforts. Improvements to the lives of citizens in countries such as Iraq and Afghanistan could have two major positive effects. First, a citizen whose life is being improved by the campaign will be more invested in its success. Second, an insurgent who is being paralyzed by the campaign—while seeing improvements in the lives of those who are not—will become more likely to desert the cause.

The United States and the North Atlantic Treaty Organization do make efforts to improve civilian life in missions such as Operation *Resolute Support*, which has helped make several enhancements to the Afghan quality of life.[12] Despite such efforts in Afghanistan, a survey by the Asia Foundation showed that just 36.1 percent of Afghans believe their country is moving in the right direction; for those who answered it was moving in the wrong direction, security was cited as the main concern.[13] In 2020, attacks throughout the month of November killed over 400 Afghan government forces and civilians.[14] Many Afghans are nervous about the withdrawal of U.S. forces because of the failure to achieve security. Some fear the Taliban will regain power. Others welcome the withdrawal; they reason that, because the United States has failed to achieve security, the withdrawal may at least lower their chances of being caught in the crossfire.[15] The violence has meant that the people have a continuous grievance against the counterterror campaign, despite some security improvements throughout their country. For insurgents to be effectively tempted out of their respective organizations, security and economic progress must be achieved in unison.

The failure to achieve security is itself an immense burden on the Afghan economy, which further stresses the security problem. In Afghanistan, for example, migration is a strategy the Afghan people use to cope with insecurity. The migraters are primarily unemployed males, who may resort to measures they deem necessary for survival.[16] These measures may be instigating terror itself or simply doing something that aggravates the problem of establishing stability, such as criminal activity. At the same time, the constant population movements make efforts to secure civilian safety difficult. To secure the people, it is necessary to negotiate directly with them, on a local level, rather than with their national leaders.

Moreover, the United States should encourage the formation of local communities; doing so would not only help protect community members but would also demonstrate an element of trust between the militia and the group it serves. In the past, disarmament achieved mixed results—for example, in 2005, when the Disbandment of Illegal Armed Groups program began. At this time, the insurgency was growing and Afghan forces were weak, resulting in fewer local armies available for achieving security.[17] Achieving security on a local level would allow improved economic progress on a local level, allowing the populace to remain where they are. A fixed populace with both a stable economy and a local militia is less susceptible to being recruited by or becoming part of the logistics network of an insurgency.

Allowing communities a chance to defend themselves is not abandoning them to take charge of their own defense; rather, it is the same logic the United States uses at home regarding civilians and law enforcement. Civilians may arm themselves with certain weapons and can use lethal force to defend themselves under certain circumstances. If they cannot, law enforcement is there to help. The long war in Afghanistan has caused Afghans to develop a gun culture of their own. They have referred to their weapons as "an insurance policy," and disarmament was already controversial and not popular early on in U.S. involvement.[18]

When communities stood up for their own defense, the results were positive. In 2009, 160 local Shinwari tribal leaders in Nangarhar Province made a deal to publicly denounce the Taliban, in the hopes this statement would get them some say over their own security. The coalition, they hoped, would remove corrupt officials from the national government and allow the tribes to have a say over who would lead the Afghan national police in their area. When the tribal leaders took this stand, their people stopped assisting the Taliban, delivering a considerable

U.S. Special Operations Servicemembers conduct combat operations in support of Operation *Resolute Support*, in Southeast Afghanistan, May 2019 (U.S. Army/Jaerett Engeseth)

blow to its capabilities. The stand also gave Afghans a chance to improve local governance. Despite the success of this approach, encouraging future deals at the tribal level was forbidden thereafter due to the complaints of the national government.[19] The successes in this example, however, suggest that bypassing national governments to negotiate directly with the communities where terror takes place could bring about decisive results. If this approach angers national governments, then perhaps the United States could, in the future, encourage national governments to make these agreements themselves, which would ideally produce similar results and forge trust between the national governments and local communities. Entrusting communities to take a share of their defense would embolden them as it did these tribal leaders.

There is a risk, however, in allowing communities to arm and share in their own defense: Warlords could take

control. But this is a risk the United States already runs when it supports certain states with corrupt governments. This risk could be mitigated by reorganizing the idea behind the militias in such states as Iraq and Afghanistan. Militias in these war-torn states are rightfully feared due to their size and political influence. The United States should ensure that militias are organized and legitimized as smaller units, with limited armaments around their actual communities rather than large regions of land. They would be less of a threat to national government yet still invested in their future through defense of their communities. In 2009, for instance, coalition and Afghan forces—out of concern over militias challenging the national government—lost an opportunity to bring local defense initiatives in Nangarhar under their control.[20] The bigger threat to the national government would be local defense initiatives without legitimization through the

national government; local defense forces may then take more matters into their own hands.

Simply put, local support is essential for security progress. Without it, insurgents could take advantage of the disconnect between local and national efforts to combat them, sustain the means of continued resistance, and therefore maintain hope for their cause. Against an enemy that still has hope and means to fight, Vegetius's suggestion of allowing an escape would have no effect.

Insurgent groups could be weakened, however, if state and local support is greatly reduced. It is perhaps to the advantage of U.S. forces that insurgents have organized into groups, such as al Qaeda and the Taliban, and not remained as individuals. An organization needs a logistics system capable of supporting it. Clausewitz himself believed that, if an armed group of individuals became organized, it could be crushed, causing

remaining individuals with similar hopes to see the war as already decided, ceasing their resistance.[21] With support hindered, individuals' flight from the insurgency could be facilitated. So, as Vegetius suggests, offer these insurgents a way out. If a way out is not offered to them when their cause seems pointless, a terrorist group will likely resort to increasingly desperate and violent measures as it tries to gain space and attention. Quite simply, when the terrorist cause is hopeless, a general amnesty should be offered—though not to those in leadership positions or to those known to have committed atrocities. Such an offer would throw a terrorist insurgency into disarray as its lower ranks, those who have to do the actual fighting, see that their lives would be better if they were allowed to return to their homes in peace. Trapping them with no hope for mercy, even if they surrender, would only spur them on.

Where the United States should employ such a method of pardons for the sake of further peace is Iraq. As Iraq finishes dealing with its IS problem, its solution is violent retaliation against all members and collaborators. In June 2018, for example, in response to the kidnapping of some of its soldiers, the Iraqi government executed 13 IS prisoners and then ordered the hangings of hundreds more.[22] This action is only a short-term gain; it makes the Iraqi government look as though it has a strong resolve. Should IS members be expected to surrender if what awaits them and their families is execution? Perhaps a better method would be to release, observe, and, if necessary, report members if they return to terrorist activity. A state such as Iraq does not possess this capability, or even the will to carry it out, but the United States does.

A defeat coupled with the temptation of a better life should be the goal of coalition and joint forces combating insurgents. Better conditions, such as those being built in *Resolute Support*, are not enough. Inflicting a defeat is equally insufficient. Achieving security in conjunction with improvements to quality of life ensures three things. First, security measures mean that insurgents will have great difficulty operating undetected; their cause will be an uphill battle. Second, a secure nation with an improved quality of life will yield fewer recruits. Third, an enhanced quality of life outside the ranks of the insurgency will tempt existing insurgents to lay down their arms for peace. Of course, this approach will not work for everyone; there are inevitably those who would still die for the cause. Many, however, will take the opportunity to have their lives spared, forsaking the cause for their own physical well-being. Our adversaries, under proper conditions, could be hurt more by desertion than by slaughter. **JFQ**

Notes

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[7] Ibid., 120.

[8] James L. Gelvin, *The Israel-Palestine Conflict: One Hundred Years of War*, 3rd ed. (Cambridge: Cambridge University Press, 2014).

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Deconflicting Exercises and Experimentation Under Global Integration

By Francis J.H. Park

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Since its introduction to the joint force in the 2016 National Military Strategy (NMS), global integration has led to sweeping changes not only in strategy but also in the processes and instruments that implement it. Initial explorations of global integra-

tion, expressed through the 2016 NMS and the 2017 Joint Strategic Campaign Plan, focused primarily on force employment in the years of execution of the Future Years Defense Program (FYDP). As it matured in subsequent strategic directions, including a major revision of the Joint Strategic Planning System in 2018 and the 2019 *Capstone Concept for Joint Operations*, global integration started to address aspects

of the future force that might appear in the "out years" of the FYDP.[1] Two instruments to realize global integration exist in exercises and experimentation. While they may look similar, they serve different purposes, and the distinctions between the two are often not apparent to those participating in these activities. However, the Department of Defense (DOD) literature that guides exercises and experimentation is not

well known outside of the joint force development and joint capability development communities. A fuller understanding of those activities and their differences will better enable those responsible for visualizing tomorrow's force and the strategic choices that will shape the future U.S. military.

Strategic Context

The 2018 National Defense Strategy (NDS) contains a charter to DOD "to out-think, out-maneuver, out-partner, and out-innovate revisionist powers, rogue regimes, terrorists, and other threat actors."[2] Implementing that charter to the Services and combatant commands (CCMDs) occurs through the 2018 NMS.

The 2018 NMS introduces a continuum of strategic direction comprising three strategy horizons to visualize the current and future strategic environment. The first, *force employment*, focuses on attainment of the NDS's near-term objectives, typically from the present to 3 years in the future. The second, *force development*, adapts the current joint force for greater capability, generally 2 to 7 years in the future. The innovation required to maintain competitive advantages over future adversaries is a function of the third, *force design*, which typically looks out 5 to 15 years.[3]

The reason for these overlapping time horizons is their interdependent relationship. Whereas force employment addresses immediate problems in the security environment, the lessons learned and readiness assessments in force employment inform the conduct of force development to address near-term capability gaps. Similarly, the evolutionary changes in force development also serve as a bridge to the more disruptive and revolutionary change that occurs in force design. Vetting activities across the continuum of strategic direction requires a clear eye as to which activities serve which horizons of the military strategy.

Differentiating Exercises and Experiments

Exercises and experiments may look outwardly similar but differ materially in their purposes. In the absence of any one authoritative source for definitions of these terms, the definitions that do exist are more descriptive than normative. Joint doctrine provides a starting point, but it is not sufficient to define this taxonomy.

Exercises. Consistent with its definition in doctrine, exercises build readiness against an established standard, which suggests training against an existing plan or mission-essential task.[4] Given their orientation on readiness, exercises primarily support force employment. Exercises may also identify capability gaps that can inform force development work.

Experiments. In the absence of a formal or normative definition, experimentation explores unknown relationships and outcomes that result from new technologies and concepts, new applications of existing capabilities, and emerging threats. Experiments drive further research and inform decisions on the future force.[5] Thus, defense experimentation is the appropriate process for matters relating to force design and its associated concepts and capability development.

Defense experimentation generally falls into three broad methods: workshops, wargames, and field experiments. All three share the exploration of unknown relationships and outcomes, but their conduct varies considerably. Workshops are forums for discussion of potential threats, technologies, and concepts, and they often form the basis for more detailed experimentation. Wargames are simulations that allow for evaluation of technology, concepts, and concepts of operation, a common example of which are tabletop exercises.[6] Field experiments involve the use of military personnel and equipment in the anticipated operational environment.[7] A clear distinction between exercises and experiments and the varieties of experimentation will create clarity and direction for their respective purposes, while helping stave off a conflation of the two. Allocating time and resources against force employment activities may not bear fruit if applied uncritically to force development and force design activities.

While the continuum of strategic direction is a recent construct, it provides a lens to recontextualize previous exercise and experimentation activities. In the absence of publicly available reporting from more recent exercises or experiments, three case studies illustrate the complementary relationships that exist across force employment, force development, and force design and, in one case, highlight the hazards of conflating the three.

Exercises for Force Employment: III Corps Battle Command Training Program Exercise (1989)

During the Cold War, the U.S. Army's III Corps had a follow-on mission to deploy from its bases in the United States, draw prepositioned stocks, and reinforce the North Atlantic Treaty Organization (NATO) defense of northern Germany against a Warsaw Pact invasion.[8] In light of that mission and the Army's capstone doctrine of AirLand Battle, Lieutenant General Crosbie Saint, commanding III Corps, developed a vision of a mobile armored corps that could fight after deploying with its own or prepositioned equipment, be able to road-march over 100 miles, and then fight from the march. Expressed through a concept paper written in 1987 by Lieutenant Colonel L. Donald Holder, that vision became the focal point for training the corps and its subordinate units.[9]

The first collective training event that allowed III Corps to exercise its corps-level command functions for an attack from the march occurred at Fort Hood, Texas, in January 1989, during the first corps-level exercise conducted by the Army's Battle Command Training Program (BCTP). That exercise was predicated on Saint's vision, Holder's concept paper, and the exercise's own implementation through a series of training events. Evaluated tasks for the corps included movement control, a corps-level refuel on the move, coordination of close air support and air interdiction, and command and control of the corps while facing long-range artillery fires and special operations forces raids.[10]

The true validation for Saint's vision and Holder's concept occurred against an adversary far removed from the plains of

M-557 communication vehicles form one wall of command center at new location of 2nd Armored Cavalry Regiment during Operation *Desert Storm*, February 12, 1991 (U.S. Army/David Faas)

northern Germany. The theoretical and practical work that had come out of the III Corps BCTP exercise bore fruit when VII Corps and XVIII Airborne Corps conducted those approach marches not once, but twice during Operation *Desert Storm*. The first was to set the corps and all subordinate maneuver forces into the attack positions prior to the "left hook" of the main attack. That movement required XVIII Airborne Corps to pass through VII Corps, a challenging task made even more difficult by the need to screen the former's movement prior to the attack. The second was the left hook itself, which included, among other activities, a corps-level refuel on the move (while in contact, in the case of VII Corps).[11] Both corps had augmentation from III Corps units that were deployed to the *Desert Storm* theater of operations. Holder, promoted to colonel in 1989, would eventually put his money where his mouth was: His 2nd Armored Cavalry Regiment was at the vanguard of the VII Corps attack in *Desert Storm*.

What had started as a vision and concept paper in 1987 had been fleshed out into procedural rigor 2 years later. The January 1989 BCTP was an exercise in the classical sense of the term—it was oriented on readiness for combat. The missions and requirements that III Corps faced in that exercise were known; the challenge remained to build readiness to execute those missions to standard. By 1991, that readiness had spread across enough of the force to the point where two other corps did exactly what Saint and Holder had originally envisioned.

Exercises for Force Development: Nifty Nugget (1978) and Its Successors

The principal mission facing the U.S. military in Western Europe was reinforcement of NATO's defense of the region. The first comprehensive examination of the readiness of the U.S. military for that wartime reinforcement mission was a Joint Chiefs of Staff command post exercise called Nifty Nugget, which occurred October 10–31, 1978, and simulated a short-warning Warsaw Pact attack on NATO. It also coincided with a national exercise to drill interagency partners in conjunction with DOD.[12]

Nifty Nugget certainly did not produce the envisioned outcomes. Occurring a year after the Defense Transportation System had been declared ready for operations, Nifty Nugget saw the majority of the forces deploying to Europe arriving piecemeal, without their equipment, or far too late to be operationally relevant.[13] Units deploying from the United States coincided with a noncombatant evacuation operation of more than a million dependents from Europe, which generated a demand for airlift 10 times larger than the available mobility airlift force. In the meantime, in the words of an unnamed high-level Pentagon official, "The Army was simply attrited to death."[14]

U.S. Marines assigned to Fleet Anti-Terrorism Security Team Central Command conduct close-quarters battle training during exercise Neon Defender 21, in Ras al Qarain, Bahrain, April 4, 2021 (U.S. Marine Corps/Victor A. Mancilla)

In the wake of Nifty Nugget, the Joint Chiefs of Staff established the Joint Deployment Agency (JDA), a combat support agency to coordinate deployment procedures among the Services. Unfortunately, the JDA had no authority to direct the Services or CCMDs to address identified deficiencies. To add insult to injury, the Services fought successfully to keep their logistics and transportation planning systems separate from the JDA.[15]

In 1980, a successor exercise named Proud Spirit involved a much less ambitious NATO reinforcement scenario, with equally dismal results. Proud Spirit exposed critical gaps in the defense industrial base and DOD command and control systems at the national level.[16] Improvements to those systems and some associated processes led to better results in 1982 in the Proud Saber exercise, which involved a global crisis response scenario.[17]

The issues raised by Nifty Nugget and its successor exercises, as well as the shortfalls of the JDA, became a touch-point for discussions within DOD and in Congress. The first substantive step to filling the capability gaps appeared with the establishment in April 1987 of the U.S. Transportation Command, whose efforts were pivotal to deploying and sustaining the joint force during Operations *Desert Shield* and *Desert Storm* and their spectacular tactical and operational successes.[18] That success would have been impossible without the force development work to address the problems in the DOD logistics enterprise first identified in exercises.

A Demonstration Packaged as an "Experiment": Millennium Challenge (2002)

The onetime U.S. Joint Forces Command (USJFCOM) was unique among CCMDs. Rather than focusing on employment of the force, it was responsible for preparing forces as a joint trainer, providing tailored packages as a joint provider, and developing concepts and interoperability standards as a joint integrator so that other CCMDs could employ those capabilities worldwide. Those authorities also uniquely complemented USJFCOM's role as the DOD executive agent for joint experimentation.[19]

The 1999 *Defense Planning Guidance* directed USJFCOM to develop a new joint operations concept, called rapid decisive operations (RDO), that would tie together effects-based operations and network-centric operations as part of DOD transformation efforts.[20] To vet the RDO concept, USJFCOM planned to integrate Service-level transformation experiments in a series of field experiments called Millennium Challenge, the first of which occurred in 2000.[21]

Two years later, Millennium Challenge 2002 (MC02) would be the largest joint military experiment ever

conducted. It involved 13,500 personnel from all Services; 8 live land, sea, and air ranges; and 17 simulation sites—and it integrated those live and virtual activities into a single exercise.[22] The integration of live activities required some training value for the tactical forces involved that resulted in limited availability of certain essential platforms.[23] That confluence of training and experimentation created artificialities in the experiment, which included an opposing force (OPFOR) that would be allowed to operate freely, within the constraints of the scenario.[24]

Unexpectedly, the OPFOR destroyed most of the blue force maritime surface combatants minutes after commencement of experiment play. The maritime component was resurrected with a change in the rules of engagement to prevent the OPFOR from initiating contact. Furthermore, the experiment had been designed so that the first 15 days of force flow were already complete. Doing so avoided real-world interference with the Defense Transportation System but eliminated any antiaccess/area-denial play that might have undermined the RDO concept.[25]

Rather than an experiment, MC02 was really a demonstration: highly scripted and orchestrated activities that minimize the likelihood that a solution will fail.[26] That admission is buried in the middle of the USJFCOM official report: "As the exercise progressed, the OPFOR free-play was eventually constrained to the point where the endstate was scripted. This scripting ensured a Blue operational victory and established conditions in the exercise for transition operations."[27] The desire to retain some value for MC02's live participants, who were conducting exercises for training, came at the expense of the experiment's stated main objective to vet an unproven concept.

Placing Exercises and Experimentation Within Global Integration

While global integration has entailed major changes to the joint force's functions and processes to account for strategic challenges that outstrip the ability of a single CCMD to address,

Figure 1. Continuum of Strategic Direction
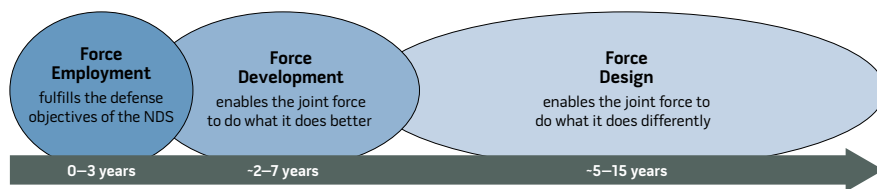
the nature of the underlying relationships between exercises and experiments (and especially their subcategories of wargames and field experiments) remains unchanged. The challenges in scheduling events among multiple CCMDs that span the entire continuum of strategic direction leave little room for wasted effort when developing exercises and experiments. It is possible for them to intersect, but it cannot be done haphazardly, as both will suffer.

Global Integration for Today: Exercises for Force Employment

In force employment, the 2018 NMS introduces the notion of *joint combined arms*, defined as "the conduct of operational art through the integration of joint capabilities in all domains." The basis of joint combined arms is premised on competitors and adversaries operating across multiple CCMD areas of responsibility and domains to offset or erode traditional joint force advantages.[28] Readiness to meet those challenges starts with the adaptations that have been made to the joint planning processes to address campaign and contingency planning requirements that span more than one CCMD.

For day-to-day activities, global campaign plans (GCPs) guide the development of combatant command campaign plans (CCPs), which are the instruments for implementing the direction in the GCPs. For contingency planning, global integration frameworks (GIFs, formerly known as globally integrated base plans) unify the direction of multiple war plans directed in the Contingency Planning Guidance and the Joint Strategic Campaign Plan. Both GCPs and GIFs provide a common view to requirements, resource allocation,

risk, and decisionmaking across multiple CCMDs.[29]

For decades, combatant commanders have conducted exercises to train their joint mission-essential task lists, exercise CCMD contingency plans, and maintain trained and ready forces. It is entirely possible for those exercises to address the transition from a CCP to a contingency plan, but given limited time for training, it is more likely that an exercise will focus on actually fighting the CCMD with its assigned and attached forces in combat operations.

Since 2018, the Joint Staff has conducted globally integrated exercises (GIEs) to assess readiness across the joint force for contingencies and validate operational plans and mature joint concepts. GIEs involve multiple CCMDs in operations against strategic challenges. Akin to the role that contingency plans play for combatant commanders, a GIF is the logical input into exercising execution across multiple CCMDs in a GIE.

Global Integration for the Future: Experiments for Force Development and Force Design

The 2011 disestablishment of USJFCOM eliminated the DOD executive agent for joint experimentation, and the responsibility for joint experimentation that accreted back to the Joint Staff was in turn eliminated in 2013. A subsequent revision of Chairman of the Joint Chiefs of Staff Instruction 3010.02, *Guidance for Developing and Implementing Joint Concepts*, in 2016 removed almost all language related to *experimentation*, replacing that umbrella term with references to tabletop exercises and wargames.[30] Implementing global integration through force development and force design has led to

a resurgence of interest in experimentation; the 2018 NMS explicitly tasked the Joint Staff with reinvigorating experimentation to identify and refine emerging capabilities, concepts, doctrine, and lessons learned. The basis for that work is the force development and investment priorities in the NDS.

The first tangible step toward that revitalization occurred in 2019 with the Joint Staff's inaugural globally integrated wargame (GIWG), which was intended to establish baseline areas for exploration in future exercises, experiments, and analysis. Building on the 2019 *Capstone Concept for Joint Operations* and the GIWG, work is now under way on a joint warfighting concept that will provide a basis for further experimentation across multiple CCMDs.[31] In turn, experimentation results provide a deep look at new capabilities to be validated through the Joint Requirements Oversight Council for inclusion into the FYDP.

Some Propositions for Exercises and Experimentation in Global Integration

Global integration offers an opportunity to unify exercises and experimentation in a way that will contribute to a unified view of readiness and future investments across all CCMDs and Services. Future work toward that end suggests a number of propositions to ensure that future exercises and experiments complement rather than impede one another.

A Globally Integrated Base Plan and Its War Plans Must Be Reconciled Before a GIE. A critical prerequisite for a GIE is a close relationship between its evaluated GIF and its complementary CCMD plans because execution of a GIF occurs through distributed execution by multiple CCMDs. In the absence of that close relationship, there is no basis to integrate CCMD exercises into a GIE. Additionally, a GIE and its complementary efforts at the CCMD level correspond to the same conceptual activity in the global campaign.

There are two dichotomies in exercise design that should be addressed for a GIE. The first is reconciling activities between the Joint Staff and the CCMDs. The risk exists that CCMD-internal exercise requirements may not correspond to or even conflict with the GIE training objectives. If not resolved, neither the Joint Staff nor the CCMD will gain training benefit from the GIE.

The second dichotomy is in the relationship between a GIF and its CCMD plans. The distributed execution of a GIF through subordinate plans may result in different focuses of effort. Global integration generally focuses on strategic choices and decisionmaking at the national level, while CCMDs exercise the consequences of those national decisions and execution of their concepts of operations in a region or domain. The risk exists that many of the tasks to be exercised in a GIF may not correspond to the tasks in a contingency plan that a CCMD would exercise. If not reconciled, exercising global integration can become difficult, if not impossible.

Concepts Must Reach Maturity Before Inclusion in an Exercise. The complexity and scope of a CCMD exercise are already challenging. That complexity increases significantly for a GIE that integrates the activities of multiple CCMDs. That scope and the demands of coordinating exercises with senior leaders' schedules make GIEs necessarily uncommon. Consequently, the size and audience for a GIE may also lead to the temptation to exercise concepts that have not matured. In many cases, those concepts will not have been written into the execution of GIFs or CCMD plans and may have to be "shoehorned" into an existing plan. Doing so may confuse or misrepresent combat capability that actually detracts from the readiness that should come out of an exercise.

Maturing concepts require experimentation to vet them for capability development or further exploration. More likely than not, those transformational concepts, while benchmarked against the force development and investment priorities of the NDS, will be set against the strategic environment described in the joint operating environment and other futures documents. Another reason to distinguish exercises from experimentation is to ensure that the concept reflects the assumed future strategic environment before it might be considered mature. Only after the concept matures should it be incorporated into an operational plan and subsequently assessed in an exercise.

The Full Scope of Joint Experimentation Will Require a True Joint Force Trainer and Joint Force Provider. The disestablishment of USJFCOM led to a substantial weakening of its former joint force trainer, provider, and integrator roles. The diminution of those roles saw little fanfare; the Services reoccupied the training space where joint priorities were trained only by consensus, while the Joint Staff assumed oversight of force management and interoperability work. After USJFCOM's disestablishment, the demand and functions for joint experimentation disappeared entirely. Command post exercises, workshops, or wargames are now focused at the CCMD level or conducted internal to the Joint Staff. While the Services have conducted some field experiments, there have been no joint field experiments since MC02.

There is one other implication to global integration from joint experimentation that actually stems from recent changes in global force management. The introduction of dynamic force employment in the 2018 NDS suggests an emergent need for a combined joint force trainer and provider given the competing demands among CCMDs in the security environment. Should DOD embark on joint field experimentation, such a relationship would empower the task organization and training of experimentation forces while minimizing disruption to their wartime readiness. Additionally, field experimentation provides a mechanism to directly balance the allocation of forces across employment, development, and design, rather than leaving that decision up to the mercy of internal Service priorities.

While exercises and experimentation have long been a part of joint force activities, the challenges of global integration across the continuum of strategic direction emphasize the need to maximize the

effectiveness of both. Ensuring that the two complement each other is a necessary first step, in spite of the temptation to combine some of their aspects. A joint force trainer and provider with authorities to train and source across the entire joint force would assist in balancing resources for experimentation for force development and force design with those allocated to force employment. Mixing exercises and experiments requires an informed perspective to opportunities and risks in order to preserve readiness for combat, while ensuring that the joint force can best prepare for the future security environment. **JFQ**

Notes

[1] Consistent with its use in the 2018 Joint Strategic Planning System and the 2018 National Military Strategy, the term *joint force* collectively refers to the Joint Staff, military Services, unified combatant commands, and their assigned forces. While the joint force interacts with them, it does not include the Office of the Secretary of Defense, Defense and combat support agencies, or interagency partners. The out years are the 4 years following the 2 "years of execution" in the Future Years Defense Program.

[2] *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), 5.

[3] The term *force development* differs from the Chairman's statutory function of joint force development in Title 10, U.S. Code, Section 153. See Chairman of the Joint Chiefs of Staff (CJCS), *Description of the 2018 National Military Strategy of the United States of America* (Washington, DC: Joint Chiefs of Staff, 2019), 1–3, available at <https://www.jcs.mil/Portals/36/Documents/Publications/UNCLASS_2018_National_Military_Strategy_Description.pdf>.

[4] The term *exercise* is defined in Joint Publication (JP) 3-0 as "a military maneuver or simulated wartime operation involving planning, preparation, and execution carried out for the purpose of training and evaluation." JP 3-0, *Joint Operations* (Washington, DC: The Joint Staff, January 17, 2017, Incorporating Change 1, October 22, 2018), GL-9.

[5] Office of the Under Secretary of Defense for Research and Engineering, *Department of Defense Experimentation Guidebook* (Washington, DC: Department of Defense, 2019), 4–6.

[6] Ibid., 9.

[7] Ibid., 10–11.

[8] Thomas D. Morgan, "BCTP: Preparing for War," *Military Review* 69, no. 11 (November 1989), 6–7.

[9] General Crosbie E. Saint, senior officer oral history program interview by Robert Wilson, General Crosbie E. Saint papers, vol. II (Carlisle, PA: Army Heritage and Education Center, 1994), 137–138; Lieutenant General Leonard D. Holder, USA (Ret.), interview by author, December 23, 2011.

[10] In an armored unit refuel on the move, subordinate elements may stop long enough to refuel and rearm, but the larger organization never stops moving. See Priscilla Offenhauer and David L. Osborne, *History of the U.S. Army Battle Command Training Program, 1986–2003* (Washington, DC: Headquarters Department of the Army and Library of Congress, Federal Research Division, 2007), 79–80.

[11] Colonel Richard Hart Sinnreich, USA (Ret.), interview by author, January 9, 2012, transcript in author's possession. In 1986, Colonel Sinnreich was director of the School of Advanced Military Studies and was responsible for promulgating the AirLand Battle doctrine published in the 1986 edition of Field Manual 100-5, *Operations*. Holder replaced Sinnreich as director of the school in summer 1987.

[12] "Countdown to 75: US Army Europe and REFORGER," *Army.mil*, March 22, 2017, available at <https://www.army.mil/article/184698/countdown_to_75_us_army_europe_and_reforger>; William K. Brehm and Ernst Volgeneau, *Evaluation Plan: Exercise Nifty Nugget 78* (Washington, DC: Logistics Management Institute, October 23, 1978), 2–3, available at <https://apps.dtic.mil/sti/pdfs/ADA061772.pdf>.

[13] John G. O'Hara, "Strategic Mobility: We Have a Long Way to Go!" *Defense Transportation Journal* 37, no. 4 (1981), 27–30; Gail E. Yoshitani, "The Power of Simulation" (master's thesis, Duke University, 2001), 1–5. Yoshitani's master's thesis remains the single best overview of the factors leading up to Nifty Nugget and the aftermath.

[14] James W. Canan, "Up from Nifty Nugget," *Air Force Magazine* 66, no. 9 (1983), available at <https://www.airforcemag.com/article/0983nifty/>; Sam Nunn, "Nifty Nugget Mobilization Exercise," *Congressional Record* 125, pt. 24, November 7, 1979, 31284.

[15] James K. Matthews and Cora J. Holt, *So Many, So Much, So Far, So Fast: United States Transportation Command and Strategic Deployment for Operation Desert Shield/Desert Storm* (Washington, DC: Research Center, United States Transportation Command and Joint History Office, 1996), 1–2; Andrew E. Gibson and William M. Calhoun, "Barely in Time: The Successful Struggle to Create the Transportation Command," *Naval War College Review* 43, no. 4 (1990), 74.

[16] John J. Fialka, "The Pentagon's Exercise 'Proud Spirit': Little Cause for Pride," *Parameters* 11, no. 1 (1981), 39–41.

[17] Canan, "Up from Nifty Nugget."

[18] Matthews and Holt, *So Many, So Much, So Far, So Fast*, 2, 237–241.

[19] Edward J. Drea et al., *History of the Unified Command Plan 1946–2012* (Washington, DC: Joint History Office, 2013), 77.

[20] J92 Concepts Division, *A Concept Framework for Rapid Decisive Operations, Version 0.5* (Norfolk, VA: U.S. Joint Forces Command, 1999), 4–5, 15.

[21] Office of the Command Historian, *Command History: September 2000 Through October 2002* (Norfolk, VA: U.S. Joint Forces Command, n.d.), 26.

[22] *Millennium Challenge 2002: Executive Report: Thinking Differently* (Norfolk, VA: U.S. Joint Forces Command, 2003), 4–5.

[23] "Gen. Kernan and Maj. Gen. Cash Discuss Millennium Challenge's Lessons Learned," *Global Security*, February 17, 2002, available at <https://www.globalsecurity.org/military/library/news/2002/09/mil-020917-dod01b.htm>.

[24] *U.S. Joint Forces Command Millennium Challenge 2002: Experiment Report* (Norfolk, VA: U.S. Joint Forces Command, n.d.), 48, available at <https://www.esd.whs.mil/Portals/54/Documents/FOID/Reading%20Room/Joint_Staff/12-F-0344-Millennium-Challenge-2002-Experiment-Report.pdf>.

[25] Thom Shanker, "Iran Encounter Grimly Echoes '02 War Game," *New York Times*, January 12, 2008; *U.S. Joint Forces Command Millennium Challenge 2002*, F-10.

[26] Office of the Under Secretary of Defense for Research and Engineering, *Department of Defense Experimentation Guidebook*, 7–8.

[27] *U.S. Joint Forces Command Millennium Challenge 2002*, F-11.

[28] CJCS, *Description of the 2018 National Military Strategy*, 2.

[29] The term *global integration framework* replaced *globally integrated base plan* after a meeting of the joint force operations deputies in the Pentagon in September 2020. A more detailed discussion of global campaign plans and the former globally integrated base plans appears in CJCS Instruction 3141.01F, *Management and Review of Campaign and Contingency Plans* (Washington, DC: The Joint Staff, January 31, 2019), A-4–A-6.

[30] Robert G. Angevine, "Time to Revive Joint Concept Development and Experimentation," *War on the Rocks*, January 23, 2020, available at <https://warontherocks.com/2020/01/time-to-revive-joint-concept-development-and-experimentation>.

[31] CJCS Instruction 3030.01, *Implementing Joint Force Development and Design* (Washington, DC: The Joint Staff, December 3, 2019); Angevine, "Time to Revive Joint Concept Development and Experimentation."

U.S. Air Force nurse assigned to 18th Operational Medical Readiness Squadron talks with other medical personnel while participating in simulated mass casualty aeromedical evacuation during exercise Cope North 21, at Northwest Field, Guam, February 10, 2021 (U.S. Air Force/Duncan C. Bevan)

Thrust and Agility from Trust and Antifragility

A Combatant's Guide to Expeditionary Medical Leadership

By James A. Chambers

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According to Mihnea Moldoveanu and Das Narayandas, leadership development represents an increasingly critical component of national readiness, and its importance is not restricted to the military. Moldoveanu and Narayandas assert that businesses in the current "volatile, uncertain, complex, and ambiguous environment . . . need leadership skills and organizational capabilities different from those that helped them succeed in the past."[1] Specifically, modern training should increasingly emphasize individual initiative, relational and communication skills, and organizational

capabilities. Moldoveanu and Narayan-das note traditional training succeeds in several domains of cognitive development but is "far less [useful] in teaching people how to communicate and work with one another effectively."[2]

In 2018, Chairman of the Joint Chiefs of Staff General Joseph Dunford outlined changes in the character of war and strategic landscape.[3] He asserted that operations in multiple domains, relative loss of air superiority, less reliable logistics, cyber degradation, increased dependence on host-nation support, novel or more effective weapons, and medical consequences in the future mean the "decision space has collapsed."[4] He stressed that Department of Defense (DOD) planning must enable "execution of military campaigns with flexibility and speed that outpaces our adversaries."[5] General Dunford concluded his assessment emphasizing the need to optimize how future teams are led: "We must further develop leaders capable of thriving at the speed of war—leaders who can adapt to change, drive innovation, and thrive in uncertain, chaotic conditions. The nature of war has not changed, and, in a violent clash of wills, it is the human dimension that ultimately determines the success of any campaign."[6]

Compared with the business world of Moldoveanu and Narayandas and in-garrison medicine, expeditionary medicine is distinguished by several factors. These include exposure to significant physical risk, diminished resources (including potential cyber degradation), a compressed time cycle, fewer options for timely referral for complex cases, and a higher expectation of relatively inexperienced personnel to care for patients suffering from polytrauma or chemical, biological, radiological, nuclear, or explosives (CBRNE) injuries than at home stations and in higher volumes. In short, the stakes are often higher for both the provider and the patient in austere, ambiguous, and volatile settings.

Appropriately, in the past 2 years, each military department has begun modernizing expeditionary medical platforms, including materiel, team composition, and clinical care training.[7] To meet the increasing need for agile decisionmaking and care, U.S. military medical care will need to deepen abilities to serve as a "team of teams," linking combatant commands, component commands, and fielded medical teams, oiled by the trust of shared intelligence, perspective, and strategic intent that empowers responsive tactical decisionmaking and executions. Relatively isolated medics in austere conditions may be required to provide care at a level for which they have not been historically trained or expected to manage and dependent on a network to provide consultation and assistance. In parallel, expeditionary medical leaders need to enhance their abilities to adjust to rapidly changing scenarios.

Boyd's Observations on Combat Advantage

A Korean and Vietnam War veteran and engineer, John Boyd pioneered the development of modern fighter aircraft, guided by goals to "out-accelerate, out-turn, and out-endure any existing aircraft in the range of speeds actually seen in combat."[8] All three parameters are also relevant for expeditionary medical care. Boyd observed, "The outcome of combat is determined not by the bigger cannon or even by the larger force, but by the *shrewdest combination of equipment, training, and ideas toward the end of adaptability*."[9] This article advocates for the shrewdest combination of approaches to field high-reliability medical teams led by well-prepared professionals, and it also examines *thrust* and *agility* (General Dunford's "speed" and "flexibility") as they apply to medicine and recommends actions that enhance *sustainability* as well.

Fighter Performance Parameter: Thrust

Boyd determined that of the top four design goals for an air-superiority fighter, the most important was to obtain the first sighting of the enemy. In order, the other three were to outnumber the enemy, outmaneuver the enemy, and achieve split-second kills.[10] Thrust supports the pilot's ability to rapidly see, identify, and engage enemy targets.

Boyd's (with Thomas P. Christie) 1966 energy-maneuverability (EM) theory provides the mathematical basis for his well-known observe, orient, decide, act (OODA) loop. EM theory calculates the energy state of an aircraft to quantify aircraft performance and uses the thrust-to-weight ratio as a proxy for ability to accelerate and engage targets.

Fighter Performance Parameter: Agility

History teaches that agility—that is, the ability to rapidly transition from one maneuver to another—is an enabler for victory. Boyd's 1966 paper on EM theory indicates that, to effectively maneuver, a pilot must understand factors intrinsic and extrinsic to the aircraft and be able to adjust priorities.[11] EM theory uses wing loading (aircraft mass/wing surface area) as a proxy for maneuverability.

Aircraft with low-wing loading (that is, an F-15) tend to have superior sustained turn performance because they can generate more lift for a given quantity of engine thrust. In contrast, aircraft with high-wing loading (that is, an F-16) typically provide excellent instantaneous turn performance but poorer sustained turn performance. In other words, planes that nimbly respond to control input and resist wind gusts are often unable to sustain tight turns. Thus, wing loading is a tradeoff between stability (the ability to sustain intended performance when change is imposed by the pilot or challenged by the external environment) and agility. It should also be stressed that a plane's inherent agility depends on the pilot's ability to "read" the environment and the aircraft's reactions in real time. Boyd's term for this is *Fingerspitzengefühl* (German for "finger tips feeling").[12]

Expeditionary Force Performance Parameter: Trust

In *Team of Teams*, General Stanley McChrystal cites wisdom from the Harvard Business School: "Great teams consist of individuals who have learned to trust each other . . . enabling them to play as a coordinated whole."[13] Boyd's biographer similarly notes command-

Sailors aboard Military Sealift Command hospital ship USNS *Mercy* clear tie-down equipment from MV-22B Osprey assigned to Air Test and Evaluation Squadron 21 of Naval Air Station Patuxent River, Maryland, on ship's flight deck, April 18, 2020, Pacific Ocean (U.S. Navy/Luke Cunningham)

ers can fully exploit opportunities only when subordinates understand their intent (*Schwerpunkt*) and are empowered to execute it. Both commanders and subordinates share a common outlook and trust, "the glue that holds this apparently formless effort together."[14]

Fighter pilot General Wilbur Creech was born the same year as Boyd, fought in the same wars, and shared the same value for trust, derived from one's perceived intent and capability. Creech insisted leaders groom other leaders through careful selection and mentoring.[15] He dramatically improved Tactical Air Command's efficacy, quality, and safety record by training small teams as they would fight together and emphasizing clear communication and expectations as well as instilling a decentralized control philosophy.[16] He engendered confidence through realistic training. Creech expected his leaders to be lead performers; wing commanders routinely flew with their teams to demonstrate technical proficiency. He insisted that to achieve lasting change, ideas and doctrine had to be developed in parallel with advances in equipment and training as well as organization and leadership.[17] These precepts also apply to expeditionary medicine.

Expeditionary Force Performance Parameter: Antifragility

The U.S. military has appropriately focused on increasing individual and unit resiliency in recent years. Especially for deployed units, antifragility is an even more compelling aim. According to Nicholas Taleb, fragility implies suffering or destruction from volatility, whereas resiliency enables continuity in a disruptive environment. Taleb coined the term *antifragile* to indicate that which actually improves rather than weakens or simply returns to status quo after adversity.[18] Taleb asserts that antifragility is increased by:

- sticking to simple rules
- building layers of redundancy
- looking to exploit changes in the environment
- paying heed to only those with "skin in the game"
- tinkering: high volume of experiments to learn through small errors for potentially large gains
- avoiding risks that would result in complete destruction
- keeping options open
- respecting habits and rules that have endured for a long time
- avoiding overplanning; build in intent to adapt.

Taleb uses tinkering to create heuristics—"simple, practical easy-to-apply rules of thumb that make life easy"—to help make rapid decisions.[19] Heuristics are designed to be expedient, not perfect; users need to remember they are using a shortcut rather than trying to absorb all the information in a time-constrained environment.[20] Antifragility thrives when team members embrace making numerous small mistakes as a learning process. Taleb stresses that cultures that value bottom-up responsiveness and ownership thrive under stress and disorder, whereas excessive top-down control can increase fragility and hinder growth.[21] Antifragile thinkers can function with ambiguity, incomplete information, and acknowledgment of limits on one's understanding.

Application

The remainder of this article examines analogous performance parameters for effective medical leadership in deployed settings. Changes in technology and the operational battlespace create new challenges and opportunities for expeditionary medical care, an environment in which thrust and agility are increasingly important to achieve.

Expeditionary Medical Performance Parameter: Thrust from Trust. The *thrust* of a deployed medical team enables it to—like a fighter aircraft—quickly deploy, understand, and respond to initial conditions. It is degraded by lack of autonomy, excessive bureaucratic control, inadequate information and connectivity, poor logistics, and insufficient confidence. To generate thrust from trust, medical leaders need to believe in their mission and unit competence, and team members need to believe in their leader's abilities and intent; leaders need to be manifestly proficient and out front.[22] For millennia, leaders have inspired teams by demonstrating excellence and self-sacrifice, or at least the willingness to take personal risk on behalf of a shared goal.[23] Trust is enhanced by leaders' respect for others, fairness, and ability to achieve meaningful if small early wins for the team. Trust is reinforced by a leader's equanimity, the dispassionate

focus and calm in the face of adversity that Sir William Osler hailed as the supreme quality of effective medical professionals.[24] Levelheadedness dissipates the friction of anxiety and facilitates data-driven decisions, inspires confidence, and will be drawn on during times of personal or institutional transition as well as physical and professional risk. It varies among individuals' constitutions but can be strengthened by training and experience in appropriately stimulating environments.

Expeditionary Medical Performance Parameter: Agility from Antifragility. The *agility* of a medical group is most affected by judgment and culture. An immediate and intuitive understanding of how to prioritize and sequence medical resources at both individual and population levels enables teams to rapidly maneuver. A strong clinical background requiring responsibility for outcomes can provide some advantage, but the keys that engender success are mutual respect and open communication between the commander and the frontline clinicians, as well as preparing medics to take on roles they are not required to fill in garrison, providing depth, redundancy, and resiliency for small-footprint teams. Leaders require skills in anticipating, detecting, diagnosing, treating, and rehabilitating problems in team performance just as clinicians do for individual patients' health.

Commanders need to gain Boyd's *Fingerspitzengefühl* to attain the utility of his OODA loop. This ability to read the environment and immediately apply appropriate reactions is obtained by getting to know the team both as individuals and in terms of their organizational strengths, weaknesses, and daily challenges. Teams need to work together and communicate often and openly, both internally and with outside organizations, and, when appropriate, up their chain of command. When crises erupt, less time will be needed to explain the rationale and priorities for teams that have trained and worked intensely together.

Effective leaders deliberately establish culture. They advance antifragility by delegating authority and decentralizing

execution, empowering frontline teams to rapidly respond. They aggressively seek improvement and celebrate learning from small failures. Leaders who proactively engage host-nation, coalition nation, and other partners to identify and achieve shared goals are also more likely to survive turbulent times. This includes becoming acquainted with other's capabilities and resources, from protocols to materiel. Deployed medical teams with small footprints depend greatly on external resources from the U.S. Government, host-nation, and, potentially, coalition partners; meaningful joint and international exercises should routinely test communication pathways, transportation platforms, and medical capabilities—especially patient care handoffs—to strengthen interoperability and procedural knowledge tailored to prioritized threats. Basic field medical skills such as nine-line reports, litter carries, and stanchion loading should be practiced by every team member, regardless of rank or position.

Antifragile teams prepare to diversify logistical channels by understanding how to resource needs from a variety of U.S. as well as regional/local suppliers and potentially even 3-D printing.[25] DOD should evaluate the feasibility of developing an electronic library of commonly used or critical supplies that could be replicated via 3-D printing. Prior to deployment, teams should anticipate options for task execution in differently resourced scenarios and proactively seek counsel from more experienced military medics, many of whom have developed practical heuristics for managing unexpected challenges. Medical leaders must ensure their teams take full advantage of Web- and phone-based resources, such as the Joint Trauma System's multidisciplinary consultation service and clinical practice guidelines (CPGs).[26] CPGs and other critical information should be downloaded and/or printed before deployment to mitigate risk from cyber degradation. Information agility is enhanced with local surveillance, from leaders getting out and acquainted with the community on and, as appropriate, off base first-hand, as well as instituting

real-time surveys of behavioral and perceptual trends (if needed).

In this way, antifragility clearly corresponds with a hallmark of high-reliability organizations (HROs), deferring to expertise and seeking out the best data from all sources—often frontline personnel of comparatively lower rank—to inform key decisions. Another HRO principle, commitment to resiliency, clearly corresponds with the aspirations of antifragility. The other three HRO principles—preoccupation with failure, sensitivity to operations, and reluctance to simplify—are byproducts of actions required to establish and maintain trust.[27] All grease the OODA loop to help medical leaders make the best decisions as quickly as possible. Commitment to provide trusted care as an expeditionary HRO is equally important as in garrison, and the tools used for care at home installations should be adapted to the deployed environment.

Antifragile cultures keep options open and constantly innovate to test potential improvements or new safeguards for critical needs. Leaders must ensure team members respect each other and outside agencies to keep bridges open and seek to understand and effectively interface with other cultures. Effective medical commanders integrate into the leadership community at their installations in both formal and informal settings (and, when possible, local host nations) to gain trust and seek multisectoral solutions for shared challenges. They translate the "why" from the line to the medical side and vice versa.

The Importance of Energy Management

As discussed, energy is a key determinant of thrust and agility. Energy is also a critical asset for leaders, especially during combat.[28] Effective leaders invest their personal energy to transform members' passion and potential into performance and a sense of belonging and identity. Perhaps the most consistent determinant of a team's morale—and psychological energy—is a sense of a positive, meaningful group achievement. This occurs when values and resources align on a common worth-

while and reachable target.[29] Leading expeditionary medical groups demands that energy be invested in four domains before and during deployment.

Clinical: Overseeing the Prioritization and Provision of Care for Seriously Injured and Ill Individuals. If leaders are not clinicians, they must quickly develop trust and effective communication pathways with clinicians on the team. If leaders are clinicians, they may provide helpful additional perspective, but more important, they must have the humility to listen to other clinicians, defer to relevant expertise regardless of rank or position (and process that data along with potential simultaneous operational or command concerns), and establish a culture in which all medics know they are empowered and expected to do the best thing for their patients at a relevant tempo according to their training and judgment.

Expeditionary: Performing in a Differently Resourced Environment in a Different Culture.

Tactical: Optimizing Individual Performance and Team Dynamics, Especially in a High-Risk Environment. This optimization may require advanced technology or other innovative means if aspects of care are dispersed or isolated in the field.

Institutional: Maneuvering Within a Large Organization (or Meta-Organization) to Obtain Resources to Meet Enterprise Needs. This maneuvering may require nuanced intercultural and political understanding to navigate and obtain joint, interagency, and/or international support.

Optimizing Energy Through the Hybrid Performance of a Team of Teams

Aircraft engineers must often choose between competing goals, such as instantaneous versus sustained turn performance in selecting design parameters for an isolated airborne platform. Similarly, there are competing advantages and limitations in operating as small teams versus large organizations. Fortunately, deployed medical groups can gain the best in hybrid "wing-

loading" performance by operating as a networked team of teams, leveraging the strengths of each. Effective leadership of a deployed medical team demands knowledge, skills, and abilities that enable maneuver and engagement within one's tactical medical unit, coupled with the resources (intelligences, materiel, personnel) of the larger fighting team, deployed forces under other commands, component commands, geographic combatant commands, military department agencies, coalition forces, and host-nation organizations to achieve one's goals. This requires proactively developing and maintaining a network of personal and professional relationships informed by an understanding of logistics and joint operating principles, along with the interpersonal skills to understand and successfully navigate competing demands within a complex bureaucracy. Such leadership enables medical teams the best chance to "out-accelerate, out-turn, and out-endure" their challenges.

For example, when Al Dhafra Air Base in U.S. Central Command (USCENTCOM) encountered a COVID-19 outbreak in 2020, it was able to immediately reprioritize its medical services and change its posture due to cross-training of its deployed medical personnel weeks prior to cover common critical tasks and recently accomplished expansion of clinical care space. Both required clear communication internal to the medical group of the need for antifragility and to the installation command to achieve buy-in. Its agility was enabled by an OODA loop fed by information from its own frontline medical personnel of all ranks and backgrounds (a radiology technologist, not one of the providers, gave the first indication of the outbreak), USCENTCOM and component command staff, as well as the local embassy and partner-nation personnel in local hospitals through relationships that had been proactively developed through trauma-oriented exercises in the preceding months.

The base networked with other bases in-theater to procure diagnostic materiel. It gained trust among the personnel on base through the transparent reporting of

U.S. Soldiers in 30th Armored Brigade Combat Team perform field run and litter carry as part of Hickory Cup competition held in U.S. Central Command area of responsibility, March 1, 2020 (U.S. Army National Guard/Cindi King)

information at the speed of relevance and collaboratively identified needs with line commanders to secure needed additional resources on base originally allocated to other units. All these behaviors and relationships had been developed in the prior months to prepare for potential regional state actor aggression and were successfully translated to address a novel threat.[30] As a result, the outbreak was eliminated without adversely affecting the installation's combat readiness or sortie generation rate.

Readiness Recommendations

Selection and Development. Lord Moran, Winston Churchill's physician, wrote in *Anatomy of Courage* that "the art of selection is the secret of leadership."[31] General James Mattis emphasized the Marines' axiom, "Recruit for attitude, train for skill."[32] Future expeditionary leaders, selected in part for competence in their profession as well as an appetite to serve in deployed combat support missions, need to be provided opportunities—through early career deployment, DOD global health engagement missions, and/or volunteer overseas service—to develop skills functioning in unpredictable, differently resourced, demanding environments to help them build strength. They also require the ability to rapidly assess and motivate deployed team members whom they likely had neither any role in selecting nor the opportunity to serve with before. As Moldoveanu and Narayandas write, "Learning is less a function of adding something that isn't there than it is of recognizing, reinforcing, and refining what already is."[33]

Leaders must not only be confident in their primary career field but also have meaningful experience and study to broaden clinical, administrative, and leadership perspectives. This preparation helps leaders evaluate the competence of their team members and efficiently communicate and gain their trust and respect. Leaders also enhance trust through their degree of perceived skin in the game.[34] Selection and development pathways should provide opportunities for medics to directly support field operations early in their career to assimilate the risks of deployed service. This will enhance understanding, confidence, and the ability to effectively communicate with line warfighters. More frequent but shorter deployment cycles would support this goal, and noncombat experience such as short-term DOD global health engagement missions, use of permissive temporary duty for international humanitarian service, and exchange programs should also provide helpful perspective.

Staff nurse assigned to one of Naval Medical Center San Diego's internal medicine wards helps general duty corpsman don personal protective equipment, including 3D-printed face shield donated to hospital by Naval Information Warfare Systems Command, before entering COVID-19-positive, noncritical patient's room, August 4, 2020 (U.S. Navy/Jake Greenberg)

Training.

Personal Learning Cloud. The corporate sector is embracing the "personal learning cloud," an online portfolio of courses and events tailored to user needs.[35] This approach is proving less expensive, more personalized (pace, media, topic, modular), socialized (geared toward solving problems together, project-based, "action-learning"), contextualized (directly relevant), able to track outcomes and trends, and able to measure skill acquisition and transfer at individual and group levels.

Virtual Reality. Just as the Army, Navy, and Air Force have demonstrated cost savings as well as faster results for pilot training with virtual reality (VR), this platform offers several attractive benefits to medics. Predeployment, VR would allow disaggregated medics to train together on common scenarios to identify weaknesses and enhance group dynamics. It would also provide

familiarization and desensitization to less common but potentially catastrophic and/or emotionally stressful events such as managing CBRNE casualties or expectant patients. During deployment, VR provides a means to maintain cognitive and limited psychomotor skills for high-yield scenarios as well as to maintain focus on the purpose for serving abroad during calm periods.[36]

Cross-Training. Redundancy and resiliency could be enhanced by proactively cross-training medics. Deployed medical teams often rely on a single medic for certain specialty functions. Cross-training other medics to perform the most common and/or critical tasks could offset risk of failure when certain personnel are not available, incapacitated, or overwhelmed by demand.

Civilian Partnerships. With the exception of the San Antonio Military Medical Center, which benefits from receiving both military and civilian trauma

and burn victims, DOD has no Level 1 trauma centers. As prescribed in the 2017 National Defense Authorization Act (Public Law 114-328), Section 708, units need to develop long-term relationships with high-volume civilian trauma centers as training and currency platforms, even if this means transferring some beneficiary care outside military treatment facilities. The 2019 Pandemic and All-Hazards Preparedness and Advancing Innovation Act (Public Law 116-22) establishes Federal grants to offset civilian trauma center costs from integrating DOD teams into their institutions; it also supports the Centers for Disease Control and Prevention and preparedness for national medical disasters such as the current COVID-19 pandemic. However, no funds have yet been appropriated for trauma center incentivization, and senior military leaders should advocate for this to be realized. In addition to embedding within U.S. civilian centers, military

medicine gains may also be obtained by rotations in less developed nations to identify adaptive approaches to care in less resourced areas potentially similar to more austere deployed environments.[37]

DOD must continue funding medical education, training, and casualty-care research in civilian academic and Veterans Affairs hospitals. Because of staff stability and typically larger volumes of complex clinical cases, these partners provide outstanding clinical experience. They can also generate meaningful cutting-edge research when their priorities are informed and incentivized by DOD. Lessons learned from these partnerships need to be captured and integrated into evolving DOD research priorities and practices. Hiring experienced civilians to serve at military treatment facilities for mentorship and continuity of in-garrison care when Active-duty medics are deployed or training at high-volume centers also positively supports expeditionary leadership.

Formal Courses. All three Services provide trauma team members predeployment refresher training. Training is also important for commanders of expeditionary medical units who may or may not be clinicians to prepare them for leading multidisciplinary direct clinical care and support personnel while deployed, facing unique challenges such as intercultural communication and operating in a resource-constrained environment at high tempo for prolonged periods. To meet this demand, the Air Force's Expeditionary Medical Support course was recently intensified to simulate the anticipated future combat environment; commanders, especially those without prior deployed experience, should be required to participate in such courses to enhance understanding their team's needs and reinforce effective leadership behaviors. The Navy provides a catalog of predeployment medical training that has also been tailored to the roles in which deployers will serve, whether in the fleet or in support of the Marine Corps.[38] Formal precommand courses should also address concerns unique or especially relevant to the deployed Service, including leading and caring for joint and coalition troops and issues related to care of host-nation personnel, noncombatants, and enemy combatants.

Knowledge/Situational Awareness. General McChrystal observes that the speed of information and change as well as modern interdependence create unprecedented complexity. He argues the challenge is countered by adaptability, and to foster this, "an organization should empower its people, but only after it has done the heavy lifting of creating shared consciousness."[39]

To create this shared consciousness, component commands—and when possible, combatant commands—should provide expeditionary medical leaders a predeployment orientation to command operations, priorities, and relevant regional intelligence. Medical security cooperation activities (including relevant points of contact and command relationships) for the region and host nation should be discussed with global health engagement staff; these activities should also be reviewed with the Embassy country team on arrival. Predeployment just-in-time cultural and focused language orientation is valuable, but DOD should further incentivize and assist medical professionals in gaining deep regional and, if possible, linguistic familiarization over their careers. Relationships with host-nation medical institutions should be tracked by the component command at the level of the ministries of defense and health as well as leading local hospitals and public health offices and shared with the deployed medical leadership team to empower them with an understanding of the full context of the operational situation and strengthen partnerships. Both before and during deployment, medical leaders should be required to read relevant after-action reports, lessons learned, and real-time intelligence, and evolving plans for the theater and host nation to be prepared to contribute to multiple interdependent OODA loops of commands and allied forces.

Conclusion

In a world of accelerated change of opportunities and risks, DOD more than ever needs to deploy leaders able to rapidly assess, decide, and act in expeditionary environments. The thrust and agility for deployed medical teams come from trust (confidence in the intent and capability of oneself and others) and antifragility (the ability to improve with disruptions). Effective leaders need to be developed, selected, trained, networked with other committed leaders, and provided the resources to succeed.

Hippocrates wrote, "Life is short, the Art long, opportunity fleeting, experience treacherous, judgment difficult. The physician must be ready, not only to do his duty himself, but also to secure the cooperation of the patient, of the attendants and of externals."[40] To optimally care for combatants entrusted to their teams, medical leaders must be competent in the essentials of their own career fields. Even more important, however, senior leaders must be able to effectively coordinate the resources "of the attendants and of externals"—their team members as well as networked professionals in the U.S. Government, host nation, and coalition authorities.

Thucydides, a contemporary of Hippocrates, provides insights from the Peloponnesian War that remain valid for us today: "In practice we always base our preparations against an enemy on the assumption that his plans are good; indeed, it is right to rest our hopes not on a belief in his blunders, but on the soundness of our provisions. Nor ought we to believe that there is much difference between man and man, but to think that the superiority lies with him who is reared in the severest school."[41]

General Mark A. Milley outlined in his first communiqué as the 20th Chairman of the Joint Chiefs of Staff his focus areas to achieve force agility. They include improving joint warfighting readiness, developing the joint force of the future, developing and empowering joint force leaders, and taking care of our warriors.[42] For the military health system to take care of our warriors, DOD must apply the first three areas to medical leaders. We must fulfill Office of the Secretary of Defense manpower priorities and prepare our medical force by giving them, beginning as early as possible in their

careers, opportunities to gain combat support–relevant experience to acquire the attitudes, knowledge, skills, and abilities to lead and adapt our expeditionary medical platforms and successfully integrate them in a network of theater and U.S.-based resources.[43] In other words, to face tomorrow's enemies, we must deliberately develop superior leaders able to quickly yet sustainably maneuver in multidomain operations by creating trust and antifragility, optimizing the human dimension in the fight. **JFQ**

Notes

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[37] James A. Chambers, Susan M. Briggs, and John Tarpley, "Damage Control Partnerships: Trauma Care Capacity-Building Abroad," *Journal of the American College of Surgeons* 228, no. 1 (January 2019), 130–131.

[38] See Naval Expeditionary Medical Training Institute Course Catalog, available at <https://www.med.navy.mil/sites/nmotc/nemti/Pages/CourseCatalog.aspx>.

[39] McChrystal, *Team of Teams*, 245, 249.

[40] Hippocrates, *Aphorisms*, trans. W.H.S. Jones (Cambridge, MA: Harvard University Press, 1931).

[41] Thucydides, *The History of the Peloponnesian War*, trans. Richard Crawley (Overland Park, KS: Digireads.com Publishing, 2017), chapter 3.

[42] Ibid.

[43] See Department of Defense, Office of the Under Secretary for Personnel and Readiness, "How We Support," n.d., available at <https://prhome.defense.gov/M-RA/How-We-Support>.

Sailor monitors subsurface contacts while standing watch in sonar control room aboard *Arleigh Burke*–class guided-missile destroyer USS *John S. McCain* during target-tracking training evolution as part of Malabar 2020, Indian Ocean, November 3, 2020 (U.S. Navy/Markus Castaneda)

Avoiding Great Power Phony Wars

By Brent D. Sadler

History does not repeat itself, but it rhymes.

—**Mark Twain** (attributed)

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For some, the end of the Cold War in 1991 was a vindication of democracy's supremacy over dogmatic Marxist ideology—a victory underwritten by the free flow of capital leading to sustained improvements in prosperity wherever capitalism was embraced. Euphoria was so high that, by 1992, ideologically driven war had become a relic, or what Francis Fukuyama called the "end of history."[1] In the years immediately following, an explosion of freely moving capital across opening markets underwrote the greatest growth of prosperity and reduction in poverty the world had ever seen. That period in history is over, however, having been replaced with the stark realism of Great Power competition.

Today's Great Power competition is over control of economies and the underlying global rules-based order—in other words, state capitalism versus democratic capitalism rather than an ideological competition of governing systems. The stakes are high, and democracy alone does not guarantee success in this strategic competition. As Seva Gunitsky states, "Material success . . . often creates its own legitimacy: regimes become morally appealing simply by virtue of their triumph."[2] In this contest, China's economic success and skepticism of democracy are potently captured in the words of Hu Xijin, editor in chief of the state newspaper, *Global Times.* Hu tweeted, along with a photograph of the latest mobile intercontinental ballistic missile, "China was just fine forgoing the 'good stuff' of electoral democracy on display in 'Haiti, Libya, Iraq, and Ukraine.'"[3] A consequence of this material success, as president of the World Bank Jim Yong Kim stated in September 2018, was that historic reductions in poverty since the Cold War began to slow. These problems are coincidental with the return to Great Power competition and the incipient fracturing of global markets and common rules-based discourse along evolving modern spheres of influence. The challenge for democratic capitalism is to regain global economic dynamism. Failure to do so could usher in a new era of what Fukuyama labeled an

Soviet prisoners of war dressed in new clothes near Arctic Circle at Rovaniemi, Finland, during Winter War, January 6, 1940 (Courtesy Military Museum of Finland)

age of pessimism, blinding many to the inherent weaknesses of totalitarianism.

In this unfolding age of pessimism, the United States and its key security partners are rethinking their foreign policies. The role of hard power is ascendant and, with it, risks to destructive demagoguery in place of reasoned strategy, as Kurt Campbell and Jake Sullivan argued in "Competition Without Catastrophe."[4] In this new reality, our competitors, namely Russia and China, will constrain approaches and have a vote on outcomes. As Mark Miles and Charles Miller argue, this new era of Great Power competition will likely follow historical precedent and be global in scale and comprehensive in scope of national power as opportunistic competitors seek any advantage.[5] Acknowledging this reality has been long in coming.

Since the end of the Cold War, assumptions based on U.S. preeminent military and economic power have encouraged generally passive or reactive

national security policies. The 2017 National Security Strategy and 2018 National Defense Strategy, however, indicate that such assumptions no longer inform competitive approaches to China and Russia. In contemplating a New Cold War, it is necessary to weigh the opportunity costs, as Derek Leebaert does in *The Fifty-Year Wound*.[6] Based on such lessons, Great Power competition today, specifically with China, requires a comprehensive, coherent approach to succeed—or, as Patrick Cronin and Ryan Neuhard argue, total competition, which encompasses economic, legal, psychological, military, and information spheres.[7]

In Asia, longstanding assumptions and security constructs are being questioned and overturned. Confronted with myriad challenges and uncertainty about U.S. security and diplomatic assurances, Japan under Prime Minister Shinzo Abe shook off pacifism for a proactive comprehensive regional strategy. At the same time, ongoing protests in Hong

Kong challenge the "One Country, Two Systems" premise for peaceful unification between China and Taiwan. In this environment, Taiwan's January 2020 national elections renewing President Tsai Ingwen's leadership have further agitated Beijing's suspicions that Taiwan's government might abandon the long-term goal of unification. In the wider context of Great Power competition, Chinese military modernization and expansion, diplomatic efforts to isolate Taiwan, and diversifying economic reliance on One Belt, One Road initiatives support Beijing's objective of unification with Taiwan—including by force. However, the Chinese Communist Party (CCP) would prefer this objective be settled well below the threshold of war with the United States. This approach channels Chinese strategic culture as stated by Sun Tzu: "Hence to fight and conquer in all your battles is not supreme excellence; supreme excellence consists in breaking the enemy's resistance without fighting."[8]

Effective gradual day-to-day competition, such as the actions of Russia in Ukraine and China in the South China Sea, has shifted the status quo, disadvantaging U.S. and allied interests. Lessons of the interwar period (1920–1940), culminating with the Phony War (October 1939–May 1940), illustrate that failure to be militarily postured for a crisis with a revisionist Great Power makes it more likely to occur. Failing this, it can rapidly develop into a global conflict with significantly dire consequences, as both sides seek advantage through horizontal escalation. With this in mind, leaders can take important lessons from this period as Great Power competition once again heats up, especially regarding contests with China over forced unification with Taiwan. Looking ahead, a key lesson is the imperative to forward posture the military and to resource it to deliver on diplomatic promises to allies as well as invest in the depth of arsenal to wage war should deterrence fail.

The Phony War

National security strategy is evolving to meet the changes of the recent past. It has been almost 30 years since the United States had to contend with the Soviet Union. Today's challenge is compounded as we confront two Great Power competitors: Russia and China. Simply repeating Cold War approaches is unrealistic; China is integrated into the world economy, and Russia is unconstrained by ideology. As the United States, China, and Russia all vie for worldwide influence, preparing for at least some degree of conflict is prudent. At the same time, we must now contend with deterring one opportunistic Great Power while remaining in conflict with the other. Thus, any future Great Power confrontation must be minimized in scope, duration, and scale in order to husband needed resources. In this new era, as in the past, early and decisive action in the transition from crisis to conflict can avert or geographically constrain a prolonged major war. In the Phony War, this was not the case.

For 8 months following the September 1939 invasion of Poland,

Great Britain and France refrained from directly engaging the belligerent Germany in the so-called Phony War. Why attacking was held off rests on factors present today with similarly dire consequences. Then, as today, defense industry was unprepared for a rapid expansion in armaments production, and the military was ill postured to preempt an adversary's fait accompli action and not resourced for a prolonged major war.

As the United States once again enters an era of Great Power competition, important lessons can be gained from examining the Phony War. Those lessons are most apt for East Asia. That said, events since 2014 in Europe provide a cautionary tale of "hybrid warfare" waged by Russia in Ukraine.[9] However, with U.S. military support provided to Ukraine, the proximity of North Atlantic Treaty Organization forces to the country, and ceasefires holding the peace, the danger of major war appears greater in Asia. In this region, U.S. treaty networks' disposition of opposing forces and potential flash points for major war make a better, but still imperfect, modern analog for the Phony War. Just as navies and air forces were most active globally during the brief Phony War period, the same would hold true for a contemporary confrontation with China. Moreover, as armies and marine corps introduce new power projection systems, they too will be critical players in gaining early positional advantage as major conflict unfolds in the future. The lessons of the Phony War are therefore particularly relevant as national leadership considers the costs of building larger and more lethal militaries. To better understand the implications of the Phony War today, it is important to consider its origins in the forces weighing on national leaders during the interwar years of 1920–1940.

Interwar Wishful Thinking

In the period immediately following World War I, seeds of the Phony War were planted with optimism and faith that major war would never again be considered by any rational nation. Germinations of faith in collective self-defense never materialized, however,

without required defense investments. Meanwhile, hatred for the Versailles Treaty ending the Great War blossomed in newly revisionist nations, most notably apparent in Germany's foreign policy under the guidance of Foreign Minister Gustav Stresemann (1923–1929) and later Adolf Hitler (1933–1945). Erosions of postwar peace were at first gradual and then accelerated into unstoppable torrents unleashed in 1939. As a reflection of political leaders' predilections, military contingency planning did little to inform needed investments or convince leaders of any course correction that would have precluded the Phony War.

However, it is unfair to judge interwar leaders without considering the horrors and living memories of World War I. So immense was the scale of destruction and death enabled by new weapons, such as the airplane and poison gas, that there was little faith that technology could solve the world's problems. At the same time, politics of the Big Lie propaganda and scapegoating too often enabled oversimplified policies that channeled class or race differences to solve complex problems.[10] As a frontline Great Power defending the Versailles Peace Treaty, France rarely managed the needed consistency of policy and investment. Between 1920 and 1940, the average life expectancy of a French government was 7 months.[11] Wartime ghosts simultaneously haunted domestic politics in France, where 17.6 percent of the armed forces were killed and 1.1 million were left catastrophically injured.[12] In the case of France, going it alone in building the military needed to bolster forceful diplomacy in defense of Versailles was unsustainable.

France retained military supremacy in continental Europe for some time while acting to defend Versailles. In 1923, France unilaterally occupied the Rhineland to extract reparations from Germany in accordance with the Versailles Treaty. The result was counterproductive, resulting in pressure on the franc and, most important, a rift with Britain on Versailles enforcement.[13] France's failure in the Rhineland gave way in 1925 to alliance-building. The
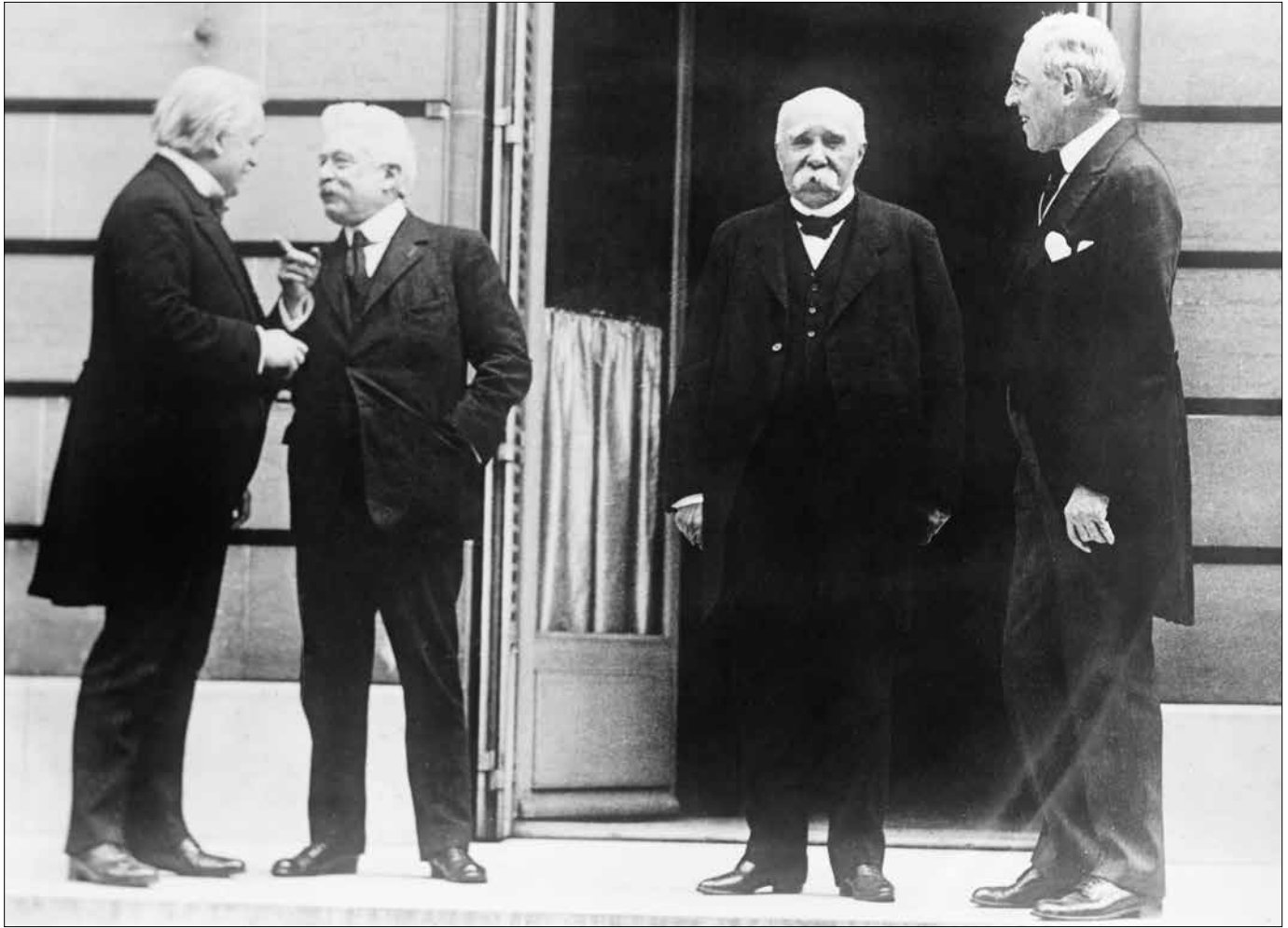
Council of Four at World War I Paris Peace Conference, in Versailles, May 27, 1919; from left, David Lloyd George (UK), Vittorio Emanuele Orlando (Italy), Georges Clemenceau (France), and President Woodrow Wilson (U.S. Army Signal Corps/Edward N. Jackson)

Locarno Treaties of October 1925 were originally envisioned as an alliance to safeguard against German aggression in Western Europe. However, in acquiescing to German fears of encirclement—not unlike contemporary Chinese complaints of U.S. strategy—the treaty devolved to a toothless collective security arrangement that included Germany in the end.[14] In September 1926, German entry into this treaty and the League of Nations buoyed British Prime Minister David Lloyd George's earlier claim in the House of Commons that the last Great War had been fought.[15] Belgium, unimpressed with the protections offered by Locarno, instead pursued determined neutrality as a defense against German invasion. Overall, Locarno greatly strengthened a bitter and revisionist Germany by weakening France's commitments in Eastern

Europe, thereby reducing the potential of a two-front war.[16]

French and British war-planning consequently became increasingly defensive and eventually succumbed to the economic realities of the 1930s Great Depression, Great Britain garrisoning forces contended with anticolonial challenges across its empire, and France built the Maginot Line.[17] At the same time, the interwar period witnessed continuous technological change—changes that military planners sought to harness in cost-effective ways, such as strategic bombing while utilizing the full power of a mobilized industrial nation for deterring a future war through economic strength or a rapid victory.[18] For the British, strategic bombing mitigated the need for a large continental army and rationalized weak investments in armaments. Despite

British faith in the deterrent value of strategic bombing, the study of its wartime use was never adequate to convince political leadership that its use would not imperil its moral high ground—critical to ensuring the flow of vital resources in a prolonged war of attrition. The result was that, when planning for strategic bombing campaigns began in 1938, there was little warfighting capacity behind deterrence.[19] Fortifications, such as the Maginot Line in France, planned for a Belgium extension and compensated limited Allied forces across a continuous front from which the Germans might attack in "integral defense."[20] Critical to success was developing something not achieved in the interwar years, a militarily effective collective defense mechanism among the Low Countries, principally Belgium.[21]

Nonetheless, united, the victors of World War I—Italy, Great Britain, and France—retained deterrence advantage over revanchist Germany. However, events in 1935 accelerated the deterioration of Versailles. That year, Hitler reintroduced conscription while making no secret of his designs on Austria. This stoked Benito Mussolini's fear of German demands for return of ethnically German South Tirol, leading to the final agreement in April of the victors to resist German attempts to change the Versailles Treaty by force.[22] This so-called Stresa Front almost immediately proved tenuous when Mussolini invaded present-day Ethiopia that October and became totally useless in deterring German annexation of Austria in March 1938. French and British ineffectiveness over Austria bolstered Mussolini's conviction that Germany was the better ally.[23]

During the 1930s depression in London, rather than investing in rearmament and the concepts of airpower and mechanized warfare espoused by Basil Liddell Hart, the predominant thinking was that defense was strongest because of a strong economy. Proliferate expenditures followed foreign exchanges in an effort to prop up the sterling at the expense of critical investment in armaments. Liddell Hart eventually resigned from his position as personal advisor to Minister for Coordination of Defense Thomas Inskip.[24] Unfortunately, British reporting from Berlin failed to inform such investment choices. From 1937, in Berlin, British Ambassador Nevile Meyrick Henderson acted as a willing conduit for Nazi propaganda vindicating German designs on Czechoslovakia in his reports to London, while complaining to his Nazi counterparts of Czech intransigence.[25] Only after the September 1938 Munich Agreement, while Ambassador Henderson was in London for medical treatment from November 1938 to February 1939, was London finally able to form a realistic picture of German policies, which decisively effected a change of government threat perceptions.[26]

Interwar military planners and their political leaders suffered a malaise. By eschewing their responsibility, they failed to develop countermeasures for a wide range of German fait accompli actions, produce a family of war plans better appreciating the uncertainties of war, or forcefully inform the electorate of the strategic consequences of their decisions.[27] Incrementally over the 20 interwar years, political decisions shaped the methods and means available to war planners and diplomats alike. Specific shortcomings included failure to legitimatize the cause to uphold the Versailles Treaty; paralysis in the face of the terrors of modern warfare, notably aerial bombing demonstrated in 1937 during the Spanish Civil War at Guernica; operational paralysis against an overrated or misunderstood adversary; poor coordination with neutral powers to affect adversary strategic calculations; and failure to fully resource and exercise the military for potential counterattacks that might end or deescalate conflict.[28]

Events of the interwar years—accelerating with Hitler's 1933 rise in Germany—convinced revisionists in Berlin, Tokyo, Rome, and Moscow that war was inevitable to achieve their aims.

Positional Prelude

Flush with the successful 1938 annexations of Austria and Czechoslovakia, Hitler focused next on conquering Poland. Hitler's theory of victory was a limited war in which intervention by the French and British would be unlikely or irrelevant through a fait accompli operation (a dynamic that bears striking similarities to China's contemporary theory for victory over Taiwan).[29] Key to Hitler's plan was isolating Poland diplomatically, employing the untested blitzkrieg concept of operations for rapid military victory, and thus leveraging political discord in London and Paris to delay an Allied attack from the west. However, uncertainty about Russia's reaction constrained Hitler for a time.

Hitler's machinations in Poland were conditioned on outcomes of a bloody border battle raging a world away. Since May 1939, Soviet and Mongolian forces had been engaged in a battle with the Japanese along their Manchurian border, known as the Battles of Khalkhin Gol. Joseph Stalin, calculating a war in Europe was on the horizon, needed to secure both his Far Eastern flank and his European borders by moving forces west. After being kept a state secret until 1994, the Russian government confirmed that the Soviet special archives did in fact record a controversial August 19, 1939, Politburo session with Stalin. That discussion concluded it was in Soviet interests to enter into an agreement with Germany over the fate of Poland, thereby instigating a war between Germany and France and Great Britain. Moreover, that war should be prolonged so as to maximize Soviet strategic advantage in a later anticapitalist war.[30] With this in mind, following early Soviet successes in the August 20 Nomonhan offensive, Stalin gave the go-ahead to proceed with negotiations of the Molotov-Ribbentrop Pact with Germany. That pact, sealed on August 24, was followed with Hitler's order on August 27 to commence operations in Poland.[31] With the Red Army massed on the Polish border, and despite German protests on September 3, Stalin withheld his forces. Foreign Minister Vyacheslav Molotov responded days later that the time for Soviet action was not opportune.[32] That time would come September 17, after the Japanese agreed to a ceasefire on September 15 and the French Saar offensive wound down.[33] While Hitler and the Allies were focused on Poland, Stalin proceeded to solidify Soviet military positions in the Baltic in the winter of 1939.

Because of the success of blitzkrieg in 1940, France's defeat is often assumed. However, in reality it was a very closely played German gamble, relying on time to shift forces from Poland to meet the Allies in the West and on untested technologies and concepts of operation. The risk was made starker by Germany's limited mechanization of its army, seemingly mitigating any advantage blitzkrieg would afford through 1940. In fact, at that time, net assessments of military power between France and Germany were relatively balanced, with an edge given to France.[34] Given this balance, it was critical that Hitler isolate Poland diplomatically while deterring Allied intervention—a key element being the

Molotov-Ribbentrop Pact. This relative balance contributed to Allied confidence in fighting a defensive war and ensuing relative inaction during the Phony War.

The Eastern War

On September 1, 1939, Hitler invaded Poland, calculating correctly that the Allies would not intervene. Weak political leadership and shaky domestic political mandates played out in the delayed declaration of war on Germany in both London and Paris.[35] After a prolonged back and forth, the two Allies finally agreed on September 3 to declare war against Germany. No appreciable assistance ever made its way to Poland.

However, the seeds of Hitler's eventual downfall were also planted at this time. Hitler, confident of a limited war, failed to shift Germany's economy to prepare for what would be a major sustained war. Albert Speer eventually shifted Germany's economy in 1942, almost 3 years after invading Poland.

As Hitler solidified gains in the east, political confusion in Paris and London provided him an unmolested period in which to regroup and redirect his forces for the conquest of France. In the months before and during the Phony War, governments in Paris and London had weak mandates, culminating in new governments in Paris (March 1940) and London (May 1940). However, by 1938 France and Great Britain realized that to check any German onslaught on Versailles, they would have to threaten a two-front war.

Missed Opportunity

By late 1938, the Poles realized the threat of invasion was imminent and looked for assurances of support from the French and British. The genesis for this assurance was Hitler's annexation of Czechoslovakia. Subsequently, on March 31, 1939, Paris and London made commitments to Poland and Romania that their militaries were ill positioned to deliver.[36] Among those commitments was the Saar offensive.

Originally, the Saar offensive in the Rhine River Valley was to include upward of 40 French divisions and associated armor and artillery to divert German forces engaged in Poland. In actuality, only 11 divisions were committed from September 7 to 17 and advanced a mere 5 miles into German territory.[37] The offensive stalled because French military commander in chief General Maurice Gamelin's assessed advantage rested on fighting a defensive war on known ground—assumed to be in Belgium per "integral defense." To achieve this position, French planning centered on the Maginot Line and combined operations to bolster a defensive line in Belgium, which proved too little, too late. This missed opportunity in the Saar was made clear in testimony by German chief of operation staff General Alfred Jodl at his Nuremberg trial: "If we did not collapse already in the year 1939 that was due only to the fact that during the Polish campaign, the approximately 110 French and British divisions in the West were held completely inactive against the 23 German divisions."[38] Wartime German General Siegfried Westphal further stated, "Had the French attacked in force in September 1939 the German Army would have only been able to hold out for two weeks."[39]

Opportunism

Driven by revanchist aspirations and fears of a German advance through the Baltic states, Stalin launched a pressure campaign of intimidation and coercion to reestablish a Baltic presence through military basing and access rights. Stalin received his pretext after a day of operations against Poland. On September 18, a Polish submarine was allowed to depart Estonia—a violation in Stalin's eyes of Estonia's declared neutrality. This event triggered a Soviet ultimatum on September 24. Latvia and Lithuania followed suit by agreeing to host Russian bases by October 10, with allowance for 75,000 Red Army soldiers in these three countries.[40] These Baltic sites would only regain their independence more than 50 years later with the dissolution of the Soviet Union.

Only Finland refused Stalin's demands. On the heels of Poland's October dissolution, Russia invaded Finland on November 30, beginning the Winter War—a notable example of military opportunism. The publics in London and Paris immediately called for action to defend the brave Finns. With no good options, London's military chiefs were relieved when the Moscow Peace Treaty was signed March 12, 1940.[41] In Paris, however, the mood was unforgiving and resulted in the March 20 resignation of Prime Minister Édouard Daladier, which ushered in the more energetic Paul Reynaud.[42] The speed of events in the Baltic, and the lack of good military options, compounded the underlying political confusion and distracted military preparation for the main battle to come in France. Next to feel the political pinch at home would be London.

Too Little, Too Late

British military interests in neutral Norway were an open secret. For months, British politicians and military leaders had publicly signaled the need for action, including the mining of Norwegian harbors.[43] Norway was important because of geography—a long coastline affording access to the North Atlantic—and as a major transshipment source of German steel. The February 1940 *Altmark* incident, however, catalyzed German concerns into action. German ship *Altmark* had escaped the Battle of River Plate in December 1939, carrying British prisoners taken during commerce raiding by the cruiser *Admiral Graf Spee*.[44] Hitler was enraged when *Altmark* was seized in Norwegian territorial waters by a British boarding party. The result was the freeing of 300 British prisoners, and Hitler's greenlighting of German support of a Norwegian coup led by Norwegian military officer and Nazi collaborator Vidkun Quisling.

Confusion and wasted time ensued in March, as Prime Minister Neville Chamberlain redirected an expeditionary force readying for action in Finland to instead invade Norway. However, Hitler outmaneuvered the Allies and invaded Denmark and Norway on April 9. The ill-prepared and limited British forces were caught off guard. This failure would

bring Winston Churchill to the premiership on the same day the Germans opened the Western Front.

The Un-Phony War

During the Phony War, all the belligerents' navies and air forces were actively engaged, thus making it a Phony War only in name for these services:

- Sinking of the British aircraft carrier HMS *Courageous* by a U-29 on September 17, 1939; 519 killed.
- Sinking of the British battleship HMS *Royal Oak* by a U-47 on October 14, 1939; 833 killed.
- Luftwaffe air raids on Great Britain began on October 16, 1939, when Junkers Ju-88s attacked British warships at Rosyth on the Firth of Forth.
- Following a months-long hunt across the South Atlantic and Indian oceans, in September–December 1939 German commerce raider *Admiral Graf Spee* was engaged and scuttled at the Battle of the River Plate off the coast of Uruguay.
- On February 19, 1940, failed German Operation *Wikingera* intended to disrupt British North Sea maritime activity around the Dogger Bank. Two destroyers were lost to mines and friendly fire from the Luftwaffe; 600 German sailors were killed without encountering Allied forces.

During the Napoleonic Wars, competition between land power France and naval power Great Britain was often imagined as a fight between a whale and elephant, in which both were dominant in their domains but limited in where they could bring their force to bear on the other. The analogy will not apply in a modern conflict with effective long-range strike capabilities targeting land, sea, and air forces. Moreover, long-range strike and cyber capabilities proliferate so thoroughly today that U.S. forces no longer enjoy the luxury distance provides from attack.

The notion that proximity and access to enemy forces for strikes from sea or air determine the pace of early military actions remains unchanged. Today, this notion is compounded by space and cyber actions that would figure prominently during the opening phase of conflict. During the Phony War, British global naval presence and German commerce attacks on the high seas ensured maritime forces were actively engaged early in battle. However, in the near future, as U.S. ground forces invest in new long-range strike and antishipping capabilities unencumbered by the now-defunct Intermediate-Range Nuclear Forces Treaty, the Army and Marine Corps will be critical and active early players in any future East Asia conflict. The Army has already moved forward on developing Deep Strike missiles for attacking moving targets out to 309 miles, making the Army a future power to contend with in maritime Asia.

Where Is Today's Decisive Theater?

On May 10, 1940, the Phony War came to an abrupt close with Hitler's stunning and successful move through the Ardennes. Once massed armies of the belligerents came into contact, what followed was a prolonged, brutish, and bloody war lasting another 5 years and resulting in horrific losses of life. These losses were not inevitable, and conditions around contemporary flash points have some similarity to preconditions of the Phony War.

Belgium's actions during the Phony War are instructive and belie the importance of having practiced access and posture with Allies well in advance of a crisis. In the global competition with China, U.S. alliances are our greatest asset, but they must be modernized to remain relevant in a changing security environment.[45] Consider recent efforts in the Philippines, where Japan has joined U.S. efforts to improve the Philippine coast guard and navy.[46] This has been possible only because Japan made legislative and constitutional adjustments for a proactive regional role. Critical in this Japanese endeavor has been the 2015 revision of the U.S.-Japan Defense Guidelines and constitutional reinterpretations allowing collective self-defense.

This has resulted in both nations committing to active and continuous collaboration of national policy and military operations through the newly established Alliance Coordination Mechanism and Bilateral Enterprise. While the alliance with Japan is rapidly evolving, more is needed to modernize and network our alliances to avoid the mistakes of 1939 Belgium.

Russian and Chinese naval activity deep in the Pacific is challenging assumptions of free movement by forces critical to East Asia contingencies. This reality makes Pacific island nations vital partners in any showdown in Asia. Yet many of these nations are challenged to adequately police their economic exclusion zones, which has resulted in significant financial and environmental losses.[47] In the face of growing Chinese influence, there is an opportunity for the Department of the Interior and the Department of Defense to revitalize historical relationships and recapitalize outdated infrastructure. Such investments are important to bolstering local economies while facilitating the cost-effective U.S. presence needed to secure vital sea and air lines.

Closer to coastal China in the Western Pacific, allies and the balance of U.S. Pacific forces are within range of thousands of Chinese ballistic and cruise missiles. Countering this threat and undermining Chinese counterintervention strategy represent the most significant challenges to securing long-term U.S. interests.[48] Overcoming the challenges will inform future defense investments for the foreseeable future.

An important question, then, is where the modern version of an Ardennes will occur. During the Cold War, this was a strike from the Eastern Bloc through the Fulda Gap. Determining the decisive theater is critical to informing military posture and capability investments as well as focusing diplomatic initiatives to secure proximate allies. Given technological and geopolitical dynamics today, determining the decisive theater is complicated by the fact that two geographically separate Great Powers must be considered. The latest National Military Strategy and

National Defense Strategy embrace Great Power competition with China and Russia, yet both fall short by too broadly identifying today's decisive theaters as the Indo-Pacific, Europe, and Middle East. Missing is more specific mention of a modern Fulda Gap. That said, informed by Departments of Defense and State public statements, the greater challenge is China's pointing to the decisive theater in maritime East Asia.

Similar to Berlin's position in the Cold War, Taiwan would likely be a catalyst today for any Great Power war. This position is made urgent considering that 2020 national elections returned to Taiwan a government that Beijing considers suspect. Similar suspicions led to a 1996 crisis, when the Chinese employed missile tests to intimidate Taiwan during elections. This might occur again today, but China has improved its capacity for war at long range, elevating potential for miscalculation and escalation.

Rhyming with Taiwan

Like Stalin's and Hitler's revanchist aims in Poland, the Chinese Communist Party is similarly motivated to rein in Taiwan and end its de facto independence. The CCP's motivation is more than revanchism—it is to erase an example of successful Chinese democratic capitalism that threatens the legitimacy of communist dominance in China. In this context, the 2016 election of independence-minded Tsai Ing-wen as Taiwan's president agitates the CCP. Triggering a resumption of Chinese efforts to isolate Taiwan, six nations dropped diplomatic relations with the island from 2016 through late 2018.[49] Phony War parallels are relevant here: In a potential Taiwan conflict, allies' militaries optimized for defense near the conflict are likely to assume a passive posture as the United States musters forces, ramps up armament production, rallies political will, and moves forces through a substantial Chinese antiaccess and area-denial (A2/AD) umbrella stretching hundreds of miles into the Philippine Sea.[50] Moreover, China's recent South China Sea island-building as an extension of its

A2/AD umbrella has a chilling effect on any prospective Southeast Asian partner. Given these challenges, during the initial weeks of potential crisis, the chance of a modern Phony War is appreciable. With this in mind, consider the following:

- Diplomatic efforts, such as the Molotov-Ribbentrop Pact, and the absence of Allied forces in Eastern Europe in 1939 precluded military support for Poland. A contemporary example is China's diplomatic efforts to flip countries' recognition of Taiwan. Moreover, not unlike 1939–1940 Europe, opportunism and uncertainty over the outcome of any Asian contest likely would engender a high degree of diplomatic duplicity during the early phases of a future contest. It would be a contemporary dynamic of Mao Zedong's "Fight, Fight, Talk, Talk" 1940s approach, which, while placating U.S. pressure to negotiate with nationalist forces, continued waging a prolonged and successful civil war.[51] Today, as in the interwar period, the United States and its allies are striving to preserve the status quo—the rules-based order—in a politically defensive environment.[52] China's military buildup and displays of ballistic missiles have, like the Soviet buildup of theater nuclear weapons in the Cold War and Hitler's Siegfried Line, won political victories while paralyzing effective responses to gray zone challenges of the status quo.[53] Plans that assume fixed alliances and constellations of partners will fail, as did assumptions of German-Soviet enmity in 1939.[54]
- Belgium's steadfast neutrality and failure to allow French forces to enter and bolster defenses during the Phony War prevented adequate combined operations ahead of Hitler's invasion. A modern version of integral defense gaining traction today is what Andrew Krepinevich calls "Archipelagic Defense," which employs land-based long-range strike platforms across the First Island Chain.[55] Such forces elevate

the cost of any Chinese revisionist moves in East Asia.[56] The Philippines, South Korea, and Japan are formal U.S. allies at different levels of military competency and specialization. In the face of rapid Chinese military growth and modernization, coordinated operations among all Asian allies, including Australia, are imperative for modern integral defense in maritime East Asia. Moves to make existing exercises increasingly multilateral, such as 2019's Exercise Balikatan in the Philippines, are a step in the right direction but arguably could be scaled up.[57] Also hopeful is the increasing operationalization in the 2020 iteration of the maritime Malabar Exercise by the United States, Australia, Japan, and India.[58] Likewise, standardizing and routinizing logistics and access among allies could speed the flow and sustainment of forces early in a future crisis.

- Resolution of distant conflicts, such as at Nomonhan, can alter strategic calculations and pique an aggressor to act. For China, effectively resolving its border dispute and turning strategic competition into a comprehensive strategic partnership with Russia has enabled newfound military confidence. Following China's entry to the World Trade Organization in 2001, economic growth and inflows of capital accelerated China's military modernization. By 2008, China and Russia had resolved their borders; China's military capacity outstripped Russia's, giving China a freer hand to invest in naval and strike capabilities critical in a war with Taiwan. Before this time, the majority of Chinese naval vessels were considered obsolete or suitable only for coastal missions. However, by 2015 following a remarkable building program, China's navy had become overwhelmingly a blue water fleet, the majority of which was considered modern.[59] Compared with the U.S. Navy's rather static build rate in 2008–2019, China's navy commissioned on average nine new

Finnish Maxim M/32-33 machine gun nest 100 meters from Soviet forces, located approximately 5 kilometers north of Lemetti (area of the modern Pitkyarantsky District, Russia), during Winter War, February 21, 1940 (Courtesy Military Museum of Finland)

modern warships annually.[60] Measured another way, the total annual tonnage of new warships China put to sea in 2008 was more than 29,000 tons, growing to more than 187,000 tons by 2017—roughly doubling that of U.S. production over 2015–2017.[61] Should China succeed in its ongoing suppression of the Uighurs[62] and resolve border disputes with India,[63] Beijing could be further emboldened to act more aggressively in its maritime periphery.

- Strategic initiatives to isolate a belligerent from needed resources broadened the war through horizontal escalation. China's One Belt, One Road initiative, begun in 2013, has multibillion-dollar development projects in over 126 countries, and at 2019's Belt and Road Forum, new programs worth $64 billion were penned.[64] This portends a growing range of enticing venues for horizon-

tal escalation by all sides, potentially distracting from the main effort in East Asia.

- So-called "fifth columns" softened targets, such as the Sudeten German Free Corps in 1938 Czechoslovakia, while influence campaigns sought to benefit from or sow domestic political disunity. These campaigns included political assassinations aimed to usher in favorable governments—one example was the 1937 killing of antifascists during severe national strikes in France by right-wing terrorist group Cagoule at the behest of Mussolini's Italy.[65] Sadly, there has in recent years been a similar rise in attempted and successful political assassinations by Russia (for example, Aleksei Navalny, Aleksander Litvinenko, Sergei Skripal[66]) and abductions by the CCP (for example, Gui Minhai, Xiao Jianhua, Peng Ming[67]) as a

tool of statecraft. Moreover, for the past several years, the United States has been victimized by a Russian influence campaign to undermine faith in our democracy.[68] China, too, has been active in this realm, with controversial donations to politicians in Australia and New Zealand, purchases of Western media firms, and a global network of schools ostensibly spreading Confucius's teachings.[69] China's reach today is pervasive; for example, CCP leaders pressured Marriot to fire Roy Jones, a social media manager, for using a company Facebook account to "like" a post about Tibet.[70] Rob Joyce, a former senior cybersecurity advisor to the National Security Council, summarized this environment: "Russia is the hurricane: It comes in fast and hard . . . China is climate change: long, slow, pervasive."[71] China's threat today is real and empowered

through social media, which makes it much more challenging than 1939 Germany.[72] Moreover, CCP influence today is often obscured by self-censoring. One example is Hollywood moguls cutting material unacceptable to CCP censors as a way to gain access to the lucrative China market. Another example is a late 2019 commotion involving the National Basketball Association. This began with Houston Rockets general manager Daryl Morey's October 4, 2019, tweet in support of Hong Kong democracy protesters and ended when star player LeBron James publicly excoriated Morey.[73] If unchecked, such caustic influence on the electorate risks becoming conventional thinking, in turn constraining political leaders' options. At worst, this can imperil effective political decisionmaking at critical moments of a crisis.

- When Hitler shifted the German economy to a war footing in 1942, this led to severe armament and fuel shortages by 1944.[74] Hardening U.S. industry requires building bulwarks against cyber attack and intellectual theft and bolstering the diversification of supply chains and the homesteading of critical production. At the same time, counterproliferation and counterillicit arms production tools need sharpening. During the interwar years, German company Krupp reconstituted a submarine force virtually out of thin air based in the Netherlands to avoid constraints of the Versailles Treaty.[75] Today, the extent to which global production lines have been integrated will have unforeseen implications, likely complicating prosecution of conflict in unexpected ways.[76] A recent example was during the start of the COVID-19 crisis, when China (where the United States sources over 80 percent of its antibiotics) threatened to withhold pharmaceutical exports.[77] Hardening industry and global supply chains would be vital in sustaining prolonged operations in a modern crisis.

- Overconfidence in dated or untested concepts of operations and theories of victory—principally France's adherence to a defensive posture when pressing the Saar attack—could have halted World War II in 1939. Today, excessive confidence in untested concepts at scale in contested environments has potential for disastrous outcomes in a Taiwan crisis. For China, this is its reliance on A2/AD backed by antiship ballistic missiles. For the United States, this is its reliance on Third Offset advanced warfighting technologies and concepts such as multidomain operations and maritime distributed operations.[78]

- Third-party opportunism, such as Stalin's Winter War, will be a feature of contemporary Great Power competition. Moreover, Russia could once again seek gains while China and the United States are preoccupied in crisis. More likely, and more perilous, would be if Russia or China acts as a spoiler in order to prolong a crisis in which the United States finds itself—a ploy Stalin attempted when he encouraged the 1950 Korean War.[79]

Conclusion

War need not be a foregone conclusion between today's Great Powers. However, failure to heed historical insights from the Phony War could allow a crisis to become a long war. Given that the nature of competition in Asia is largely maritime, our naval and expeditionary forces must be prepared for sustained and significant operations from the earliest onset of crisis. This necessitates protecting the homeland from caustic influences such that political will and military options remain aligned, therefore enabling prompt action when opportunity avails.

There is arguably much work to be done to educate the electorate on the stakes of today's Great Power competition. In the meantime, it is the responsibility of our military, in concert with our allies, to develop, exercise,

and refine a range of dynamic new ways of war. Most necessary is substantially testing these concepts in the field to accelerate learning and planning that encompass a dynamic range of crises.

Managing crises among competing Great Powers is vital to avoid—and, if needed, constrain—conflict imperiling today's rules-based order. At premium will be the ability to effectively predict and posture forces to preempt a would-be challenger's fait accompli offensive. Doing so requires renewed investment in alliances, military presence, and expeditionary capabilities. At the same time, reinvigorating democratic capitalism is vital to afford the prolonged cost of competition, while also attracting partner nations in common causes. Likewise, access to and contributions from partner nations will be critical to ensure our combined forces are postured to peacefully protect and enhance global democratic capitalism.

The Phony War demonstrated the consequences of being unable to employ forces where most effective for deterrence—and inevitably for combat. Ensuring this fallacy is not repeated is critical, as Elbridge Colby testified before Congress in January 2019.[80] Defeating the CCP's plausible theory of victory requires rapid action under an A2/AD umbrella, which is intended to make U.S. intervention too costly and provide time for a CCP fait accompli.[81] Retaining the posture advantage can confound competitors' strategies but necessitates accepting A2/AD threats in peacetime and crisis—the goal being to deter fait accompli actions, contain crises, and preclude a prolonged conflict with another Great Power.

Chance aside, the outcome of war will be determined before the fighting actually starts: the better-postured, -resourced, and -trained Great Power will win. Being appropriately positioned avails time and options for taking the most effective military actions, which 1939 Paris and London lacked. Doing so also signals to an adversary that keeping competition within peaceful means is mutually beneficial. Failing to have a clear idea of how to deter a conflict and options for

responding in crisis makes strategic misdirection and paralysis likely during the precious weeks or months during which the conflict could turn into major war. The complexity of modern Great Power competition, and the rapidity with which escalation can occur, make it imperative the United States and its allies posture themselves to shape and constrain potential conflict, while acting promptly if needed. Therefore, an enhanced presence that is postured and sustained in maritime East Asia is needed. The cost of failing to heed these lessons may lead to outright defeat or a pyrrhic victory following a needlessly long war. **JFQ**

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Joint Publications (JPs) Under Revision (to be signed within 6 months)

JP 2-0, *Joint Intelligence*

JP 3-0, *Joint Operations*

JP 3-01, *Countering Air and Missile Threats*

JP 3-03, *Joint Interdiction*

JP 3-07, *Joint Stability*

JP 3-15, *Barriers, Obstacles, and Mine Warfare in Joint Operations*

JP 3-20, *Security Cooperation*

JP 3-33, *Joint Task Force Headquarters*

JP 3-XX, *Information*

JPs and Joint Doctrine Policy Documents Revised (signed within last 6 months)

JP 1, *Doctrine for the Armed Forces of the United States,* Volumes 1 and 2

JP 3-36, *Joint Air Mobility and Sealift Operations*

Falcon 9 Starlink L24 rocket successfully launches from SLC-40 at Cape Canaveral Space Force Station, Florida, April 28, 2021 (U.S. Space Force/Joshua Conti)

Cyber Threats and Vulnerabilities to Conventional and Strategic Deterrence

By Mark Montgomery and Erica Borghard

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Scholars and practitioners in the area of cyber strategy and conflict focus on two key strategic imperatives for the United States: first, to maintain and strengthen the current deterrence of cyberattacks of significant consequence; and second, to reverse the tide of malicious behavior that may not rise to a level of armed attack but nevertheless has cumulative strategic implications as part of adversary campaigns. The Department of Defense (DOD) strategic concept of defend forward and U.S. Cyber Command's concept of persistent engagement are largely directed toward this latter challenge. While the United States has ostensibly deterred strategic cyberattacks above the threshold of armed conflict, it has failed to create sufficient costs for adversaries below that threshold in a way that would shape adversary behavior in a desired direction.[1] Effectively, this tide of malicious behavior repre-

sents a deterrence failure for strategic cyber campaigns below the use-of-force threshold; threat actors have not been dissuaded from these types of campaigns because they have not perceived that the costs or risks of conducting them outweigh the benefits.[2] This breakdown has led to systemic and pervasive efforts by adversaries to leverage U.S. vulnerabilities and its large attack surface in cyberspace to conduct intellectual property theft—including critical national security intellectual property—at scale, use cyberspace in support of information operations that undermine America's democratic institutions, and hold at risk the critical infrastructure that sustains the U.S. economy, national security, and way of life.

U.S. strategy has simultaneously focused on the longstanding challenge of deterring significant cyberattacks that would cause loss of life, sustained disruption of essential functions and services, or critical economic impacts—those activities that may cross the threshold constituting a use of force or armed attack. Indeed, Congress chartered the U.S. Cyberspace Solarium Commission in the 2019 National Defense Authorization Act to "develop a consensus on a strategic approach to defending the United States in cyberspace against cyberattacks of significant consequences."[3] There is also a general acknowledgment of the link between U.S. cyber strategy below and above the threshold of armed conflict in cyberspace. Specifically, efforts to defend forward below the level of war—to observe and pursue adversaries as they maneuver in "gray" and "red" space, and to counter adversary operations, capabilities, and infrastructure when authorized—could yield positive cascading effects that support deterrence of strategic cyberattacks.[4]

Less attention, however, has been devoted to the cross-domain nexus between adversary cyber campaigns below the level of war and the implications for conventional or nuclear deterrence and warfighting capabilities.[5] The most critical comparative warfighting advantage the United States enjoys relative to its

adversaries is its technological edge in the conventional weapons realm—even as its hold may be weakening.[6] Indeed, this is why adversaries prefer to contest the United States below the level of war, in the gray zone, and largely avoid direct military confrontation where they perceive a significant U.S. advantage. At the same time, adversaries are making substantial investments in technology and innovation to directly erode that edge, while also shielding themselves from it by developing offset, antiaccess/area-denial capabilities.[7] Moreover, adversaries are engaging in cyber espionage to discern where key U.S. military capabilities and systems may be vulnerable and to potentially blind and paralyze the United States with cyber effects in a time of crisis or conflict.[8]

Therefore, while technologically advanced U.S. military capabilities form the bedrock of its military advantage, they also create cyber vulnerabilities that adversaries can and will undoubtedly use to their strategic advantage. To support a strategy of full-spectrum deterrence, the United States must maintain credible and capable conventional and nuclear capabilities. However, adversaries could hold these at risk in cyberspace, potentially undermining deterrence. If deterrence fails in times of crisis and conflict, the United States must be able to defend and surge conventional capabilities when adversaries utilize cyber capabilities to attack American military systems and functions. In this way, cyber vulnerabilities that adversaries exploit in routine competition below the level of war have dangerous implications for the U.S. ability to deter and prevail in conflict above that threshold—even in a noncyber context. The strategic consequences of the weakening of U.S. warfighting capabilities that support conventional—and, even more so, nuclear—deterrence are acute. Additionally, the scope and challenge in securing critical military networks and systems in cyberspace is immense. Therefore, urgent policy action is needed to address the cyber vulnerabilities of key weapons systems and functions.

Deterrence in U.S. Strategy

Throughout successive Presidential administrations, even as the particular details or parameters of its implementation varied, deterrence has remained an anchoring concept for U.S. strategy.[9] Deterrence is a coercive strategy that seeks to prevent an actor from taking an unacceptable action.[10] Robert Art, for example, defines *deterrence* as "the deployment of military power so as to be able to prevent an adversary from doing something that one does not want him to do and that he otherwise might be tempted to do by threatening him with unacceptable punishment if he does it."[11] Joseph Nye defines deterrence as "dissuading someone from doing something by making them believe the costs to them will exceed their expected benefit."[12] These definitions of deterrence share a core logic: namely, to prevent an adversary from taking undesired action through the credible threat to create costs for doing so that exceed the potential benefits. However, one notable distinction is Art's focus on the military instrument of power (chiefly nuclear weapons) as a tool of deterrence, whereas Nye's concept of deterrence implies a broader set of capabilities that could be marshalled to prevent unwanted behavior. Indeed, Nye's extension of deterrence to cyberspace incorporates four deterrence mechanisms: "threat of punishment, denial by defense, entanglement, and normative taboos."[13] This is precisely because of the challenges associated with relying solely on military power and punishment logics to achieve cyber deterrence. Our working definition of deterrence is therefore consistent with how Nye approaches the concept.

Credibility lies at the crux of successful deterrence. The target must believe that the deterring state has both the capabilities to inflict the threatening costs and the resolve to carry out a threat.[14] A deterring state must therefore develop mechanisms for signaling credibility to the target.[15] Much of the Cold War deterrence literature focused on the question of how to convey resolve, primarily because the threat to use

Company fire support officer assigned to 2nd Battalion, 3rd Field Artillery Regiment, 1st Armored Brigade Combat Team, 1st Armored Division, monitors computer system showing target locations at Dona Ana Range Complex, New Mexico, March 8, 2021 (U.S. Army/Elijah Ingram)

nuclear weapons—particularly in support of extended deterrence guarantees to allies—lacks inherent credibility given the extraordinarily high consequences of nuclear weapons employment in comparison to any political objective.[16] This raises questions about decisionmakers' willingness to follow through on a nuclear threat. However, the credibility conundrum manifests itself differently today. Specifically, the potential for cyber operations to distort or degrade the ability of conventional or even nuclear capabilities to work as intended could undermine the credibility of deterrence due to a reduced capability rather than political will.[17] Moreover, given the secret nature of cyber operations, there is likely to be information asymmetry between the deterring state and the ostensible target of deterrence if that target has undermined or holds at risk the deterring state's capabilities without its knowledge.

U.S. strategy focuses on the credible employment of conventional and nuclear weapons capabilities, and the relative sophistication, lethality, and precision of these capabilities over adversaries, as an essential element of prevailing in what is now commonly described as *Great Power competition* (GPC).[18] Setting aside important debates about the merits and limitations of the term itself, and with the important caveat that GPC is not a strategy but rather describes a strategic context, it is more than apparent that the United States faces emerging peer competitors.[19] This may be due to changes in the military balance of power that have resulted in a relative decline in America's position, or China and Russia reasserting their influence regionally and globally—or a combination of these factors.[20] While the current strategic landscape is distinct from both the Cold War and the period immediately following,

deterrence as a strategic concept is again at the crux of U.S. strategy but with new applications and challenges. As the 2017 National Security Strategy notes, "deterrence today is significantly more complex to achieve than during the Cold War. Adversaries studied the American way of war and began investing in capabilities that targeted our strengths and sought to exploit perceived weaknesses."[21] In this new environment, cyberspace is a decisive arena in broader GPC, with significant implications for cross-domain deterrence.[22]

The literature on the feasibility of deterrence in cyberspace largely focuses on within-domain deterrence—in other words, the utility and feasibility of using (or threatening) cyber means to deter cyber behavior.[23] Scholars have identified a number of important impediments to this form of cyber deterrence.[24] For instance, the challenges of discerning timely

Chief Information Security Officer for Acquisitions Katie Arrington discusses Cybersecurity Maturity Model Certification with Norwegian National Defense and Security Industries Association, from the Pentagon, Washington, DC, January 13, 2021 (DOD/Brittany A. Chase)

and accurate attribution could weaken cyber deterrence through generating doubt about the identity of the perpetrator of a cyberattack, which undermines the credibility of response options.[25] Uncertainty about the effects of cyber capabilities—both anticipating them ex ante and measuring them ex post—may impede battle damage assessments that are essential for any deterrence calculus.[26] This uncertainty is further complicated by limitations in the ability to hold targets at risk or deliver effects repeatedly over time.[27] A deterring state may avoid revealing capabilities (which enhances the credibility of deterrence) because the act of revealing them renders the capabilities impotent.[28] Finally, the target may simply not perceive the threatened cyber costs to be sufficiently high to affect its calculus, or the target may be willing to gamble that a threatened action may not produce the effect intended by the deterring state due to the often unpredictable and

fleeting nature of cyber operations and effects.[29] Others offer a more sanguine take. For instance, deterrence may have more favorable prospects when it focuses on deterring specific types of behavior or specific adversaries rather than general cyber deterrence.[30]

Notably, there has been some important work on the feasibility of cross-domain deterrence as it pertains to the threat of employing noncyber kinetic capabilities to deter unwanted behavior in cyberspace. As Jacquelyn Schneider notes, this type of deterrence "involves the use of punishment or denial across domains of warfighting and foreign policy to deter adversaries from utilizing cyber operations to create physical or virtual effects."[31] The literature has also examined the inverse aspect of cross-domain deterrence—namely, how threats in the cyber domain can generate instability and risk for deterrence across other domains. For example, Erik Gartzke and Jon Lindsay

explore how offensive cyber operations that target a state's nuclear command, control, and communications could undermine strategic deterrence and increase the risk of war.[32] Similarly, Austin Long notes potential pathways from offensive cyber operations to inadvertent escalation (which is by definition a failure of deterrence) if "attacks on even nonmilitary critical systems (for example, power supplies) could impact military capabilities or stoke fears that military networks had likewise been compromised."[33]

Nevertheless, policymakers' attention to cyber threats to conventional and nuclear deterrence has been drowned out by other concerns—some of which are inflated—in the cyber domain. For instance, the typical feared scenario is the equivalent of a "cyber Pearl Harbor" or a "cyber 9/11" event—a large-scale cyberattack against critical U.S. infrastructure that causes significant harm to life or property.[34] This line of thinking, however,

risks missing the ostensibly more significant threat posed by stealthy cyberspace activities that could undermine the stability of conventional or nuclear deterrence.

Cyber Risks to Conventional and Nuclear Deterrence

The cyber vulnerabilities that exist across conventional and nuclear weapons platforms pose meaningful risks to deterrence.[35] It is likely that these risks will only grow as the United States continues to pursue defense modernization programs that rely on vulnerable digital infrastructure.[36] These vulnerabilities present across four categories, each of which poses unique concerns: technical vulnerabilities in weapons programs already under development as well as fielded systems, technical vulnerabilities at the systemic level across networked platforms ("system-of-systems" vulnerabilities), supply chain vulnerabilities and the acquisitions process, and nontechnical vulnerabilities stemming from information operations.

Connectivity, automation, exquisite situational awareness, and precision are core components of DOD military capabilities; however, they also present numerous vulnerabilities and access points for cyber intrusions and attacks. Innovations in technology and weaponry have produced highly complex weapons systems, such as those in the F-35 Joint Strike Fighter, which possesses unparalleled technology, sensors, and situational awareness—some of which rely on vulnerable Internet of Things devices.[37] In a pithy depiction, Air Force Chief of Staff General David Goldfein describes the F-35 as "a computer that happens to fly."[38] However, the increasingly computerized and networked nature of these weapons systems makes it exponentially more difficult to secure them. Moreover, the use of commercial off-the-shelf (COTS) technology in modern weapons systems presents an additional set of vulnerability considerations.[39] Indeed, a 2019 DOD Inspector General report found that DOD purchases and uses COTS technologies with known cybersecurity vulnerabilities and that, because of this, "adversaries could exploit known cybersecurity vulnerabilities that exist in COTS items."[40]

Therefore, a fundamental issue is that both individual weapons programs already under development and fielded systems in the sustainment phase of the acquisition life cycle are beset by vulnerabilities. Prior to 2014, many of DOD's cybersecurity efforts were devoted to protecting networks and information technology (IT) systems, rather than the cybersecurity of the weapons themselves.[41] Protecting IT systems is important in its own right. Federal and private contractor systems have been the targets of widespread and sophisticated cyber intrusions. For instance, former Secretary of the Navy Richard Spencer described naval and industry partner systems as being "under cyber siege" by Chinese hackers.[42] Yet of most concern is that the integrity and credibility of deterrence will be compromised by the cybersecurity vulnerabilities of weapons systems.

In recent years, while DOD has undertaken efforts to assess the cyber vulnerabilities of individual weapons platforms, critical gaps in the infrastructure remain. For example, there is no permanent process to periodically assess the vulnerability of fielded systems, despite the fact that the threat environment is dynamic and vulnerabilities are not constant. This means that a singular static assessment is unlikely to capture how vulnerabilities may evolve and change over time.[43] Relatedly, a 2018 Government Accountability Office report found pervasive and significant mission-critical vulnerabilities across most weapons systems already under development.[44] Between 2012 and 2017, DOD penetration testers—individuals who evaluate the cybersecurity of computer systems and uncover vulnerabilities—discovered "mission-critical cyber vulnerabilities in nearly all weapon systems under development."[45] Penetration testing teams were able to overcome weapons systems cybersecurity controls designed to prevent determined adversaries from gaining access to these platforms and to maneuver within compromised systems while successfully evading detection.

Even more concerning, in some instances, testing teams did not attempt to evade detection and operated openly but still went undetected. Moreover, some DOD operators did not even know the system had been compromised: "[U]nexplained crashes were normal for the system," and even when intrusion detection systems issued alerts, "[this] did not improve users' awareness of test team activities because . . . warnings were so common that operators were desensitized to them."[46] Existing testing programs are simply too limited to enable DOD to have a complete understanding of weapons system vulnerabilities, which is compounded by a shortage of skilled penetration testers.[47]

Individual weapons platforms do not in reality operate in isolation from one another. Rather, most modern weapons systems comprise a complex set of systems—systems of systems that entail "operat[ing] multiple platforms and systems in a collaborate manner to perform military missions."[48] An example is the Aegis weapon system, which contains a variety of integrated subsystems, including detection, command and control, targeting, and kinetic capabilities.[49] Therefore, vulnerability assessments that focus on individual platforms are unable to identify potential vulnerabilities that may arise when these capabilities interact or work together as part of a broader, networked platform. The challenge of securing these complex systems is compounded by the interaction of legacy and newer weapons systems—and most DOD weapons platforms are legacy platforms. Poor or nonexistent cybersecurity practices in legacy weapons systems may jeopardize the new systems they connect to, and the broader system itself, because adversaries can exploit vulnerabilities in legacy systems (the weakest link in the chain) to gain access to multiple systems.[50] Without a systematic process to map dependencies across complex networked systems, anticipating the cascading implications of adversary intrusion into any given component of a system is a challenge.

Another pathway through which adversaries can exploit vulnerabilities in

weapons systems is the security of the DOD supply chain—the global constellation of components and processes that form the production of DOD capabilities—which is shaped by DOD's acquisitions strategy, regulations, and requirements. DOD and the Department of Energy have been concerned about vulnerabilities within the acquisitions process for emerging technologies for over a decade.[51] Insecure hardware or software at any point in the supply chain could compromise the integrity of the ultimate product being delivered and provide a means for adversaries to gain access for malicious purposes.

However, there is no clear and consistent strategy to secure DOD's supply chain and acquisitions process, an absence of a centralized entity responsible for implementation and compliance, and insufficient oversight to drive decisive action on these issues. There is instead decentralized responsibility across DOD, coupled with a number of reactive and ad hoc measures that leave DOD without a complete picture of its supply chain, dynamic understanding of the scope and scale of its vulnerabilities, and consistent mechanisms to rapidly remediate these vulnerabilities.

Until recently, DOD's main acquisitions requirements policy did not systematically address cybersecurity concerns. For instance, it did not call for programs to include cyberattack survivability as a key performance parameter.[52] These types of requirements are typically established early in the acquisitions process and drive subsequent system design decisionmaking. If cybersecurity requirements are tacked on late in the process, or after a weapons system has already been deployed, the requirements are far more difficult and costly to address and much less likely to succeed.[53] In 2016, DOD updated the Defense Federal Acquisition Regulations Supplement (DFARS), establishing cybersecurity requirements for defense contractors based on standards set by the National Institute of Standards and Technology. Then, in part due to inconsistencies in compliance, verification, and enforcement in the cybersecurity standards established in DFARS, in 2019

DOD issued the Cybersecurity Maturity Model Certification, which created new, tiered cybersecurity standards for defense contractors and was meant to build on the 2016 DFARS requirement.[54] However, this has resulted in confusion about requirements, and the process for independently auditing and verifying compliance remains in nascent stages of development.[55] At the same time, in the 2019 National Defense Authorization Act (NDAA), Congress took legislative action to ban government procurement of or contracting with entities that procure telecommunications technologies from specific Chinese firms, including Huawei and ZTE, and affiliated organizations. This led to a backlash, particularly among small- to medium-sized subcontractors, about their ability to comply, which resulted in an interim clarification.[56]

Moreover, ownership of this procurement issue remains decentralized, with different offices both within and without DOD playing important roles. Significant stakeholders within DOD include the Under Secretary of Defense for Acquisition and Sustainment, the Under Secretary of Defense for Intelligence and Security, the Defense Counterintelligence and Security Agency, the Cybersecurity Directorate within the National Security Agency, the DOD Cyber Crime Center, and the Defense Industrial Base Cybersecurity Program, among others. Within the Intelligence Community, the National Counterintelligence and Security Center within the Office of the Director of National Intelligence also plays a role in supply chain security through its counterintelligence mission, which includes the defense industrial base. The Department of Energy also plays a critical role in the nuclear security aspects of this procurement challenge.[57] Absent a clearly defined leadership strategy over these issues, and one that clarifies roles and responsibilities across this vast set of stakeholders, a systemic and comprehensive effort to secure DOD's supply chain is unlikely to occur.[58]

Risks stemming from nontechnical vulnerabilities are entirely overlooked in strategies and policies for identifying and remediating cyber vulnerabilities in DOD

weapons systems. However, adversaries could compromise the integrity of command and control systems—most concerningly for nuclear weapons—without exploiting technical vulnerabilities in the digital infrastructure on which these systems rely. Instead, malicious actors could conduct cyber-enabled information operations with the aim of manipulating or distorting the perceived integrity of command and control. This could take place in positive or negative forms—in other words, perpetrating information as a means to induce operations to erroneously make a decision to employ a capability or to refrain from carrying out a lawful order. The consequences are significant, particularly in the nuclear command and control realm, because not employing a capability could undermine positive and negative control over nuclear weapons and inevitably the stability of nuclear deterrence.

Policy Recommendations

Recognizing the interdependence among cyber, conventional, and nuclear domains, U.S. policymakers must prioritize efforts to reduce the cyber vulnerabilities of conventional and nuclear capabilities and ensure they are resilient to adversary action in cyberspace. Cyber threats to these systems could distort or undermine their intended uses, creating risks that these capabilities may not be reliably employable at critical junctures. Additionally, cyber-enabled espionage conducted against these systems could allow adversaries to replicate cutting-edge U.S. defense technology without comparable investments in research and development and could inform the development of adversary offset capabilities. Vulnerabilities such as these have important implications for deterrence and warfighting. Deterrence postures that rely on the credible, reliable, and effective threat to employ conventional or nuclear capabilities could be undermined through adversary cyber operations. And, if deterrence fails, cyber operations to disrupt or degrade the functioning of kinetic weapons systems could compromise mission assurance during crises and conflicts.

More than 100 players from around the Nation participate in Defend Forward: 2019 Critical Infrastructure War Game, at U.S. Naval War College, July 25, 2019, in Newport, Rhode Island (U.S. Navy/Tyler D. John)

As adversaries' cyber threats become more sophisticated, addressing the cybersecurity of DOD's increasingly advanced and networked weapons systems should be prioritized. The Cyberspace Solarium Commission's March 2020 report details a number of policy recommendations to address this challenge.[59] We now unpack a number of specific measures put forth by the Cyberspace Solarium Commission that Congress, acting in its oversight role, along with the executive branch could take to address some of the most pressing concerns regarding the cyber vulnerabilities of conventional and nuclear weapons systems. We also describe the important progress made in the fiscal year (FY) 2021 NDAA, which builds on the commission's recommendations.

In terms of legislative remedies, the Cyberspace Solarium Commission report recommends Congress update its recent legislative measures to assess the cyber vulnerabilities of weapons systems to account for a number of important gaps. The ultimate objective is to enable DOD to develop a more complete picture of the scope, scale, and implications of cyber vulnerabilities to critical weapons systems and functions. Past congressional action has spurred some important progress on this issue. Specifically, in Section 1647 of the FY16 NDAA, which was subsequently updated in Section 1633 of the FY20 NDAA, Congress directed DOD to assess the cyber vulnerabilities of each major weapons system.[60] Although this process has commenced, gaps remain that must be remediated. For example, there is no permanent process to periodically assess the cybersecurity of fielded systems. Additionally, the current requirement is to assess the vulnerabilities of *individual* weapons platforms. But given the interdependent and networked nature of multiple independent weapons systems, merely assessing individual platforms misses crucial potential vulnerabilities that may arise when platforms interact with one another. Therefore, DOD must also evaluate how a cyber intrusion or attack on one system could affect the entire mission—in other words, DOD must assess vulnerabilities at a systemic level.

Given that Congress has already set a foundation for assessing cyber vulnerabilities in weapons systems, there is an opportunity to legislatively build on this progress. The commission proposed Congress amend Section 1647 of the FY16 NDAA (which, as noted, was amended in the FY20 NDAA) to include a requirement for DOD to annually assess major weapons systems vulnerabilities. In the FY21 NDAA, Congress incorporated elements of this recommendation,

Colonial Pipeline halted operation of its 5,500 miles of pipeline, stretching from Texas to New York, after being hit by randsomware cyber attack on May 7, 2021 (Photo courtesy J.B.)

directing the Secretary of Defense to institutionalize a recurring process for cybersecurity vulnerability assessments that "take[s] into account upgrades or other modifications to systems and changes in the threat landscape."[61] Importantly, Congress recommended that DOD assign a senior official responsibilities for overseeing and managing this process—a critical step given the decentralization of oversight detailed herein—thus clarifying the National Security Agency's Cybersecurity Directorate's role in supporting this program.[62] In a different section of the FY21 NDAA, Congress updated language describing the Principal Cyber Advisor's role within DOD as the coordinating authority for "cybersecurity issues relating to the defense industrial base," with specific responsibility to "synchronize, harmonize, de-conflict, and coordinate all policies and programs germane to defense industrial base cybersecurity," including acquisitions and contract enforcement on matters pertaining to cybersecurity.[63]

Work remains to be done. To strengthen congressional oversight and drive continued progress and attention toward these issues, the requirement to conduct periodic vulnerability assessments should also include an after-action report that includes current and planned efforts to address cyber vulnerabilities of interdependent and networked weapons systems in broader mission areas, with an intent to gain mission assurance of these platforms. Moreover, the process of identifying interdependent vulnerabilities should go beyond assessing technical vulnerabilities to take a risk management approach to drive prioritization given the scope and scale of networked systems. The objective would be to improve the overall resilience of the systems as well as to identify secondary and tertiary dependencies, with a focus on rapid remediation of identified vulnerabilities. In addition to assessing fielded systems vulnerabilities, DOD should enforce cybersecurity requirements for systems that are in development early in the acquisition life cycle, ensuring they remain an essential part of the front end of this process and are not "bolted on" later.[64] Doing so would essentially create a requirement for DOD to institutionalize a continuous assessment process of weapons systems' cyber vulnerabilities and annually report on these vulnerabilities, thereby sustaining its momentum in implementing key initiatives.

Additionally, in light of the potentially acute and devastating consequences posed by the possibility of cyber threats to nuclear deterrence and command and control, coupled with ongoing nuclear modernization programs that may create unintended cyber risks, the cybersecurity of nuclear command, control, and communications (NC3) and National Leadership Command Capabilities (NLCC) should be given specific attention.[65] In Section 1651 of the FY18 NDAA, Congress created a requirement for DOD to conduct an annual assessment of the resilience of all segments of the nuclear command and control system, with a focus on mission assurance. The FY21 NDAA makes important progress on this front. Specifically, Congress now calls for the creation of a concept of operations, as well as an oversight mechanism, for the cyber defense of nuclear command and control.[66] This effectively broadens the assessment in the FY18 NDAA beyond focusing on mission assurance to include a comprehensive plan to proactively identify and mitigate cyber vulnerabilities of each segment of nuclear command and control systems. Establishing an explicit oversight function mechanism will also hopefully create mechanisms to ensure that DOD routinely assesses every segment of the NC3 and NLCC enterprise for adherence to cybersecurity best practices, vulnerabilities, and evidence of compromise.

Inevitably, there is an inherent tension between Congress's efforts to act in an oversight capacity and create additional requirements for DOD, and the latter's desire for greater autonomy. Nevertheless, the stakes remain high to preserve the integrity of core conventional and nuclear deterrence and warfighting capabilities, and efforts thus far, while important, have not been sufficiently comprehensive.

In addition to congressional action through the NDAA, DOD could take a number of steps to reinforce legislative efforts to improve the cybersecurity of key weapons systems and functions. For example, as a complement to institutionalizing a continuous process for DOD to assess the cyber vulnerabilities of weapons systems, the department could formalize a capacity for continuously seeking out and remediating cyber threats across the entire enterprise. This is why the commission recommends that DOD develop and designate a force structure element to serve as a threat-hunting capability across the entire DOD Information Network (DODIN), thus covering the full range of nonnuclear to nuclear force employment. Threat-hunting entails proactively searching for cyber threats on assets and networks. Specifically, DOD could develop a campaign plan for a threat-hunting capability that takes a risk-based approach to analyzing threat intelligence and assessing likely U.S. and allied targets of adversary interest. Based on this analysis, this capability could proactively conduct threat-hunting against those identified networks and assets to seek evidence of compromise, identify vulnerabilities, and deploy countermeasures to enable early warning and thwart adversary action. Given the potentially high consequences of cyber threats to NC3 and NLCC, priority should be assigned to identifying threats to these networks and systems, and threat-hunting should recur with a frequency commensurate with the risk and consequences of compromise.

A potential impediment to implementing this recommendation is the fact that many cyber threats will traverse the boundaries of combatant commands,

including U.S. Cyber Command, U.S. Strategic Command, and the geographic combatant commands. In order for a force structure element for threat-hunting across DODIN to have more seamless and flexible maneuver, DOD should consider developing a process to reconcile the authorities and permissions to enable threat-hunting across all DODIN networks, systems, and programs.

Given the extraordinarily high consequence of a successful adversary cyber-enabled information operation against nuclear command and control decisionmaking processes, DOD should consider developing a comprehensive training and educational requirement for relevant personnel to identify and report potential activity. DOD must additionally consider incorporating these considerations into preexisting table-top exercises and scenarios around nuclear force employment while incorporating lessons learned into future training.[67] Implementing these recommendations would enhance existing DOD efforts and have a decisive impact on enhancing the security and resilience of the entire DOD enterprise and the critical weapons systems and functions that buttress U.S. deterrence and warfighting capabilities.

Much of the focus within academic and practitioner communities in the area of cyber deterrence has been on within-domain deterrence, and even studies of cross-domain deterrence have been largely concerned with the employment of noncyber instruments of power to deter cyberattacks. This has led to a critical gap in strategic thinking—namely, the cross-domain implications of cyber vulnerabilities and adversary cyber operations in day-to-day competition for deterrence and warfighting above the level of armed conflict. Failure to proactively and systematically address cyber threats and vulnerabilities to critical weapons systems, and to the DOD enterprise, has deleterious implications for the U.S. ability to deter war, or fight and win if deterrence fails. Implementing the Cyberspace Solarium Commission's recommendations would go a long way

toward restoring confidence in the security and resilience of the U.S. military capabilities that are the foundation of the Nation's deterrent. **JFQ**

Notes

[1] *Summary: Department of Defense Cyber Strategy 2018* (Washington, DC: Department of Defense [DOD], 2018), available at <https://media.defense.gov/2018/Sep/18/2002041658/-1/-1/1/CYBER_STRATEGY_SUMMARY_FINAL.PDF>; *Achieve and Maintain Cyberspace Superiority: Command Vision for U.S. Cyber Command* (Washington, DC: U.S. Cyber Command, 2018), available at <https://www.cybercom.mil/Portals/56/Documents/US-CYBERCOM%20Vision%20April%202018.pdf?ver=2018-06-14-152556-010>; "An Interview with Paul M. Nakasone," *Joint Force Quarterly* 92 (1st Quarter 2019), 6–7.

[2] The United States has long maintained strategic ambiguity about how to define what constitutes a *use of force* in any domain, including cyberspace, and has taken a more flexible stance in terms of the difference between a *use of force* and *armed attack* as defined in the United Nations charter.

[3] John S. McCain National Defense Authorization Act for Fiscal Year 2019, Pub. L. No. 115–232—August 13, 2018, 132 Stat. 1636, available at <https://www.congress.gov/115/plaws/publ232/PLAW-115publ232.pdf>.

[4] As defined in Joint Publication 3-12, *Cyberspace Operations* (Washington, DC: The Joint Staff, June 8, 2018), "The term 'blue cyberspace' denotes areas in cyberspace protected by [the United States], its mission partners, and other areas DOD may be ordered to protect," while "'red cyberspace' refers to those portions of cyberspace owned or controlled by an adversary or enemy." Finally, "all cyberspace that does not meet the description of either 'blue' or 'red' is referred to as 'gray' cyberspace" (I-4, I-5). Prior to the 2018 strategy, defending its networks had been DOD's primary focus; see *The DOD Cyber Strategy* (Washington, DC: DOD, April 2015), available at <https://archive.defense.gov/home/features/2015/0415_cyber-strategy/final_2015_dod_cyber_strategy_for_web.pdf>.

[5] For a notable exception, see Erik Gartzke and Jon R. Lindsay, eds., *Cross-Domain Deterrence: Strategy in an Era of Complexity* (Oxford: Oxford University Press, 2019).

[6] Office of the Secretary of Defense, *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2020* (Washington, DC: DOD, 2020).

[7] The spread of advanced air defenses, antisatellite, and cyberwarfare capabilities has given weaker actors the ability to threaten the

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United States and its allies. For example, China is the second-largest spender on research and development (R&D) after the United States, accounting for 21 percent of the world's total R&D spending in 2015. Also, improvements in Russia's military over the past decade have reduced the qualitative and technological gaps between Russia and the North Atlantic Treaty Organization. See National Science Board, "Overview of the State of the U.S. S&E Enterprise in a Global Context," in *Science and Engineering Indicators 2018* (Alexandria, VA: National Science Foundation, 2018), O-1; Scott Boston et al., *Assessing the Conventional Force Imbalance in Europe: Implications for Countering Russian Local Superiority* (Santa Monica, CA: RAND, 2018).

[8] Gordon Lubold and Dustin Volz, "Navy, Industry Partners Are 'Under Cyber Siege' by Chinese Hackers, Review Asserts," *Wall Street Journal*, March 2019, available at <https://www.wsj.com/articles/navy-industry-partners-are-under-cyber-siege-review-asserts-11552415553>; Zak Doffman, "Cyber Warfare: U.S. Military Admits Immediate Danger Is 'Keeping Us Up at Night,'" *Forbes*, July 21, 2019, available at <https://www.forbes.com/sites/zakdoffman/2019/07/21/cyber-warfare-u-s-military-admits-immediate-danger-is-keeping-us-up-at-night/#7f48cd941061>.

[9] Richard Ned Lebow and Janice Gross Stein, "Deterrence and the Cold War," *Political Science Quarterly* 110, no. 2 (Summer 1995), 157–181.

[10] Lawrence Freedman, *Deterrence* (Cambridge, UK: Polity, 2004), 26.

[11] Robert J. Art, "To What Ends Military Power?" *International Security* 4, no. 4 (Spring 1980), 6.

[12] Joseph S. Nye, Jr., "Deterrence and Dissuasion in Cyberspace," *International Security* 41, no. 3 (January 2017), 45. For additional definitions of deterrence, see Glenn H. Snyder, *Deterrence and Defense* (Princeton: Princeton University Press, 1961); Robert Jervis, "Deterrence Theory Revisited," *World Politics* 31, no. 2 (January 1979), 289–324; Thomas C. Schelling, *The Strategy of Conflict* (Cambridge, MA: Harvard University Press, 1980); and Thomas C. Schelling, *Arms and Influence* (New Haven: Yale University Press, 1966).

[13] Nye, "Deterrence and Dissuasion," 54–55.

[14] Schelling, *Arms and Influence*; Erica D. Borghard and Shawn W. Lonergan, "The Logic of Coercion in Cyberspace," *Security Studies* 26, no. 3 (2017), 454–455. See also Alexander L. George, William E. Simons, and David I. Hall, eds., *The Limits of Coercive Diplomacy* (Boulder, CO: Westview Press, 1994), for a more extensive list of success criteria.

[15] See James D. Fearon, "Signaling Foreign Policy Interests: Tying Hands Versus Sinking Costs," *Journal of Conflict Resolution* 41, no. 1 (February 1997), 68–90; Robert Jervis, "Signaling and Perception: Drawing Inferences

and Projecting Images," in *Political Psychology*, ed. Kristen Renwick Monroe (Mahwah, NJ: Lawrence Erlbaum Associates Publishers, 2002), 293–312.

[16] The literature on nuclear deterrence theory is extensive. Some key works include Kenneth N. Waltz, *The Spread of Nuclear Weapons: More May Be Better*, Adelphi Papers 171 (London: International Institute for Strategic Studies, 1981); Lawrence D. Freedman and Jeffrey Michaels, *The Evolution of Nuclear Strategy* (London: Macmillan, 1989); Robert Powell, *Nuclear Deterrence Theory: The Search for Credibility* (Cambridge: Cambridge University Press, 1990); Richard K. Betts, *Nuclear Blackmail and Nuclear Balance* (Washington, DC: Brookings Institution Press, 1987); Bernard Brodie, *Strategy in the Missile Age* (Princeton: Princeton University Press, 2015); Schelling, *Arms and Influence*.

[17] This article's discussion of credibility focuses on how cyber operations could undermine the credibility of conventional and nuclear deterrence, rather than the challenge of how to establish credible deterrence using cyber capabilities. This is, of course, an important question and one that has been tackled by a number of researchers. See, for example, Martin C. Libicki, *Brandishing Cyberattack Capabilities* (Santa Monica, CA: RAND, 2013); Brendan Rittenhouse Green and Austin Long, "Conceal or Reveal? Managing Clandestine Military Capabilities in Peacetime Competition," *International Security* 44, no. 3 (January 2020), 48–83.

[18] *Summary: DOD Cyber Strategy*.

[19] For one take on the *Great Power competition* terminology, see Zack Cooper, "Bad Idea: 'Great Power Competition' Terminology" (Washington, DC: Center for Strategic and International Studies, December 1, 2020), available at <https://defense360.csis.org/bad-idea-great-power-competition-terminology/>.

[20] See, for example, Eric Heginbotham et al., *The U.S.-China Military Scorecard: Forces, Geography, and the Evolving Balance of Power, 1996–2017* (Santa Monica, CA: RAND, 2015); Michèle A. Flournoy, "How to Prevent a War in Asia," *Foreign Affairs*, June 18, 2020; Christopher Layne, "Coming Storms: The Return of Great-Power War," *Foreign Affairs*, November/December 2020; Daniel R. Coats, *Worldwide Threat Assessment of the U.S. Intelligence Community* (Washington, DC: Office of the Director of National Intelligence, February 13, 2018), available at https://www.dni.gov/files/documents/Newsroom/Testimonies/2018-ATA---Unclassified-SSCI.pdf.

[21] *National Security Strategy of the United States of America* (Washington, DC: The White House, December 2017), 27, available at <https://trumpwhitehouse.archives.gov/wp-content/uploads/2017/12/NSS-Final-12-18-2017-0905.pdf>.

[22] Daniel R. Coats, "Annual Threat Assessment Opening Statement," Office of Director of National Intelligence, January 29,

2019, available at <https://www.dni.gov/files/documents/Newsroom/Testimonies/2019-01-29-ATA-Opening-Statement_Final.pdf>. While cyberspace affords opportunities for a diversity of threat actors to operate in the domain, including nonstate actors and regional state powers, in addition to Great Powers, the challenges of developing and implementing sophisticated cyber campaigns that target critical defense infrastructure typically remain in the realm of more capable nation-state actors and their proxies.

[23] For some illustrative examples, see Robert Jervis, "Some Thoughts on Deterrence in the Cyber Era," *Journal of Information Warfare* 15, no. 2 (2016), 66–73; Nye, "Deterrence and Dissuasion," 44–71; Martin C. Libicki, *Cyberspace in Peace and War* (Annapolis, MD: Naval Institute Press, 2016); Aaron F. Brantly, "The Cyber Deterrence Problem," in *2018 10th International Conference on Cyber Conflict*, ed. Tomas Minarik, Raik Jakschis, and Lauri Lindstrom (Tallinn: NATO Cooperative Cyber Defence Centre of Excellence, 2018), available at <https://ccdcoe.org/uploads/2018/10/Art-02-The-Cyber-Deterrence-Problem.pdf>; Thomas Rid, *Cyber War Will Not Take Place* (Oxford: Oxford University Press, 2013).

[24] Michael P. Fischerkeller and Richard J. Harknett, "Deterrence Is Not a Credible Strategy for Cyberspace," *Orbis* 61, no. 3 (2017), 381–393.

[25] Libicki, *Cyberspace in Peace and War*, 41–42; Jon R. Lindsay, "Tipping the Scales: The Attribution Problem and the Feasibility of Deterrence Against Cyberattack," *Journal of Cybersecurity* 1, no. 1 (2015), 53–67; Nye, "Deterrence and Dissuasion," 49–52.

[26] Lindsay, "Tipping the Scales," 52.

[27] Ibid., 56.

[28] Brantly, "The Cyber Deterrence Problem"; Borghard and Lonergan, "The Logic of Coercion."

[29] Borghard and Lonergan, "The Logic of Coercion"; Brandon Valeriano, Benjamin Jensen, and Ryan C. Maness, *Cyber Strategy: The Evolving Character of Power and Coercion* (Oxford: Oxford University Press, 2018); "An Interview with Paul M. Nakasone," 4.

[30] Dorothy E. Denning, "Rethinking the Cyber Domain and Deterrence," *Joint Force Quarterly* 77 (2nd Quarter 2015).

[31] Jacquelyn G. Schneider, "Deterrence in and Through Cyberspace," in *Cross-Domain Deterrence: Strategy in an Era of Complexity*, ed. Erik Gartzke and Jon R. Lindsay (Oxford: Oxford University Press, 2019), 104.

[32] Erik Gartzke and Jon R. Lindsay, "Thermonuclear Cyberwar," *Journal of Cybersecurity* 3, no. 1 (2017), 37–48.

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Force Integration in Resistance Operations
Dutch Jedburghs and U.S. Alamo Scouts

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J oint special operations forces (SOF) integration with conventional forces (CF) is a difficult undertaking in missions ranging from

humanitarian to combat, yet all future military operations against peer adversaries will require the close cooperation of SOF and CF for success. This axiom is especially true for liberation operations entailing collaboration with national resistance groups in occupied territories, where the latter will be engaged by U.S. SOF formations as part of their unconventional warfare mandate. With the return of Great Power competition, the threat of Russian or Chinese territorial aggression and occupation becomes a national security anxiety for a number of states, which generates the requirement to consider SOF-CF integration in liberation operations where friendly resistance groups are present. The Baltics, Ukraine, Georgia, Moldova, Taiwan, Burma, and Tibet are all examples that demonstrate this prospect of Russian or Chinese aggression and occupation.

Proper SOF-CF integration and synchronization depends on effective coordination and liaison for greatest effect.[1] Effective liaison between liberating conventional forces and friendly resistance elements in an ambiguous battlespace is necessary to avoid fratricide and to unify all regular and unconventional elements toward a common objective. Multinational SOF elements are the logical choice to provide this bridging function given their inherent expertise with irregular forces—militias, local security forces, and resistance members—as well as their ability to blend into local populations. Unfortunately, an established joint organizational unit of action does not currently exist for this mission.

This article proposes the establishment of multinational Jedburgh-like SOF teams to link CF units to national resistance organizations during operations. In World War II, the Jedburghs were multinational, three-person teams designed to conduct sabotage and guerrilla warfare in Axis-occupied territory as well as liaise between resistance groups and the Allied war effort. In today's North Atlantic Treaty Organization (NATO) context, NATO Special Operations Headquarters (NSHQ) would be the organization

to catalyze the establishment of such teams, and NATO's Enhanced Forward Presence (EFP) formations in Estonia, Latvia, Lithuania, and Poland could provide the ideal pilot platforms for their launch. After NSHQ pilots this concept, the United States and selected Asian allies could consider a similar model for the Indo-Pacific theater of operations. The World War II historical examples of the Dutch Jedburgh teams in Europe and the Alamo Scouts in the Pacific demonstrate the value of such SOF liaison elements between conventional forces and resistance groups, while framing a possible modern approach.

Integration Challenges

SOF-CF integration has been an enduring problem since the advent of modern-era special operations forces in World War II. In canvassing the relevant literature on the topic, a number of practitioners and academics have identified the issues and obstacles associated with achieving optimal SOF-CF integration.[2] The challenge is to extract the relevant historical examples of this phenomenon while culling the rest. With *integration* doctrinally defined as "the arrangement of [conventional and special operations] forces and their actions to create a force that operates by engaging as a whole," this article identifies four obstacles for SOF-CF collaboration.[3] First, doctrine and policy do not comprehensively define how SOF-CF integration should occur.[4] This deficit causes organizational friction when this collaboration is mandated by operations. Second, when concepts such as SOF-CF synchronization are defined, they tend to rigidly focus on combat missions and do not account for operational fluidity between unconventional, conventional, or humanitarian scenarios.[5] This latter situation characterizes liberation operations on occupied territory. Third, there is a lack of mutual understanding between SOF and CF, creating a sense of SOF "otherness vis-à-vis the conventional forces from which the personnel were originally drawn."[6] This perception necessitates habitual and frequent

contact to build trust and enduring personal relationships between SOF and CF formations. Finally, the actual implementation of SOF-CF integration has often led to ad hoc organizational arrangements or mechanisms, both in training and in wartime. This expediency promotes poor mission execution and complicated command and control relationships.

In general, the prospect of conducting combat operations to liberate occupied territory presents a complex landscape for the conventional joint force commander, who must integrate surviving national resistance groups into a concept of operations that aims for a common operational and strategic endstate. At the same time, the commander needs to mitigate risks associated with these armed groups conducting independent actions that might be counterproductive to operations or harmful to the civilian population. The latter point ranges from resistance groups taking punitive actions against actual or perceived collaborators to committing war crimes against civilians and property. The solution is the preconflict establishment of small, multinational SOF teams to liaise and coordinate with an allied national military and its planned resistance components to support CF actions.

In the NATO setting, this peacetime planning and coordination would primarily occur with host-nation SOF and territorial forces, elements that have leading roles in wartime resistance operations. This situation goes beyond the generic Joint Publication 3-0, *Joint Operations*, recommendation that "special operations commanders provide liaison to component commands to integrate, coordinate, and deconflict SOF and conventional force operations" because resistance operations imply that "language differences, cultural diversity, historical animosities, and uneven allied and partner capabilities will further complicate these activities."[7] These future multinational SOF liaison teams would train and exercise with relevant national forces in peacetime to prepare for occupation situations in combat or conflicts below the threshold of armed conflict.

Military Assistance and Liaison with Resistance Elements

In the NATO SOF context, this resistance liaison assignment falls under the umbrella of the military assistance task, which is a broad category of activities that support and enable critical friendly assets—in this case, resistance organizations in occupied territory.[8] The military assistance mission is well understood by both NATO SOF and CF; therefore, such a liaison element would not be doctrinally unfamiliar. Resistance, as defined by the Swedish Defence University's *Resistance Operating Concept*, is

a nation's organized, whole-of-society effort, encompassing the full range of activities from nonviolent to violent, led by a legally established government, potentially exiled, displaced, or shadow, to reestablish independence and autonomy within its sovereign territory that has been wholly or partially occupied by a foreign power.[9]

The significance of this definition is twofold. First, resistance in the NATO environment is not about insurgency, but rather the armed and unarmed efforts of a legitimate NATO member government to restore its sovereignty in the face of adversarial aggression and occupation. Second, this approach to resistance requires peacetime planning, establishment, and organization of national resistance components as part of a comprehensive defense concept. Even with peacetime planning, resistance organizations become messy and complex once faced with an occupying enemy. According to U.S. Army doctrine, "The primary components of the resistance model are the underground, the guerrilla or armed force, the auxiliary support to the underground and guerrilla or armed force, and the public component."[10] While all these resistance actors are important, there is no neat division between these components, and a CF commander needs to engage with all of them to harness their capabilities for common objectives.[11] This situation increases the commander's need for a connecting liaison element that can advise him or her and facilitate communication and collaboration with the resistance. Despite the mixed historical record on SOF-CF collaboration, the following historical vignettes illustrate how to successfully accomplish this mission with dedicated SOF liaison teams.

The Dutch Jedburgh Liaison Mission

As noted, the Jedburghs were three-man, multinational special operations teams from the Office of Strategic Services that parachuted into occupied Europe to establish a link between local resistance forces and the Allied command.[12] This concept provided the blueprint for the modern SOF mission of enabling resistance forces in support of conventional and unconventional warfare missions.[13] While used throughout Europe, several teams, with Dutch personnel, were allocated as the Dutch Liaison Mission to advise corps and division commanders on the utilization of the Dutch resistance in combat operations in the Netherlands.[14] Holland's geography complicated resistance operations given its lack of sanctuary—mountains, forests, wilderness—and the presence of skilled German internal security forces. For Operation *Market Garden*, Special Forces Headquarters attached Jedburgh teams to the British airborne corps and each participating airborne division. This decision resulted in the teams deploying jointly for the first time with conventional forces, which led to two teams playing significant liaison roles in integrating resistance forces into ongoing conventional operations.[15]

In his book *Dutch Courage*, researcher Jelle Hooiveld examines how Jedburgh teams Edward and Clarence were extremely successful in making resistance services available to their Allied forces in their operating sectors, with Team Edward organizing and managing a diverse group of rival resistance groups to augment Allied units, while Team Clarence engaged with and armed assorted local groups to unify efforts on orders from the U.S. 82nd Airborne Division commander.[16] Reviewing these *Market Garden* Jedburgh teams in the context of modern-day SOF support to conventional liberation operations provides three specific lessons on using SOF to coordinate the activities of partisan forces in support of future conventional campaigns.[17]

Foremost, against a highly sophisticated and repressive occupier such as Nazi Germany, Russia, or China, team members must have superb language expertise and cultural acumen to blend into the local population. As Hooiveld noted for the Dutch Liaison Mission, "Any non-Dutch member of the [Jedburgh] party was a liability to the resistance movement unless his presence there had some absolute justification."[18] Second, SOF liaison teams must educate conventional force commanders on resistance force capabilities and the requirements to attain the necessary integration. Team Clarence was able to achieve this objective, but the success also had much to do with Major General James M. Gavin, 82nd Airborne Division commander, having confidence in the team.[19] Finally, the CF commander must have an understanding of SOF activities and missions as well as a willingness to trust the SOF liaison element to operate in his or her interest with resistance forces. Unfortunately, in *Market Garden*, the British airborne corps leadership had neither, and its assigned team was ignored, resulting in no leveraging of resistance assets and resources.

Alamo Scouts in the Philippines: Liaison with Guerrillas on Leyte and Luzon

Lieutenant General Walter Krueger, commander of the U.S. Sixth Army, established the Alamo Scouts as a special reconnaissance force in the Southwest Pacific during World War II.[20] This small 140-person unit contributed to combat operations by providing tactical intelligence and conducting special operations within enemy-held areas.[21] In this latter role, the Alamo Scouts provided essential liaison with the disparate Filipino resistance organizations on the islands of Leyte and Luzon to support the Sixth Army's conventional force combat operations in its efforts to liberate the Philippines.

On Leyte, the U.S. Sixth Army directed the Scouts to contact and

synchronize guerrilla elements to support campaign objectives. In a shift from their original reconnaissance mission, the Alamo Scouts "consolidated five guerrilla groups, established operational sectors for them, and created intelligence reporting networks."[22] During the Luzon campaign, the work of the Alamo Scouts broadened to include the organization and direction of guerrilla activities, in which Scout teams engaged with guerrilla units and organized their actions in support of the regular forces.[23] Alamo Scout liaison activities enabled guerrilla elements to support both the 43rd Division and XI Corps in expanding combat operations and to set the conditions for future operations.[24]

The Alamo Scouts example provides an excellent proof of concept for the advantages that accrue from having an established, rather than ad hoc, special operations liaison team linking resistance elements—in this case, rather sizable guerrilla forces—to division-, corps-, and army-level conventional formations in the execution of a liberation campaign. As Stephen Ryan notes, "The Alamo Scouts were able to harness the combat power of the guerrilla forces. . . . When the conventional force landing began, the Scouts directly integrated guerrilla activities to support the ground force main effort."[25] The Scouts were also well embedded in the U.S. Sixth Army's structure and had a habitual and trusting relationship with the conventional commander. Such a case could be easily projected onto any scenario in which an allied country is confronted with partial occupation from a peer adversary, and NATO or coalition conventional forces need to integrate resistance elements—guerrillas, underground, or auxiliaries—into the overall concept of operations. A SOF unit of action, already emplaced within a conventional construct and by virtue of its expertise and capabilities, would be the connecting mechanism to achieve greatest effect.

Creating a Multinational Jedburgh Testbed

The historical examples of Dutch Jedburgh teams and Alamo Scouts offer potential for adaptation in the current security environment with Russia and even China. Both of these revisionist powers employ a mixture of national power instruments to achieve significant strategic advantages over other nations, while avoiding the international thresholds for armed conflict.[26] In Europe, a number of states are directly threatened by Russian gray zone action, which could include the occupation of territory. The Donbass and Crimea in Ukraine, Transnistria in Moldova, and Abkhazia and South Ossetia in Georgia are examples of this threat.

To prepare for this scenario and enhance an already existing NATO deterrent posture, NATO Special Operations Headquarters could work with its SOF member nations to create multinational Jedburgh-like SOF liaison teams that can provide the critical link between CF and national resistance elements in times of crisis. NSHQ is ideally suited for this brokerage role. Created in 2009, NSHQ provides strategic SOF advice to the Supreme Allied Commander Europe and the NATO chain of command. At the same time, NSHQ offers a collaborative, interdependent platform to enhance and expand the Alliance SOF network, while developing the SOF capability and interoperability of Allies and partners.[27] This Jedburgh-like approach would be a method for multinational special operations and conventional forces to combine in a habitual way to further increase NATO capacity to conduct SOF-CF operations in an unconventional warfare environment.

Structurally, an ideal team would consist of three to four personnel with obligatory host-nation participation to guarantee language and cultural expertise. The remaining team members would be expected to possess requisite language and cultural knowledge. The team would have a joint composition since maritime operations and airpower play significant roles in resistance and liberation operations. For the air component, SOF infiltration and joint terminal attack controller knowledge is needed. Similarly, maritime expertise in littoral activities and infiltration techniques would be invaluable. Team members could be a mix of SOF operators and enablers.

For implementation, NATO's Enhanced Forward Presence formations could serve as the pilot platforms to establish the multinational Jedburgh-like teams, since these are conventional multinational battlegroups already operating in countries facing Russian aggression. Besides exercising the liaison and coordination with national militaries and their planned resistance initiatives in peacetime, these small SOF teams would also contribute to greater SOF-CF interoperability within the EFP construct.

In July 2016, in response to the Russian occupation of Crimea and the Donbass, NATO decided to establish an EFP in the eastern part of the Alliance, with four multinational battlegroups in Estonia, Latvia, Lithuania, and Poland. These battlegroups, led by the framework nations of the United Kingdom, Canada, Germany, and the United States, respectively, are multinational and combat-ready, demonstrating the strength of the transatlantic bond. Their presence makes clear that an attack on one Ally will be considered an attack on the whole Alliance. The battlegroups form part of the biggest reinforcement of NATO's collective defense in a generation.[28] These battlegroups, together with local national defense forces, provide both strategic deterrence and initial defense for their host countries.[29] Adding a small multinational SOF Jedburgh-like element would enhance the EFP forces and extend their capabilities into the unconventional warfare space. This idea finds support from several European researchers who argue that the "EFP deployments in the Baltic region could serve as an experiment for wider defence cooperation among clusters of NATO countries."[30] The creation of multinational resistance liaison missions would be a step in this direction.

While SOF-CF integration could be daunting in all types of operations, campaigning to liberate occupied territory adds the complication of managing a resistance interface with disparate stay-behind groups and guerrillas. With the existence of both Russian and Chinese aggression toward neighboring countries in their geographical space, prudent

preparation would recommend evaluating and experimenting with the concept of establishing small multinational SOF liaison teams to manage the resistance interface for conventional forces. The two World War II historical examples of the Dutch Jedburgh teams in Europe and the Alamo Scouts in the Pacific demonstrate the value and feasibility of having established SOF elements provide unique and successful liaison capabilities between conventional forces and resistance groups to unify efforts. In the modern context, the creation of multinational Jedburgh-like formations to link NATO CF units to national resistance organizations would contribute to further deterring Russian aggression and gray zone action. The forward-deployed EFP units would serve as the right platform for this experimentation. At a minimum, such SOF liaison detachments would enhance the EFP initiative by providing unconventional and special warfare expertise. After proof of concept with the NATO EFP formations, this idea could be exported and adapted to an Asian environment to deal with potential Chinese incursions. **JFQ**

Notes

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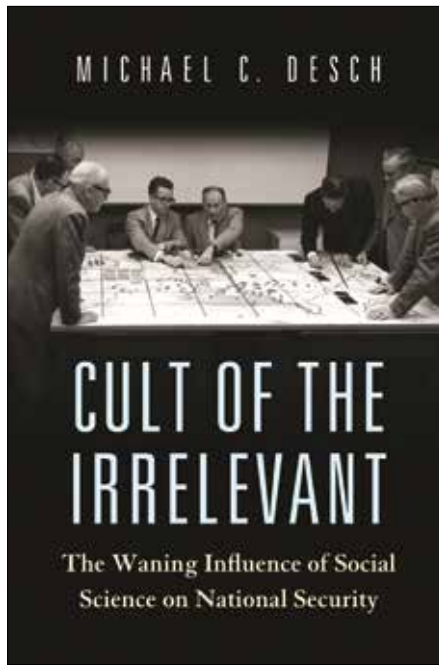
Cult of the Irrelevant: The Waning Influence of Social Science on National Security

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Reviewed by Paula G. Thornhill

Can the policy and academic communities work together more effectively to address America's toughest national security problems? In *Cult of the Irrelevant*, Michael Desch takes readers on a 100-year examination of the relationship between national security practitioners and social scientists in an effort to answer this question. Desch, an international relations professor at Notre Dame University, captures the ebb and flow in this relationship by examining the rise of think tanks, the emergence (and disappearance) of university-based national security programs, the extent of Federal funding, and the appearance of policy recommendations in scholarly journals.

Not surprisingly, Desch finds that more cooperation exists between academics and practitioners during wartime. In particular, World War II and the Cold War produced enduring, substantive cooperation in areas such as arms control and strategic stability. This cooperation also gave rise to new institutions—for example, federally funded research and development centers such as RAND—in an attempt to further strengthen ties between the academic and policy communities.

Desch goes on to argue that despite these temporary peaks in cooperation, the social sciences are increasingly irrelevant to policymakers. He places the blame for this slow, sporadic, yet relentless slide into irrelevance squarely on the shoulders of social scientists themselves. These academics, he asserts, increasingly insist on asking non–policy relevant questions and then rigidly adhering to strict methodological approaches to address them. The academy's waning influence continues despite America's involvement in two wars since September 11, 2001. Desch contends that even the most noteworthy post-9/11 example of cooperation, the Department of Defense–sponsored Minerva Research Initiative, experienced only marginal success in bringing the academy's expertise to bear on policy problems.

Desch offers an important argument, however, and it would resonate more with the practitioner if, first, it looked less at the impact of individuals (for example, Bernard Brodie, Walt Rostow, Thomas Schelling) and more into where, when, and how scholarly work best insinuates itself into the policy process. Second, surprisingly, his argument excludes major international programs in security and strategic studies, especially those in the United Kingdom. These international programs offer a different and perhaps more compelling example for how to merge academic rigor and policy relevance. Anecdotally, from my years in the Pentagon and professional military education, scholars such as Michael Howard, Lawrence Freedman, Hew Strachan, and Colin Gray have had a profound, albeit unquantifiable, influence on American national security policy. Finally, Desch's work would find a warmer welcome in the policy community if he offered specific recommendations on how to bridge the policy-academy divide beyond a plea for more policy-oriented research.

For those serving in America's joint force, then, the most important question is should I add *Cult of the Irrelevant* to my "must-read" list of books. The answer is largely no, with a few important exceptions. First, Desch's book is useful to U.S. defense personnel heading to civilian master's degree programs in security or strategic studies. These interdisciplinary programs are popular in the national security community precisely because they are policy- and practitioner-focused. For that reason, the academy is not especially keen on them, except, unfortunately, as potential revenue sources. But Desch's book would help explain where these programs fit in the larger academic universe. Moreover, if defense policy personnel are tackling a Ph.D., Desch's book provides context for the challenges of finding an advisor willing to take on a student interested in policy-relevant research.

Second, for individuals in the policy realm, it helps to explain why the academy is largely irrelevant to so many policy debates. The incentive structure, including pay, promotions, and prestige, largely encourages social scientists to veer away from policy issues. In short, why should social scientists focus on policy issues when their peers disdain such an undertaking? It also provides some context for the complicated relationship among the policy community, the academy, and the think tank world. As Desch points out, the latter emerged to provide policy relevance and academic rigor. The extent to which the think tank community accomplishes this is continually debated.

Finally, those in command action groups or their equivalents might want to read Desch's book before their principals host an academic. They will find insights in *Cult of the Irrelevant*, especially in chapters 1 and 9, that will help their principal engage their visitor on a more substantive, realistic level. Especially when it comes to the latter, it prepares their principal for the likelihood that a visiting academic would neither be able to nor even care about answering key policy-relevant questions such as "So

what?" and "What's next?" Recognizing that a social scientist would likely steer away from the policy realm allows staff to calibrate their principals' expectations, and thus, paradoxically, create a better opportunity to gain useful insights. Given this tradeoff, it also raises the possibility that turning to a practitioner-scholar in the first place, the kind the academy eschews, might ultimately be more useful.

In *Cult of the Irrelevant*, Desch does an admirable job exploring the gap between the policy community and the social sciences. Perhaps because he is an academic himself, however, the enduring relevance of his book rests solely with the academy, not with policy practitioners. Does the academy feel a need to leave its ivory tower to reinvigorate its policy relevance? Absent significant change, Desch leads the reader to a resounding "no." While the book will be interesting to policymakers and their staffs, Servicemembers' reading time is better spent on works that help them understand and solve policy problems, rather than on academic programs and individuals irrelevant to their solutions. **JFQ**

Brigadier General Paula G. Thornhill, USAF (Ret.), Ph.D., is the Associate Director of Strategic Studies at Johns Hopkins University School of Advanced International Studies, and the author of *Demystifying the American Military* (Naval Institute Press, 2019).
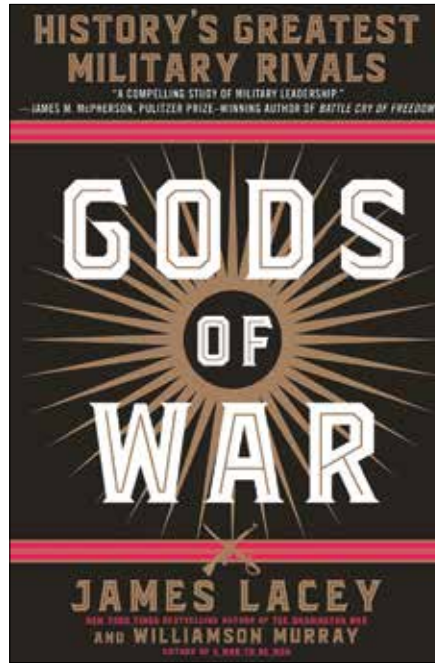
Gods of War: History's Greatest Military Rivals

Reviewed by Jon Mikolashek

Since humanity has waged war, scholars have debated the greatest captains, commanders, and warriors. Continuing this long tradition of friendly and sometimes competitive discussion is James Lacey and Williamson Murray's *Gods of War*. In this highly accessible book, both esteemed historians take the reader through the millennia to examine not only the greatest commanders in military history but also the greatest rivalries. The book focuses on contests between peers because they often are the greatest rivals. *Gods of War* does not examine one-off battles, but focuses instead on campaigns in which either side shared victories and defeats. Those expecting more on figures such as Gustavus Adolphus and Alexander the Great will be slightly disappointed that their favorite commander did not make the cut, but the focus of *Gods of War* is about the greatest *rivalries*, and it overwhelmingly succeeds.

Gods of War highlights six rivalries between some of the most revered and studied military figures. The book is evenly divided between war in the ancient world, the Middles Ages, and the modern era. There are two chapters that introduce the concept and a conclusion, and the first rivalry considers Hannibal versus Scipio Africanus during the transformation of Rome into a Mediterranean power. The succeeding chapters follow in chronological order: The political and military rivalry between Julius Caesar and Pompey the Great. The Middle Ages get attention with the rivalry between King Richard I and Saladin during the Third Crusade. The modern era begins with the Napoleonic Wars and the multiple conflicts between Napoleon and the Duke of Wellington, followed by the bloody contest between Ulysses S. Grant and Robert E. Lee in the American Civil War. The discussion of World War II shifts gears and focuses on the rivalry between Erwin Rommel, Bernard Montgomery, and George S. Patton.

There is no discussion of rivalries in World War I or conflicts post-1945, but the theme of the book is to examine the rivalries between equally great commanders. To put it in a sports context, this is akin to Larry Bird versus Earvin "Magic" Johnson, Tom Brady versus Payton Manning, and Roger Federer versus Rafael Nadal. There are plenty of great athletes, but not all great athletes had peers they competed with equally, and more than once. So while great military commanders such as Alexander and Gustavus Adolphus are indeed "great," they had no near peers to repeatedly compete with over the ages.

Despite the emphasis on rivalries and commanders, *Gods of War* offers some depth to strategic thought and planning. While there is a focus on tactics and tactical outcomes, the two authors discuss the idea of "master strategists" and how even the greatest commanders often lacked strategic thinking. Lacey and Murray conclude that out of all the commanders covered in *Gods of War*, only Saladin and Grant possessed a strategic vision and won. Renowned figures such

as Hannibal, while a master tactician, lost his war to a better strategic commander in Scipio Africanus.

The joint force will find worthwhile lessons in this discussion of "strategic genius." As we focus on the operational and strategic levels of war, the United States and the Western world in general are often overly focused on creating master strategists or the next god of war. In reality, that is impossible.

As wars grew in size and scope following the rise of nation-states and the rapid evolution of technology, it is unlikely that a Napoleon, Grant, or George C. Marshall will ever again emerge to fully command war as some historical figures appeared to do. And even if the next god of war arises, it will likely have little to do with what school of joint professional military education he or she attended or if every known joint publication was successfully digested. That does not mean we should not try. But perhaps we should shift away from canned lessons, pedantic rubrics, and poor assessments and toward a clearer focus on history, writing, and critical thinking. That is, perhaps, the greatest lesson of *Gods of War* to joint military education professionals.

Gods of War is an excellent example of what professional military historians should strive to write. It is easy to read and neither pretentious nor overwrought. It strikes a fine balance between popular or narrative history and scholarly or professional history. Joint professional military education students and professors will see elements of Williamson Murray's edited collection *The Dynamics of Military Revolution: 1300–2050* (Cambridge University Press, 2001) throughout the text, which is still read by all students at the U.S. Army Command and General Staff College. While the book lacks rivalries between naval commanders or any discussion of airpower, *Gods of War* is a useful book that will appeal to the most scholarly of historians and nascent strategists, as well as to those who simply desire a more cerebral book for the beach. **JFQ**

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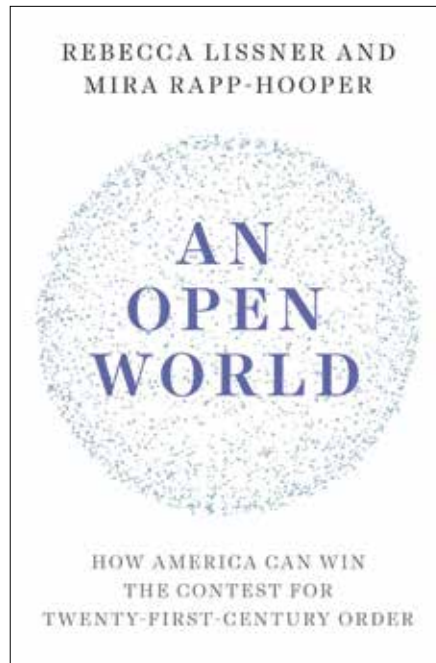
An Open World: How America Can Win the Contest for Twenty-First-Century Order

Rebecca Lissner and Mira Rapp-Hooper
Yale University Press, 2020
202 pp. $22.93
ISBN: 978-0300250329

Reviewed by Christopher P. Mulder

In *An Open World*, Dr. Rebecca Lissner and Dr. Mira Rapp-Hooper provide a compelling argument for a new U.S. strategy of "global openness." Readers will find much to consider as the book is presented as an executable blueprint for a new Presidential administration. It is worth noting that many elements of their strategy are already in motion on the global stage.

The authors bring a wealth of foreign policy experience and fresh perspectives to the topic. Rebecca Lissner is an assistant professor at the U.S. Naval War College and Mira Rapp-Hooper is a senior fellow at the Council on Foreign Relations and Yale Law School. Familiar names such as Jake Sullivan (President Joseph Biden's National Security Advisor), Michèle Flournoy, James Mattis, Stephen Hadley, Emma Ashford, and Chris Preble were listed in the acknowledgments and should be a leading reflection of the policy prescriptions one will find within.

According to Lissner and Rapp-Hooper, global openness is a "novel strategic framework" that diverges from past grand strategies and falls somewhere between Neo-Isolationism and Primacy. It is an approach resigned to the fact that the United States will not remain the sole global superpower. Therefore, to maintain global order, the authors argue that the United States needs to remain globally engaged by courting new and emerging relationships, reinvigorating atrophied relationships, or developing new and unconventional relationships that are favorable to U.S. objectives. The United States will not be able to rely on its military primacy or rest on old institutional laurels; it must advocate for creative ways to maintain order and reform legacy institutions—or create new ones.

The authors offer a foundational perspective on the post–World War II international order and its evolution into the current state of affairs. Lissner and Rapp-Hooper take the time to examine domestic issues such as political polarization, disinformation, income inequality, technology investment, and workforce challenges, alongside global issues such as technology governance, China's rise, Russia's slow descent, and other regional challenges, pulling these threads together with a unique strategy (and thoughtful policy recommendations) that ultimately attempts to "prevent closed spheres of influence, maintain free access to the global commons, defend the political independence of all states, modernize existing institutions, and build new forms of order." In essence, "openness" is a nuanced strategy with the flexibility to adapt to evolving global dynamics.

The authors illustrate how a global approach based on openness would apply to each of the world's primary regions—Asia, Europe, the Middle East, the Western Hemisphere, and Africa. They broadly outline the goals, aspirations, and limitations inherent to their strategy in each region. The authors were thoughtful in their examination of potential downsides. Projecting winners and losers

and weighing the potential negative effects are difficult, but their openness to critique should generate useful discussion among strategists and policymakers.

Of course, Lissner and Rapp-Hooper highlight China as the number one foreign policy challenge facing the United States—something our nation's leaders seem to agree on regardless of political affiliation. How best to approach the challenge of China, however, is still up for debate. The current framing based on Great Power competition often boxes the United States, allies, and partners into a win-or-lose proposition. Instead, the authors argue that the United States must learn to live with an authoritarian near-peer in Asia while continuing to protect vital interests: "American strategy must hedge against the possibility that China's regional aspirations are fundamentally irreconcilable with openness." At this point, readers will recognize that the strategy of openness diverges significantly with more hawkish approaches and is sure to generate useful discussion and debate about the goals of U.S. strategy toward China.

As *An Open World* suggests, this will require a more nuanced U.S. strategy toward China. In his seminal work *On China* (Penguin, 2011), Henry Kissinger compares Chinese strategy with the game Go, in which strategic encirclement is used to generate strategic flexibility. The metaphor is apt for Lissner and Rapp-Hooper, as their proposed strategy hinges on preventing China from strategic encirclement, dominating key regions, and closing off vital commons.

A key and often overlooked contribution the authors make is a discussion on "building strength at home," acknowledging that some of the greatest challenges affecting any potential U.S. strategy in the next 10 to 15 years will come from within. They recommend reinvesting in the American people, economy, and democracy to bolster the foundations of our national power. Taken to their fullest extent, these ingredients might constitute a nascent National Resilience Strategy. While this kind of investment does not represent traditional thinking on foreign policy, it is crucial to the success of a strategy based on openness. Drawing a more

explicit link between the domestic context and U.S. foreign policy and strategy builds on the prior narrative that Rapp-Hooper has advanced in her recent book, *Shields of the Republic* (Harvard University Press, 2020), in which she also argues that both U.S. domestic strength and its international objectives must properly align to maintain alliances that advance U.S. interests.

While well researched and argued, some will certainly contend that *An Open World* does not give enough credence to the Russian threat, which the authors argue does not pose a fundamental threat to "openness." Russia is saddled with many challenges that may weaken its position in the coming decades, but it still wields formidable nuclear and gray zone tools with considerable effect. This will require significant attention by the United States and its allies. Finally, the authors rightly acknowledge that existing global institutions need to be modernized, but they argue that the domestic support to accomplish this task will need to come from the private sector. This approach may solve some short-term U.S. foreign policy challenges, but long-term challenges will need "We the People" buy-in to have a lasting effect.

An Open World is an enjoyable and nuanced read that offers an alternative strategic vision with significant implications for future U.S. foreign policy. Anyone interested or currently engaged in U.S. national security and defense challenges should read *An Open World*. Jim Mattis has called it "mandatory reading." And when the "warrior monk" identifies a book as mandatory reading, warrior-scholars should take note. In the current geopolitical environment, it is more important than ever to read, think about, and discuss different options and viewpoints. *An Open World* provides exactly that—a chance for the joint force to view the world differently and consider new options for foreign policy and national security. **JFQ**

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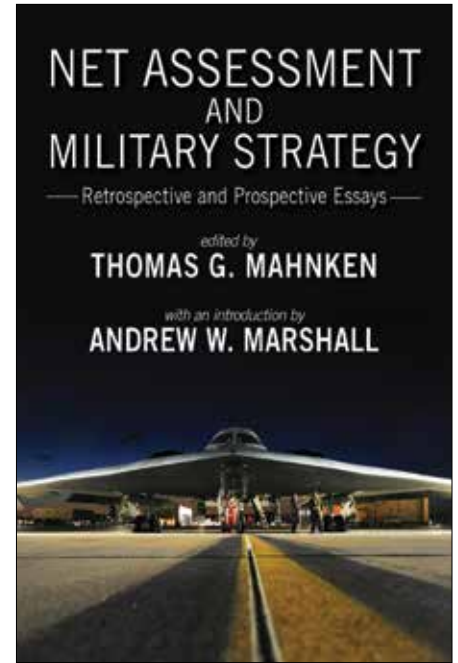
Net Assessment and Military Strategy: Retrospective and Prospective Essays

Reviewed by Frank Hoffman

Net Assessment and Military Strategy, a timely collection of essays, offers an important look at the history, application, and future of the multidisciplinary analysis approach called *net assessment*. In American practice, net assessments aim to capture the dynamics of national or coalition military strengths and weaknesses for comparison with the capabilities of competitors and adversaries. Net assessments offer critical insights to senior leaders on the relative military power of the United States over time.

The purpose of net assessments is to help senior decisionmakers break through the fog of uncertainty that can paralyze decisions on defense investments in order to allocate scarce resources where they have the biggest payoff. Such diagnostic analyses can help define strategic advantages or uncover vulnerabilities in an

adversary for opportunistic exploitation. Such analyses are critical at focusing attention and investment dollars into areas where sustained competitive advantage against specific adversaries can be directed by Department of Defense leadership.

Net Assessment and Military Strategy was initiated and curated by Dr. Thomas Mahnken, the chief executive officer of the Washington-based Center for Strategic and Budgetary Assessments. He has extensive teaching experience at the U.S. Naval War College and has previously served as Deputy Assistant Secretary of Defense for Policy Planning from 2006 to 2009.

Related to this current volume, Dr. Mahnken edited *Competitive Strategies for the 21st Century: Theory, History, and Practice* (Stanford University Press, 2012). He is also the editor of two relevant books on strategic competition with China, including *The Gathering Pacific Storm: Emerging U.S.-China Strategic Competition in Defense Technological and Industrial Development* (Cambria Press, 2018), and *Strategy in Asia: The Past, Present, and Future of Regional Security* (Stanford University Press, 2014).

Net Assessment and Military Strategy explores the practice and techniques of net assessment and persuasively argues the method has been a valuable approach to U.S. national strategic planning. The anthology offers a range of chapters on the history and current state of this analytical process. The foreword from the late Andrew Marshall, who served as director of the Office of Net Assessment (ONA) for nearly 40 years, underscores the role and history of his tenure in the Cold War. ONA, despite its small size, continues to burnish its reputation over the last several years with numerous studies that materially shaped the Pentagon's plans, including the 2018 National Defense Strategy.

There are many notable contributions to the anthology. Dima Adamsky's chapter on the role of ONA in exploring the revolution in military affairs highlights the invaluable role played by Mr. Marshall in raising critical intellectual questions to offset complacency or outdated assumptions. Surely one of ONA's signatures is

its willingness to anticipate the future, and Adamsky rightfully notes, "the time might be ripe for the next round of anticipation." Defense analyst Jeff McKitrick produced the most important chapter on specific techniques used in conducting this form of analysis. His summation of the many activities that undergird good net assessments is extensive. Greater insights into historical examples on how to structure a diagnostic assessment would have been useful but is probably beyond the scope and classification level of this book. Readers will find suggestions in Barry Watts's chapter on Cold War assessments that will point them to declassified historical documents.

The last chapter assesses the future of net assessment. Andrew May, the present deputy director of ONA, offers several keen insights on the methodology as we approach a new era. Dr. May acknowledges that nonmaterial factors—"including military doctrine, training, skill level and operational competence"—are ripe for study and that "history indicates matter as much or more than the technical characteristics of weapons systems."

One complicating element in the application of a truly strategic net assessment is the need to explore factors beyond the pure military challenge, including strategic culture, economics, underlying resource constraints, and arcane national capacities such as productivity, innovation ecosystems, and human capital trends. The best location for this critical function is the one important issue untapped in this volume. As detailed in Mr. Marshall's foreword, it was originally placed at the National Security Council, where it would be able to task and integrate perspectives from across the U.S. Government, particularly in international and domestic economics. Mr. Marshall was asked to move to the Defense Department in the 1970s at the height of the Cold War by leaders who had a keen appreciation for rigorous and independent thinking. Given the short-term and crisis *du jour* focus of the NSC staff, such long-range thinking is shunted away from the critical longitudinal analyses that Marshall implanted at the Office of the Secretary of Defense.

Yet the range of issues attendant to a long-term geostrategic competition with a state the scale of China suggests reconsideration of where future net assessments should be best positioned. It is not purely an intelligence function, which focuses on an adversary. The "net" in net assessment requires equally hard-nosed evaluations of our own strengths and weaknesses. Given its storied history and past contributions, alterations to the office's scope and location would risk subverting the independence and objectivity of this valuable cell. Best to leave well enough alone and exploit ONA's convening power and resources to best leverage the power of net assessments.

In all, Mahnken and his contributors should be congratulated for an informative product. The art and science of net assessment is critical to success in a new age of strategic competition. Such contests are ultimately about national systems and institutions, and keeping score is a challenge. Thus, *Net Assessment and Military Strategy* is exceedingly relevant to policymakers and military strategists as they seek to conceive of appropriate military strategies to preserve U.S. security. This is a timely topic and an important resource as the next defense and military strategy are developed. **JFQ**

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New from the Joint History and Research Office

**The Chairmanship of the Joint Chiefs of Staff, 1949–2019**

2021 • 360 pp.

As the Nation's highest-ranking military officer, the Chairman of the Joint Chiefs of Staff presides over the Joint Chiefs and provides military advice to civilian leadership. While the roots of the position can be traced to World War II, the Chairmanship was formally established in 1949 by President Harry S. Truman.

This revised edition of *The Chairmanship of the Joint Chiefs of Staff* commemorates the 70th anniversary of the creation of the position. It examines the evolving roles of the Chairman and Vice Chairman through an updated historical essay and contains career biographies of all 20 Chairmen and 11 Vice Chairmen. It also includes sections on the Joint Chiefs' conference room (known as "The Tank"), the Chairman's and Vice Chairman's flags, the Joint Chiefs of Staff badge, and the Chairman's quarters. Lavishly illustrated with color and black and white photographs, it is a fitting textual and visual tribute to the Nation's most senior military officers.

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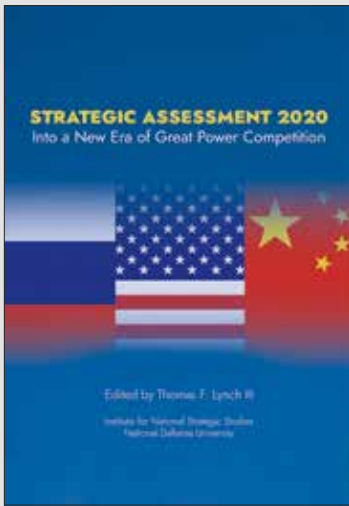
New from NDU Press
Strategic Assessment 2020: Into a New Era of Great Power Competition
Edited by Thomas F. Lynch III

Great Power competition is a framework for understanding interstate relations that dominated geopolitics for centuries prior to World War II. Past GPC eras have featured multiple powerful states jockeying for relative status and position. After lying dormant during a two-decade period of post–Cold War globalization and American international primacy, the dynamics of GPC returned to international relations and security studies in earnest during the late 2010s.

Strategic Assessment 2020 provides an expert and nuanced understanding of the most important emerging dimensions of GPC between the three Great Powers in 2020: the United States, China, and Russia. It establishes that 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. The Sino-American competitive dyad is likely to be the dominant Great Power rivalry into the future. Chapters focus on the critical activities among these Great Powers and develop major implications for other state actors, nonstate actors, and global institutions.

Authors include scholars from the National Defense University and the Institute for National Strategic Studies who have been directly engaged as thought leaders and policymaking pioneers grappling with the strategic contours of the new era of GPC. Chapters and combinations of chapters will be not only useful for students of national security, international relations, and foreign affairs in an academic setting, but also of great value to policy practitioners.

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