AN ARMY UNIVERSITY PRESS PUBLICATION

https://www.armyupress.army.mil
PB-100-19-05/06
Headquarters, Department of the Army
PIN: 204728-000
Approved for public release
Distribution is unlimited–Distribution A

Military Review

THE PROFESSIONAL JOURNAL OF THE U.S. ARMY

MAY-JUNE 2019

Military Review

THE PROFESSIONAL JOURNAL OF THE U.S. ARMY

May-June 2019, Vol. 99, No. 3
Professional Bulletin 100-19-05/06
Authentication no. 1906409
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Military Review (US ISSN 0026-4148) (USPS 123-830) is published bimonthly by the Department of the Army, Army University Press, Fort Leavenworth, KS 66027-1293. Periodical postage paid at Leavenworth, KS, and additional mailing offices.

Yearly paid subscriptions are for $42 US/APO/FPO and $58.80 for foreign addresses and are available through the U.S. Government Publishing Office at https://bookstore.gpo.gov/products/military-review-professional-journal-united-states-army.

POSTMASTER: Send address changes to *Military Review*, Army University Press, 290 Stimson Ave., Unit 1, Fort Leavenworth, KS 66027-1293.

The Secretary of the Army has determined that the publication of this periodical is necessary in the transaction of the public business as required by law of the department. Funds for printing this publication were approved by the Secretary of the Army in accordance with the provisions of Army Regulation 25-30.

Mark A. Milley—General, United States Army Chief of Staff

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Cover photo: In support of Hurricane Maria relief efforts, U.S. Army Sgts. Luis Ruiz (*left*) and Jonathan Quinonez clean the dirt off an auger 19 October 2017 as they dig a hole for a concrete power pole in Rio Grande, Puerto Rico. (Photo by Master Sgt. Joshua L. DeMotts, U.S. Air Force)

Next page: In commemoration of the seventy-fourth anniversary of the World War II Waal River crossing, paratroopers assigned to the 307th Airborne Engineer Battalion, 3rd Brigade Combat Team, 82nd Airborne Division row Zodiac boats across McKellar's Pond 3 October 2018 at Fort Bragg, North Carolina. The paratroopers were competing to cross the lake five times in honor of Pfc. Willard Jenkins, killed by enemy fire while manning a rudder during the river assault. (Photo courtesy of the U.S. Army)

2019 General William E. DePuy

Special Topics Writing Competition

This year's theme: "What role do unofficial transnational and criminal organizations play in the global adversarial competition among nations occurring today? How specifically do China, Russia, Iran, North Korea, or other specifically named adversary employ unofficial transnational or criminal organizations in their strategic efforts to undermine the United States or its allies?"

Articles will be comparatively judged by a panel of senior Army leaders on how well they have clearly identified issues requiring solutions relevant to the Army in general, or to a significant portion of the Army; how effectively detailed and feasible the solutions to the identified problem are; and the level of writing excellence achieved. Writing must be logically developed and well organized, demonstrate professional-level grammar and usage, provide original insights, and be thoroughly researched as manifest in pertinent sources.

Contest closes 15 July 2019

1st Place	$1,000 and publication in *Military Review*
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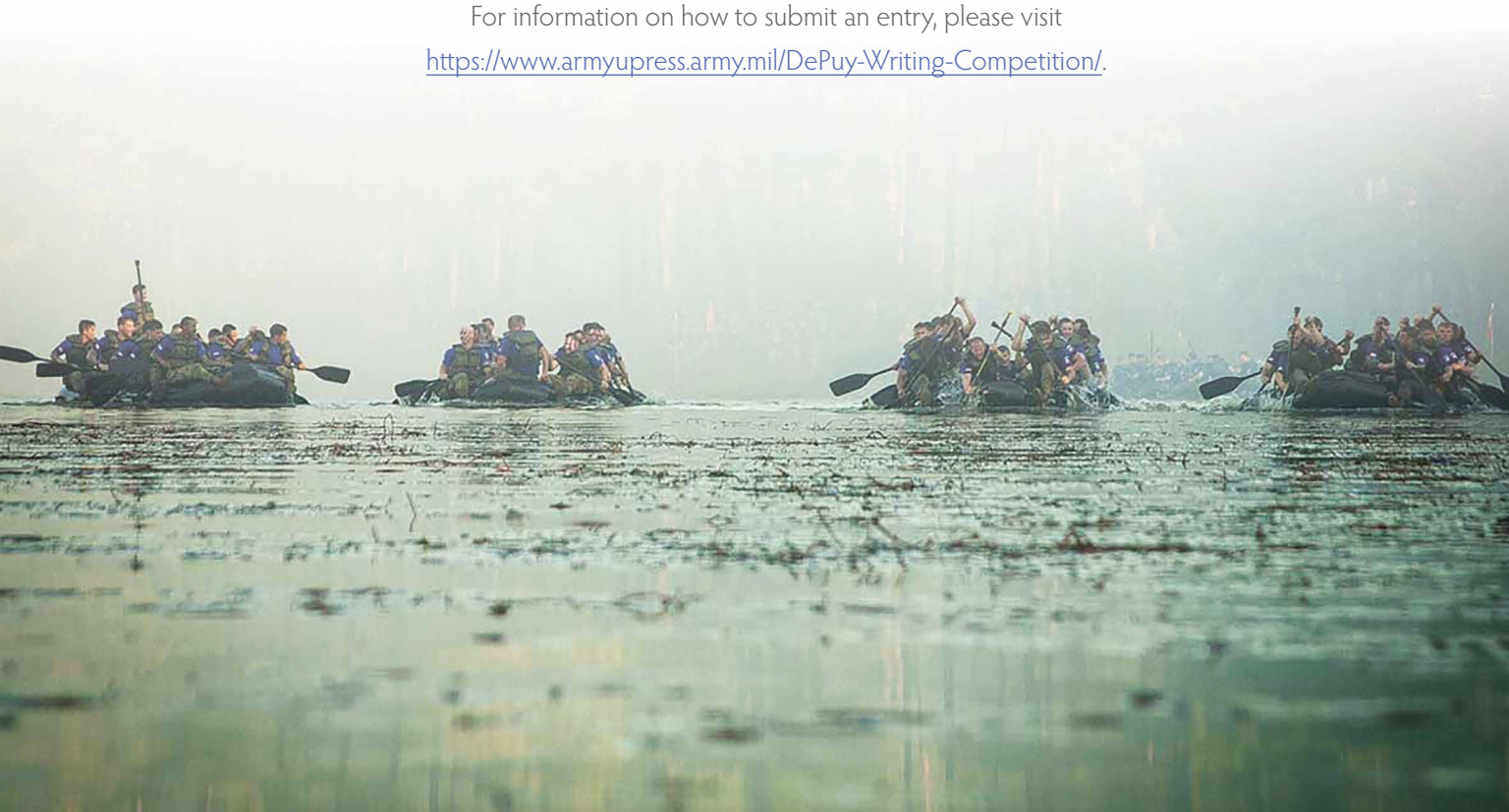

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Reinvigorating the Army's Approach to Mission Command

It's Okay to Run with Scissors (Part 1)

Gen. Stephen Townsend, U.S. Army
Maj. Gen. Douglas Crissman, U.S. Army
Maj. Kelly McCoy, U.S. Army

Commanders make time for the things they and their seniors deem important. If developing the kind of leaders, soldiers and units that win in conditions of combat is not important, if commanders cannot find the time … then perhaps we ought to reevaluate our priorities.

—Lt. Gen. James M. Dubik

The mission command philosophy is the U.S. Army's approach to command and control. It empowers subordinate decision-making and decentralized execution, using mission orders to enable disciplined initiative in accomplishment of the commander's intent. On this score, there is good news and bad news. The bad news is many in our Army find the idea of mission command confusing or insincere. For some, there is a significant difference between what mission command should be versus what actually happens. Over the past decade, leaders at various levels routinely cited their personal experience in garrison, during field training, and while operationally deployed as at odds with our mission command philosophy.

The good news is leaders at every level, from warfighters to doctrine writers and squad leaders up to general officers, are talking about mission command. We are currently engaged in a much-needed professional dialogue *to get it right.* Now is the time to reinvigorate our approach to mission command by evolving our doctrine, adapting leader development, and refining our training. *It must be clear and convincing that the Army's approach to command and control is mission command—as it is the only approach to leading a winning Army.*

Foundation

An order should not trespass on the province of the subordinate. It should contain everything, which is beyond the independent authority of the subordinate, but nothing more.... It should lay stress upon the object to be attained, and leave open the means to be employed.

—*Field Service Regulations, U.S. Army, 1905*[1]

The approach of mission command builds off a deep foundation, tracing back across two centuries of U.S. Army history. From George Washington's clear orders and risk acceptance in crossing the Delaware on Christmas day in 1776 to Ulysses S. Grant's simple guidance to William T. Sherman for the 1864 campaign, this approach exemplifies the principles of using mission-type orders and providing clear commander's intent to guide our subordinates in exercising disciplined initiative.[2]

U.S. tanks cross the Ludendorff Bridge 7 March 1945 at Remagen, Germany. The bridge was prepared for demolition but was still intact when the 27th Armored Infantry Battalion arrived at its location. Recognizing the importance of the bridge, battalion leaders acted on their own initiative to change their mission and seize it ten minutes before it was scheduled to be blown up by retreating German forces, ultimately enabling six divisions to cross the bridge and continue the attack before it collapsed on 17 March. (Photo by 12/Alamy Stock Photo)

Senior Army leaders from President Grant to President Dwight Eisenhower and Gen. Matthew Ridgway to Gen. David Perkins serve as examples of adeptly applying mission command. However, this approach does not just apply to generals. Take the exhausted and understrength 27th Armored Infantry Battalion as an example. Approaching the Rhine River in 1945, the Allied armies expected to conduct deliberate, and likely costly, assault river crossings under fire, as all bridges were presumed destroyed. Upon discovering the bridge at Remagen, Germany, intact and recognizing the opportunity to significantly accelerate the entire Allied advance, American leaders in the 27th changed their assigned mission, assuming significant risk to seize the initiative and secure a bridgehead on the eastern bank of the Rhine from German forces. In short, American leaders at the tactical level recognized an operational, even strategic, opportunity and seized it. This was made possible by a shared understanding of the commander's intent and leaders who were empowered and trusted at all levels. Nazi leadership surrendered two months later.

The 27th Armored Infantry Battalion demonstrated the natural strengths of the American soldier—our can-do attitude, initiative, and bias toward action and innovation. These strengths are deeply rooted in our culture and the American spirit. Any approach to leading American soldiers must cultivate and leverage these traits.

Challenges

We preach mission command, but we don't necessarily practice it on a day-to-day basis in everything we do.... If we're going to have to operate like that in warfare, we have to train as we're going to fight. We have to live and operate like that on a day-to-day basis, even on daily administrative tasks you have to do in a unit area.

—Gen. Mark Milley, Chief of Staff of the Army[3]

While the idea of mission command has been with us for generations, the term "mission command" first came into our Army doctrine in 2003 and underwent a significant revision in 2011. Some find the development of Army Doctrine Publication (ADP) 6-0 and Army Doctrine Reference Publication 6-0 (both titled *Mission Command*) and the context of their subsequent implementation as sources of confusion within our Army. We see four central challenges.

First, those deployed to support counterinsurgency and security force assistance missions in Iraq or Afghanistan found increasingly restrictive and regulated conditions driven by the need to transition the fight to host-nation partner forces. As a result, home-station and pre-mission training often had a narrow focus. The Army also directed long lists of mandatory training, much of which had little to do with warfighting or combat readiness, a practice that robbed subordinate leaders of the opportunity to lead and promote trust and confidence. Not surprisingly, our units, leaders, and soldiers became accustomed to relatively less autonomy and fewer opportunities to make choices—to exercise initiative.

Second, as the Army implemented its new mission command doctrine, more units found themselves at home station with tighter budgets and a renewed emphasis on readiness for unified land operations. In order to make the most efficient use of constrained resources, many leaders at home station increased control to precisely align and sequence their limited resources to meet expanded training and readiness requirements. These well-intentioned efforts contributed to a garrison bureaucracy often at odds with our Army's mission command doctrine. Many leaders understandably questioned the sincerity of our mission command principles.

Third, while mission command excels in the uncertainty of combat, it does so with the assumption leaders and soldiers are tactically and technically competent. Achieving competency requires training, education, and self-development. To enable the Army's transition from counterinsurgency and security force assistance to large-scale ground combat operations, the Army introduced the *decisive action training environment* to drive scenarios at our combat training centers and home-station training. Our readiness models transitioned from Force Generation to Sustained Readiness and, most recently, the Army published its new warfighting concept *The U.S. Army in Multi-Domain Operations 2028*. Collectively, these changes placed increased demands on units, leaders, and soldiers to develop new or different competencies often accomplished through centralized training processes. Increased centralization contributed additional evidence to some that the Army was not serious about mission command.

Fourth is the issue of clarity. While implemented with the best of intentions, many leaders indicate the current version of Army Doctrine Reference Publication 6-0 is a source of confusion. The intent was to emphasize mission command as the central philosophy behind our approach to command and control. In actuality, it muddied what were relatively clear waters. The 2012 publication removed the term "command and control" from the Army lexicon and replaced it with the term "mission command" in every context. Mission command became the practical synonym for command and control, a warfighting function, a system of systems, and a philosophy providing authority and direction to Army forces. We used the same words to mean too many different things and confusion resulted. The uniqueness and importance of our approach to command and control was lost.

Gen. Stephen J. Townsend, commanding general, U.S. Army Training and Doctrine Command, has led soldiers from the company to corps level and deployed in support of six major combat operations. His most previous assignment was commanding general, Combined Joint Task Force–Operation Inherent Resolve and XVIII Airborne Corps.

Maj. Gen. Douglas C. Crissman, director of the Mission Command Center of Excellence, has led soldiers in multinational, coalition, joint, and Army units and deployed in support of combat and peacekeeping operations in Iraq, Afghanistan, and the Sinai Peninsula.

Maj. Kelly McCoy is a strategist assigned to U.S. Army Training and Doctrine Command. He has led various planning teams in army, joint, and interagency contexts. He has multiple deployments in support of combat operations in Iraq and Afghanistan.

Bradley fighting vehicle turret gunner Sgt. Ramel Colclough fires at Iraqi positions with his 25 mm cannon as his vehicle breaches an obstacle during the April 2003 push to capture what would become the "Green Zone" portion of Baghdad in an action that became known as a "thunder run." This mission exemplified mission command; brigade commander Col. David Perkins relayed the mission to his subordinates in concise battle orders, confident that his soldiers could react to the chaos of urban fighting and execute their battle drills better than the enemy. (Photo courtesy of the U.S. Army)

Doctrine

Mission command is the Army's approach to command and control that empowers subordinate decision-making and decentralized execution appropriate to the situation.

—ADP 6-0, "Mission Command" (forthcoming)[4]

Our five-meter target is this issue of clarity. If we cannot clearly articulate our doctrine—our starting point—then how can we expect to overcome any of the other challenges? To fix this, the Army will update its doctrine in 2019 in a revised ADP 6-0, "Mission Command: Command and Control of Army Forces."

The revised ADP 6-0 clarifies both the logic and the language we use. In this revision, mission command is the Army's approach to command and control, resting on seven principles: competence, trust, shared understanding, mission orders, commander's intent, disciplined initiative, and risk acceptance. Mission command systems are now command-and-control systems.

Command and control of lethal weapons and violent action remain a fundamental requirement of combat. They require both the *art* of command and the *science* of control. The art of command is the exercise of leadership and decision-making to accomplish the mission on balance with the soldier's welfare, morale, and discipline. The science of control is the systems and procedures used by the commander to direct accomplishment of the mission. To blend both art and science, we need a leadership approach—ours is mission command.

At its heart, the Army's approach to mission command is about applying the appropriate level of control so that, given the circumstances and information available, leaders make the best possible decision at the right level and at the right time. Achieving this

requires the constant cultivation of a climate and culture conducive to mission type orders, commander's intent, and disciplined initiative. This takes time, training, and deliberate efforts by commanders to build trust and confidence in subordinate leaders. It also means recognizing every opportunity to apply the approach, whether in garrison or in the field, is an opportunity to add mission command repetitions. Especially in garrison, commanders must continuously seek ways to introduce ambiguity into situations that allow subordinate leaders to make choices and provide them with the opportunity to learn from those choices. Commanders must also seek multiple repetitions to the edge of failure in training, underwriting subordinate's risk acceptance through coaching, after action reviews, and leader development.

Recent dialogue with combat training center commanders highlights that rotational unit leaders and soldiers understand our approach to mission command but apply it inconsistently. Many of the challenges are not new. Units struggle to issue simple orders with the right level of detail and many do not plan and issue orders in accordance with the one-third/two-thirds rule. Communicating a clear commander's intent to subordinate units two levels down, especially to company level and below, is often not happening. Some commanders take an *I can do it all* approach rather than sharing risk up the chain of command, while others delay key decisions in the quest for more information.

> At its heart, the Army's approach to mission command is about applying the appropriate level of control so that, given the circumstances and information available, leaders make the best possible decision at the right level and at the right time.

Way Ahead

Since the enemy will disrupt friendly communications and plans, mission command must expand to enable initiative and dynamic cooperation across Service and other partner lines—at some risk—to allow the Joint Force to preserve the ability to continuously and rapidly integrate multi-domain capabilities despite disrupted communications.

—TRADOC Pamphlet 525-3-1, *The U.S. Army in Multi-Domain Operations 2028*[5]

For decades, we have operated with relative freedom of action against nonstate adversaries. Today, we face peer adversaries capable of disrupting our networks and jamming and spoofing our command-and-control systems. While technology will play an important role in shaping how we fight across multiple domains, it is not the central solution. In the heat of battle, when communications fail and the plan unravels, soldier solutions and actions powered by mission command and its principles will carry the day.

Our Army must reinvigorate our approach to mission command to prevail in large-scale combat against a peer or near-peer adversary. Our culture, in garrison, training, or combat, must reflect the principles of mission command. Our orders must be clear and simple enough to be executed without continuous communication or leader interaction, and issued rapidly. Our leaders at all levels must understand their personal responsibility to develop their subordinates sufficiently to ensure the approach to mission command delivers the greatest benefit.

At the end of the day, our approach to mission command is just good leadership. Our success as an Army depends upon our ability to build leaders at all levels who recognize when their plan is failing or when the enemy has presented an opportunity. They must be smart enough to come up with a plan that will work and have the guts and trust to execute—even if out of communications with higher headquarters. To do this, we need leaders—all of them—from our team and squad leaders up to our Army's most senior leaders, to be personally committed to reinvigorating our mission command culture.

This approach is the only way to lead a winning Army. ■

This article was previously published by Military Review *as an online exclusive in April 2019.*

Notes

Epigraph. James M. Dubik, "Decentralized Command: Translating Theory into Practice," *Military Review* 72, no. 6 (June 1992): 38.

1. U.S. Army General Staff, *Field Service Regulations, U.S. Army,* document no. 241 (Washington, DC: U.S. Government Printing Office, 1905 [obsolete]), 29–30.

2. Dave Richard Palmer, *George Washington's Military Genius* (Washington, DC: Regnery Publishing, 2012), 143–49. On 25 December 1776, Gen. George Washington elected to attack Trenton, New Jersey, by crossing the Delaware River. He did so while accepting significant risk. His army had been largely demoralized and battered—failing to take Trenton would have likely been the end of the Continental army. However, by taking Trenton, Washington saw an opportunity to wedge the British out of New Jersey and gain a key strategic victory.

William T. Sherman and James G. Blaine, *Memoirs of Gen. W.T. Sherman, Written by Himself* (New York: Charles L. Webster, 1891), 26. In a letter dated 4 April 1864, Grant proposed to Sherman that he "move against Johnston's army, to break it up, and to get into the interior of the enemy's country as far as you can, inflicting all the damage you can against their war resources."

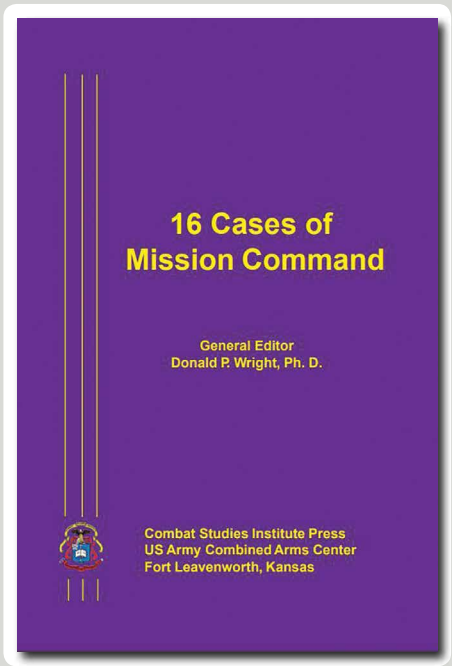
3. David Barno and Nora Bensahel, "Three Things the Army Chief of Staff Wants You to Know," War on the Rocks, 23 May 2017, accessed 25 March 2019, https://warontherocks.com/2017/05/three-things-the-army-chief-of-staff-wants-you-to-know/.

4. Army Doctrine Publication 6-0, "Mission Command: Command and Control of Army Forces" (Washington, DC: U.S. Government Publishing Office, forthcoming).

5. U.S. Army Training and Doctrine Command (TRADOC) Pamphlet 525-3-1, *The U.S. Army in Multi-Domain Operations 2028* (Fort Eustis, VA: TRADOC, 6 December 2018), 21.

Military Review

WE RECOMMEND



In 2013, the U.S. Army formally issued new doctrine on mission command, the philosophy and practice of command that now serves as a foundation for land combat operations. Soon thereafter, the Army began a focused effort to educate and train leaders on mission command as a way to prepare them for unpredictable and complex conflicts. To support the effort of instilling mission command philosophy into Army thinking, the Combined Studies Institute at Fort Leavenworth, Kansas, conducted an extensive research effort that culminated in the publication of *16 Cases of Mission Command,* a collection of research papers examining historical examples of combat actions that reflected various principles identified in the doctrinal definition of mission command. The value of these case studies lies in their ability to clearly convey how past leaders employed principles such as the use of commander's intent and the exercise of disciplined initiative to seize, retain, and exploit opportunities that presented themselves in combat. This publication can be downloaded at https://www.armyupress.army.mil/Portals/7/Primer-on-Urban-Operation/Documents/SixteenCasesOfMissionCommand.pdf.


PowerSecure

Responding to the Perfect Storm

The U.S. Army Corps of Engineers and Disaster Response in Puerto Rico, 2017

Brig. Gen. Diana M. Holland, U.S. Army

We've got a lot of work to do … it's the worst Puerto Rico has seen. It's been very complex for us to respond, from a logistical nature of the island.

—Brock Long, FEMA Administrator

Puerto Rico … can turn into a humanitarian crisis. To avoid that, recognize that we Puerto Ricans are American citizens; when we speak of a catastrophe, everyone must be treated equally.

—Ricardo Rosselló Navarez, Governor of Puerto Rico

Within days after Hurricane Irma swept across the Caribbean and Florida, Hurricane Maria makes landfall in Puerto Rico as a strong Category 4 hurricane. Within hours, the island is in crisis and emergency personnel work frantically to search for victims and render aid. Reports flow in from multiple municipalities describing villages buried by mudslides. Communication is intermittent because there is limited cell phone coverage across most of the island. The majority of the electrical grid is not delivering power. Facilities operating on back-up power risk losing their electricity because the generators have been running continuously since the storm. Residents compare this hurricane to Hurricanes Hugo (1989) and Georges (1998); after each, it took months to recover. They believe that Hurricane Maria brought more devastation. Already, assessments indicate that tens of thousands of homes are damaged. Water supply and waste water service is intermittent or nonexistent in many places. Millions of cubic yards of debris clutter the neighborhoods and countryside. Some of the debris blocks drains and ditches causing water to back up; the stagnant water worries health officials. The government cautions the population about the structural integrity of thousands of facilities including schools, police stations, and apartment buildings. Streams, rivers, and reservoirs are overflowing and continuing to cause damage to vulnerable communities.

A survey by helicopter is both shocking and heartbreaking. As far as the eye can see, power lines and towers lie on the ground. Countless homes are missing roofs and have shifted off their foundations. Furniture, large appliances, and cars litter yards and streets. The normally lush green island is brown; most vegetation is stripped of all color. It looks as though a giant fireball landed on the southeast end of the island and traversed diagonally to the northwest, scorching everything in its path. At the same time, supplies and hundreds of disaster response workers move agonizingly slow through a narrow sustainment pipeline, impeded by limited airport and seaport

Previous page: U.S. Army Corps of Engineers (USACE) workers emplace poles and electrical power lines 6 February 2018 in the mountain community of San German, Puerto Rico. The first few days were spent clearing trees and dense vegetation with chainsaws to ensure compliance with industry safety standards. A helicopter then delivered a pole to each selected site where it was secured in place. The aircraft followed with several passes to tow feeder ropes between the poles so that the three strands of "conductor" line could be winched into place and secured. (Photo by Maj. Michael N. Meyer, USACE)

capacity. For the observer, it is hard not to feel overwhelmed by the work that lies ahead. Meanwhile, Puerto Rico is a tropical island, and the rains continue almost every afternoon, bringing more damage to property and despair to residents.

September 2017

In September 2017, Hurricanes Irma and Maria devastated Florida, the U.S. Virgin Islands, and Puerto Rico. Full recovery from those storms will take years, perhaps an entire generation. Though the impacts were substantial in each of those areas, the people and infrastructure of the Commonwealth of Puerto Rico suffered the most. As it has in previous disasters, the U.S. Army Corps of Engineers (USACE) supported the Federal Emergency Management Agency (FEMA) in disaster response on the island under the National Response Framework.[1] However, the experience in Puerto Rico was unique from previous operations for several reasons: the island's prestorm financial crisis (including $74 billion in debt), its aging and vulnerable infrastructure, the intensity and track of Hurricane Maria, the physical challenges inherent in supporting an island, and the unexpected assignment for the federal government to assist in the repair of the electrical power grid. The combination of these elements proved to be exceptionally challenging for organizations that rushed to assist Puerto Rico.

Brig. Gen. Diana Holland is the commanding general of the South Atlantic Division, U.S. Army Corps of Engineers (USACE). The division is responsible for USACE missions in the southeastern United States, the Caribbean islands, and Central and South America. Holland oversaw the Corps' support to federal, state, and local agencies following five hurricanes in 2017–2018. She holds a BS from the U.S. Military Academy, an MA from Duke University, and an MMAS from the School of Advanced Military Studies, Fort Leavenworth, Kansas.

The federal government's mission to help Puerto Rico was massive and, in some aspects, record setting. The Corps' activities constituted the largest portion (in terms of expenditures) of the work as thousands of USACE military and civilian employees and their contractors rotated through Puerto Rico in 2017 and 2018.[2] Many Americans learned about discrete aspects of the crisis through intermittent media coverage, but they did not see the entire story unfold and consequently did not understand and could not appreciate the significant and enduring challenges faced by all of the assisting agencies in their effort to restore normalcy to the commonwealth. It is important to tell the story of the Corps in this crisis because few people in the U.S. fully comprehend the contributions of USACE to the nation in general, let alone the tremendous capability it brings to assist fellow citizens following manmade and natural disasters. Ultimately, the Corps was successful in Puerto Rico for the same reasons it is successful in its enduring requirements in support of the entire country: it is a civil-military organization with unique organizational composition and structure; extensive experience in crisis response and emergency management; an ability to adapt quickly to ever-changing conditions and requirements; and strong relationships with other federal, state, and local agencies forged through some of our nation's toughest challenges.

This article is organized into four parts. Part one outlines the USACE's unique missions, structure, and conceptual role in domestic disaster response. Part two highlights relevant aspects of the strategic environment in Puerto Rico. The third portion explains the Corps' actual support to Puerto Rico in 2017 and 2018. Finally, part four summarizes an assessment of the overall operation and provides some thoughts as we look ahead to the future when, if the current trend continues, the U.S. will face rising costs in federal expenditures going toward disaster response.

The U.S. Army Corps of Engineers

The USACE is unlike any other organization in the United States. With origins dating back to 1775, it expanded from support to the westward expansion and defense of a small nation to its current status as the largest public engineering agency, with domestic and international responsibilities.[3] The Corps is a direct reporting unit under the Department of the Army, commanded by an Army lieutenant general who also serves as the Army chief of engineers. It has a varied and diverse mission set, much of which is organized into three programs: Civil Works, Military Programs, and Interagency and International Services. Under Civil Works, the Corps manages, on behalf of the secretary of the Army, federal water resource responsibilities that include navigation (rivers

and harbors), flood risk management (dams and levees), hydropower, and environmental programs (regulation, stewardship, and restoration). Under Military Programs, the Corps builds, renovates, repairs, and maintains facilities at Army and many Air Force installations. The Interagency and International Services portfolio includes support to other federal agencies including the Departments of State, Defense, Homeland Security, and Veterans Affairs. The Corps also provides engineer expertise and support to each of the combatant commands.[4] Projects under the three programs are funded in different ways, whether directly from the administration and Congress, other federal agencies, or the Department of the Army. In many of its missions, the Corps provides technical supervision and accountability oversight of contracts that execute the labor and services.

A U.S. Army Corps of Engineers (USACE) employee completes a "blue roof" application for a resident 14 October 2017 in San Juan, Puerto Rico. Following Hurricane Maria, rather than establishing stationary and centralized application centers as is normally the practice, conditions required USACE employees to walk through neighborhoods and meet one-on-one with impacted residents. (Photo by author)

The composition and structure of USACE are uniquely designed to accomplish its broad and diverse requirements. The Corps' thirty-five thousand-person workforce is 98 percent civilian and 2 percent military personnel. General officers command the nine USACE divisions with regional and international responsibilities in support of multiple federal and nonfederal agencies. The divisions

U.S. Army Corps of Engineers contractors install a temporary "blue roof" 28 October 2017 in Ponce, Puerto Rico. Among its many disaster response missions, the Corps supports the Federal Emergency Management Agency by providing the temporary, reinforced blue plastic coverings to storm-damaged roofs. (Photo by Sgt. Avery Cunningham, U.S. Army)

are comprised of four to seven districts, each commanded by engineer colonels and lieutenant colonels slated from the Army's command centralized selection lists. USACE also operates nine centers and laboratories that support the Corps and other entities with research and innovation initiatives.[5] This force structure brings together technically competent civilians and experienced Army engineer officers. The combination of their strengths is a key reason the Corps has been successful, has garnered a wealth of capability, and has been entrusted with a broad set of responsibilities to solve a variety of the nation's toughest challenges.

Another unique function for the Corps is support to federal relief efforts following a disaster. The Corps' first official disaster response mission occurred in 1882 during the flooding of the Mississippi River, and it has participated in response efforts for almost every major manmade or natural disaster since that event.[6] The Corps' federal response missions are aligned along three pillars: support to the Department of Defense, support to states using existing USACE authorities and funding, and support to FEMA. Support to FEMA in Puerto Rico following Hurricane Maria was the preponderance of the Corps' emergency response workload in 2017 and will be the focus of this discussion.

When USACE provides support through FEMA, it does so using authorities and funding as legislated by Congress in the Robert T. Stafford Act (Stafford Act) and in accordance with roles and responsibilities, Emergency Support Functions (ESF), outlined in the National Response Framework.[7] Known as "FEMA's engineer," the Corps serves as the coordinator of ESF #3, Public Works and Engineering, and as such, organizes capabilities and resources for infrastructure protection and reestablishment, engineering services, construction management, and emergency

An overhead view of a neighborhood in Puerto Rico shows several of the nearly sixty thousand temporary "blue roofs" installed by the U.S. Army Corps of Engineers in 2017 and 2018 in the aftermath of Hurricane Maria. (Photo by author)

contracting support for lifesaving and life-sustaining services. Generally, USACE's ESF #3 missions include, but are not limited to,

- installing temporary roofing (usually using blue plastic sheeting known as "blue roof"),
- installing stand-alone, temporary emergency generators for critical facilities,
- removing debris,
- conducting structural assessments,
- providing temporary housing, and
- providing support to critical public facilities.

The Corps can also support ESFs led by other federal agencies such as ESF #6 (Mass Care, Emergency Assistance, Temporary Housing, and Human Services), ESF #9 (Search and Rescue), ESF #12 (Energy), and ESF #15 (External Affairs).[8]

To bring value to a disaster response operation, support must be timely and robust, which requires extensive planning and preparation. USACE uses a multifaceted program to ensure the highest possible level of readiness. It begins with a core group of full-time, deployable civilians who specialize in planning, training for, and executing the ESF #3 tasks. This group also maintains relationships with other federal and state emergency agencies throughout the year. USACE then identifies civilian volunteer employees from all forty-three USACE districts who can deploy on short notice. Most of these volunteers serve in roles other than emergency management at their home station. They might be engineers, archaeologists, biologists, resource managers, park rangers, administrative specialists, or attorneys. As USACE builds the team for response, the Corps' acquisition community designs a suite of pre-awarded contracts that quickly mobilize commercial industry capability to a disaster

A CH-47 Chinook helicopter from the Pennsylvania Army National Guard lifts a large sandbag called a "super sack" for emplacement in the spillway of the Guajataca Dam on 9 October 2017. The soldiers were working with the U.S. Army Corps of Engineers and the Puerto Rico Army National Guard to stabilize the dam's spillway after it was damaged during Hurricane Maria. (Photo by Staff Sgt. Mark Scovell, U.S. Army)

location. With these acquisition tools already "on the shelf," the Corps is able to support the federal government and impacted communities in a more effective and timely manner. Finally, all divisions and districts have emergency operations staff and centers that prepare for and track all hazards in their areas of responsibility.[9]

Federal assistance under the Stafford Act is initiated when a governor determines that the requirements exceed the state's capability. Generally, such federal assistance is the last option and, when requested, the state pays a portion of the cost. Once in a while, because of extensive damages, as was the case for Puerto Rico and the U.S. Virgin Islands, the federal government waives the state's cost share and provides 100 percent of the funding for a designated period of time. While the Stafford Act provides timely funding for emergency operations, one of the criticisms is that agencies can only execute "emergency work." They cannot replace, upgrade, rebuild infrastructure, or enhance mitigation for future disasters under this authority.[10]

As required, the Corps establishes recovery field offices (RFOs) to provide mission command and manage its share of emergency work. Generally, a district headquarters provides the leadership and administrative oversight for an RFO. Such administrative responsibilities include in- and out-processing of Corps responders, occupational health and safety oversight, liaison with local governments, public affairs, internal reviews, and quality assurance of contractors.[11] Meanwhile, a district must continue its regular work at home, and thus, adequate manning of each RFO requires volunteer employees from across all of USACE, in addition to those already identified and trained to support ESF #3 missions. The Corps can mobilize timely and technically competent support to FEMA during an emergency because it

The U.S. Army Corps of Engineers (USACE) reinforce a spillway of the eighty-nine-year-old Guajataca Dam 9 October 2017 in Isabela, Puerto Rico. USACE, the Puerto Rico Army National Guard, and local contractors stabilized the dam's spillway to ensure the safety of the residents downstream. The Department of Defense and other organizations assisted civil authorities to provide disaster relief in Puerto Rico in response to Hurricane Maria. (Photo by Pvt. Alleea Oliver, U.S. Army)

maintains a ready workforce and extensive acquisition capabilities for its existing programs.

Puerto Rico: Strategic Environment

As is true for any military operation, leaders involved in domestic disaster response operations should understand the variables and characteristics that shape the environment in which they execute their missions. Puerto Rico has a unique history and relationship with the United States, a challenging financial situation, a spirited political space, and some concerning social trends. It was critical for Corps leaders to understand these threads and how they might ultimately impact the mission.

In 1899, Puerto Rico transitioned from status as a Spanish colony to "unincorporated territory" of the United States. In 1917, as part of the Jones-Shafroth Act, Puerto Ricans gained U.S. citizenship but, for those who reside on the island, not the right to vote in federal elections.[12] Puerto Rico's status has been a point of debate since becoming a U.S. territory, and consequently, the island periodically conducts referendums to determine whether the island should become a U.S. state, remain a territory, or declare independence. Interwoven in this debate is the concern that Puerto Rico's residents do not have the same rights and benefits as fellow citizens on the mainland.[13] This concern emerged during the post-Hurricane Maria response as some government officials and storm victims questioned whether Puerto Rico was receiving the same amount of support as Texas following Hurricane Harvey or Florida following Hurricane Irma. Consequently, it was important for the Corps to articulate its timely responsiveness across all supported disaster responses.

Similar to the fifty states, Puerto Rico has an elected governor, house and senate legislative bodies, and a supreme court. The current governor, Ricardo Rosselló Navares, was elected in late 2016 and is the son of a

Sgt. Dalton Rezac (*left*) and Staff Sgt. Matthew Butler, B Company, 249th Engineer Battalion, get a lay of the land 28 August 2018 before conducting a site assessment at La Plata Lake Dam, Toa Alta, Puerto Rico. The U.S. Army Corps of Engineers (USACE) continues to work as part of a unified effort with federal, state, and local agencies to help the U.S. citizens of Puerto Rico recover from Hurricane Maria. (Photo by Andrew Kornacki, USACE)

previous governor, Pedro Rosselló González, who occupied the office from 1993 to 2001. The men share the experience of serving as governor during a devastating hurricane on their island. Hurricane Georges (1998), like Hurricane Maria nineteen years later, crippled the electrical grid and other essential services. Responders worked for months to restore the power grid. Though newly elected when Hurricane Maria made landfall, the younger Rosselló had some firsthand experience in how devastating storms impact the island socially, financially, and politically.[14]

One of the most concerning social trends facing the governor upon entering office was the long-term, continual decline in population. According to a 2016 article in the *Wall Street Journal*, more than 9 percent of Puerto Rico's population moved to the mainland between 2005 and 2015, the worst population decline "since the Census Bureau began its first tally in 1920" and exceeded that of any U.S. state.[15] The potential for another exodus in 2017 loomed large and further motivated all agencies to instill confidence and hope by reestablishing essential services and jumpstarting the economy as quickly as possible.

The Corps in Puerto Rico

The Corps surged extensive capabilities to Puerto Rico in the aftermath of Hurricane Maria, but its presence on the island existed long before 2017. Several USACE districts execute projects year-round on the island under civil works or military programs, but the most well-known entity is the Antilles Area Office. Located in San Juan, this office represents all Corps equities in Puerto Rico and the U.S. Virgin Islands. The most significant accomplishment of this team over the last decade was completion of the Portugués and Cerillos Dams near Ponce on the south side of the island. The purpose of the pair of dams is to prevent the Portugués River from flooding

downstream communities, which was a frequent occurrence until the project was completed in 2013.[16] This new infrastructure successfully withstood the strong winds and rains from Hurricane Maria and serves as an example of the quality construction regularly delivered by USACE.

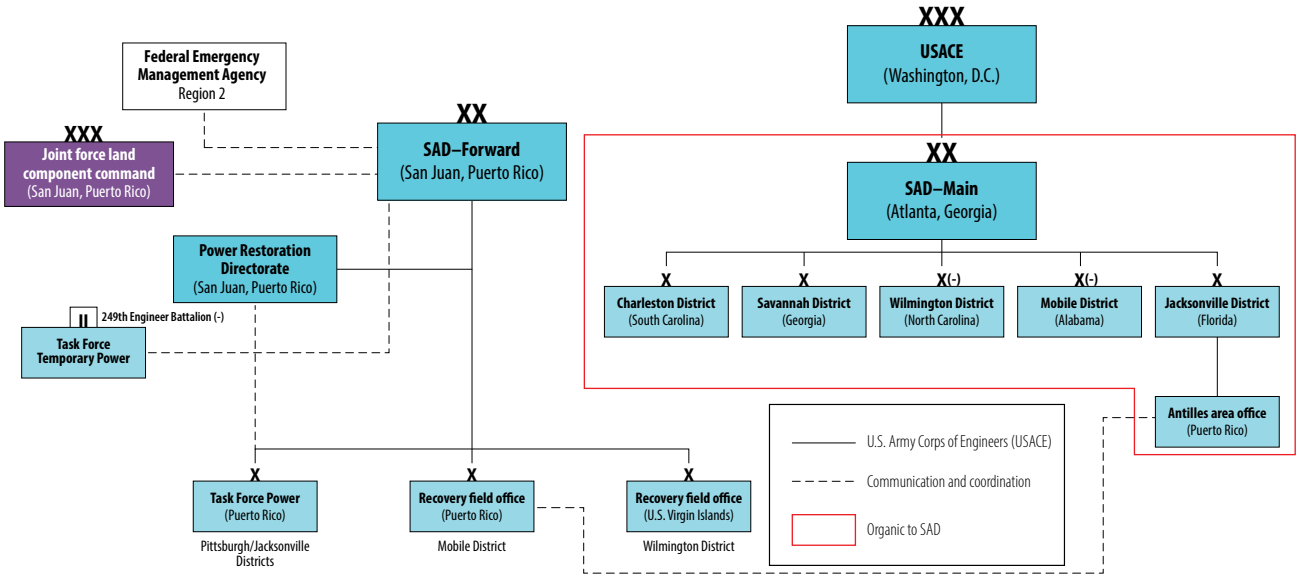
In the aftermath of the 2017 storms, the permanently stationed employees of the Antilles Area Office, though suffering personal losses themselves, immediately went to work to implement Corps emergency authorities and funding to the benefit of numerous communities. However, the extent of destruction in Puerto Rico following Hurricane Maria far exceeded the capability of the Antilles Area Office, and the Corps would ultimately deploy thousands of military and civilian personnel from all forty-three districts to execute USACE functions between September 2017 and July 2018. Still, the small Antilles Area Office, and the relationships formed over the history of the Corps on the island up to that point, facilitated trust and timely decisions during the disaster response in 2017.

Following Hurricane Irma, and while Hurricane Maria tracked toward the U.S. Virgin Islands and Puerto Rico, leaders in the South Atlantic Division immediately recognized the need to build an effective mission command structure for a large response across multiple states and territories. The three impacted areas—Florida, the U.S. Virgin Islands, and Puerto Rico—are normally the responsibility of the Jacksonville District, headquartered in Jacksonville, Florida. However, the work ahead would exceed the capability of a single district and thus, three colonel-led districts were directed to support as follows: Jacksonville District would focus on Florida, Wilmington District (North Carolina) would oversee the response in the U.S. Virgin Islands, and the Mobile District (Alabama) would lead the effort in Puerto Rico. Each of these districts established an RFO in their designated state or territory, but RFO-Puerto Rico would stand out due to its historic levels of work including the installation of almost sixty thousand temporary roofs; the placement and operation of over 2,300 generators by the 249th Engineer Battalion (Prime Power), which was more than were installed by USACE following Hurricanes Katrina, Rita, Sandy, Irma, Florence, and Michael combined; technical assessments of more than six thousand facilities; and removal of more than four million cubic yards of storm debris.[17]

As Mobile District's leadership and advanced party arrived in Puerto Rico to establish an RFO, they immediately reacted to another unplanned crisis, the potential failure of the Guajataca Dam. The dam was built in the 1920s by the government of Puerto Rico in order to provide flood protection and supply water for thousands of households on the northwest end of the island. Contrary to media reports at the time, the dam did not breach, though water overtopped and damaged the spillway. Water flowing over a spillway is not itself a problem as a spillway's purpose is to relieve pressure and prevent water from exceeding the height of the structure. However, at Guajataca, the high volume and velocity of the water flowing through the spillway caused erosion around the structure's massive concrete slabs. Over the ensuing days, the slabs broke away and compromised the integrity of the dam. The Mobile District, along with experts from across the Corps, leveraged lessons from similar incidents and, through close coordination with and assets from the U.S. Army North/Joint Task Force-Puerto Rico, the team airlifted and emplaced concrete barriers and large sandbags ("super sacks") and stemmed the erosion of the structure. They also cleared recently clogged drainage pipes and contracted large pumps to evacuate water and lower the level of the reservoir.[18] After the crisis, Corps technical experts designed and oversaw temporary repairs to mitigate further flood risk with additional permanent repairs to be completed under future projects.

While Corps personnel managed the crisis at the Guajataca Dam and established RFO operations in San Juan, a new requirement to restore the power grid emerged. Comprehensive repairs of an electrical grid is not an unprecedented mission for the Corps, but it is not normally executed by USACE under the Stafford Act following a natural disaster. When, ten days after the storm, Rosselló signed the official request for federal assistance to restore electricity, the extent of damage was not fully understood, but it was clear the situation was dire.

Upon receipt of the mission, USACE immediately met with the Puerto Rico Electric Power Authority (PREPA) to build relationships and share information. The Corps learned more about the organization as



(Figure provided by author)

Figure. South Atlantic Division (SAD) Puerto Rico Task Organization (Simplified)

well as the state of the electrical grid that it oversees. PREPA is a government utility company, the only provider of electricity on the island and, like the commonwealth, it was deep in debt and undergoing significant internal change in 2017. Early that year, Rosselló appointed Ricardo Ramos as chief executive of the company with the mandate to improve performance and financial standing. In July, only three months before Hurricane Maria, PREPA declared bankruptcy.[19] The USACE team further learned that Puerto Rico's power plants are, on average, much older than the plants in the rest of the United States.[20] Most power is generated in the south, but the majority of the population lives in the north, making the system completely dependent on above-ground transmission lines that traverse rugged terrain of mountains and jungles from one end of the island to the other. The grid's age and design, combined with PREPA's internal problems including the inability to conduct routine maintenance on the system, were some of the prestorm conditions that would challenge the entire power restoration mission.

With the new mission assignment, the South Atlantic Division made two additional mission command decisions. First, it established a division-forward command post in Puerto Rico to manage all USACE disaster response operations in the Caribbean. Second, realizing the requirements exceeded the division's resources, leaders requested additional support to form a new organization charged with restoring the grid. The Corps' Great Lakes and Ohio River Division tasked the Pittsburgh District to lead Task Force Power from October 2017 to February 2018. The figure depicts the South Atlantic Division task organization for operations in Puerto Rico. The expanded mission set, additional technical expert requirements, and evolving task organization demanded substantial augmentation from all forty-three districts in the USACE. The responsiveness of the USACE workforce, on short notice, was impressive and demonstrates the depth and professionalism of the organization.

The grid restoration mission for USACE was unexpected because impacted communities usually implement other solutions to restore electricity following storms. Ratified by Congress in 1996, the Emergency Management Assistance Compact provides for all states and territories the ability to leverage external support, including that of public and private utility companies. This arrangement facilitates planning and rehearsals so that when the storm clears and highways open, utility trucks and linemen can surge to problem areas. Such support to

Puerto Rico stalled for at least two reasons: (1) the transportation challenges inherent in supporting an island and (2) the island's financial situation and the related question of how Puerto Rico would reimburse other states for their assistance.[21] The deepening crisis demanded a solution by the federal government, and FEMA directed the USACE to lead the effort to augment PREPA. Still, it would take time to acquire all the resources for this mission, including thousands of linemen and their equipment. Even had they arrived immediately, they would not have had the materials required to make repairs.

The Corps team discovered within the first few days that PREPA lacked adequate materials to support full power restoration and immediately placed large orders through the Defense Logistics Agency. Unfortunately, stocks of electrical materials on the mainland were depleted due to other ongoing disaster response operations. Further complicating the materials shortage was the absence of a holistic sustainment system to transport and track supplies from the vendor to contractors on the ground. There were several logistics entities on the island tasked to support disaster response but not an organization to manage the overall sustainment of an unplanned, long-term power grid restoration mission. Ultimately, the solution was an ad hoc team consisting of elements from FEMA's logistics arm, the Defense Logistics Agency, the USACE Logistics Activity, 3rd Expeditionary Sustainment Command, 1st Mission Support Command, and the Logistics Civil Augmentation Program. Each organization worked a piece of the system to support the mission. Between October 2017 and July 2018, more than fifty million items (including approximately 60,000 power poles and 8,400 miles of wire) moved to Puerto Rico—mostly by sea, some by air—and were ultimately distributed to the thousands of linemen working throughout the island.[22]

During the initial weeks and months of the crisis, Puerto Rico was a media-rich environment and Corps leaders immediately prioritized strategic communications. Numerous U.S. and international television, print, and online media outlets positioned their journalists and reporters at the convention center in San Juan (the hub of the federal response agencies) and aggressively sought statements and stories. Meanwhile, the extended crisis demanded immediate solutions, particularly for restoration of the power grid. However, the well-documented, prestorm vulnerabilities of the electrical grid, combined with the physical challenges of transporting utility trucks, linemen, and electrical supplies to the island, meant that the repairs would take longer than anyone wanted. Normally, FEMA serves as the hub of all messaging for the entire federal operation, but with many high-visibility missions, USACE developed its own strategic communications plan that was coordinated with FEMA but primarily executed by Corps leaders. USACE messaging served three purposes: (1) as public service announcements directed to the citizens of Puerto Rico on the status and projections of the Corps' missions, (2) to convey a sense of urgency for the mission, and (3) to instill confidence that the Corps was properly accounting for hundreds of millions of dollars in the middle of the crisis. USACE civilian and military leaders in Puerto Rico accepted every print, radio, and television interview request and issued a standing invitation for journalists to visit work sites so they would better understand the challenges and accomplishments on the ground. The Corps' communications effort in Puerto Rico was more aggressive than in other disasters, and over time, at least in Puerto Rico, opinions of the USACE effort trended positively.

The mission to augment PREPA and repair the power grid was USACE's most difficult and complicated task in Puerto Rico. At the outset, the Corps estimated that 80 percent of the grid had been impacted by the storm and that it would take months, and possibly until the summer of 2018, to restore electricity to all clients. When the USACE mission assignment ended in May 2018, the grid had been restored to just over 98.9 percent of clients who had power before the storm. PREPA completed the remaining requirements that summer. The Corps' portion of expenditures for the grid power restoration mission, including contractors and materials, would ultimately exceed $2 billion.[23] Thanks to hundreds of hard-working employees and strong relationships with FEMA, PREPA, and industry experts, the Corps was able to leverage its technical competence and large acquisition tools to meet a historic challenge.

Lt. Gen. Todd T. Semonite, chief of engineers, said of the effort, "[The Corps] took on the nation's toughest challenge: rebuild the grid in Puerto Rico. When Army

engineers are needed we don't back down, we rush to the point of the need."[24]

Assessment

The Corps is known for its extensive engineering expertise, but it brought many additional strengths to the response effort in Puerto Rico. Of those strengths, three stand out as particularly valuable in this case study: strong relationships across all levels of government, extensive experience in media and congressional engagement, and a diverse workforce.

Strong relationships between the Corps and other federal and state entities before a disaster are as important as strong relationships between allied armies before conflict. In 2017, many of the Corps' leaders and most of its full-time emergency operations employees had worked with FEMA in previous storms such as Hurricanes Katrina and Sandy. At the senior leader level, there was automatic trust and confidence because of previous shared experiences. Military officers from U.S. Army North and the Corps had served together throughout their careers, including in combat operations. Alongside FEMA, deliberate engagement at the national level with elected officials across the administration and in Congress greatly added to a shared understanding of the situation, garnering bipartisan support in providing the resources required to support the effort on the ground. At the execution level, Corps and FEMA employees knew each other very well. In the weeks and months after Hurricane Maria, the Corps and other federal agencies, particularly FEMA, retained a strong partnership, which was crucial for success throughout the response.

Media and congressional engagement and community relations are strengths for the Corps during normal operations and can be an advantage in disaster response. Lieutenant colonel and colonel district commanders routinely brief the media, update their local civilian communities, and interact with congressional delegations. Further strengthening relationships with communities and states is the fact that most offices in the Corps are located in city and town centers, in commercial or federal buildings, with smaller offices on military installations.[25] The locations of these offices result in a Corps workforce that is strongly invested and well known in their respective communities, and they facilitate strong ties with state and other federal agencies.

The Corps values a workforce that is diverse in backgrounds, skills, and experiences, and this diversity led directly to numerous successes in Puerto Rico during very challenging times. While USACE is a federal engineering organization, a large portion of the organization performs work other than that of engineering disciplines. The broad scope of expertise required to receive billions of dollars in annual appropriations, execute an acquisition strategy to obligate that funding, manage more than twenty-five million acres in real property, serve as one of the leading federal providers of outdoor recreation, conduct reviews to balance preservation of the environment with reasonable development, serve as the nation's fifth largest electric supplier, and manage infrastructure and waterways through which 98 percent of overseas trade transits, means the Corps must employ a diverse and talented population. Following Hurricane Maria, the Corps' diversity was critical to quickly building the right organization to lead the unplanned power grid restoration mission. Furthermore, while many of Puerto Rico's residents speak English, the ability to communicate and build strong relationships with the local press, commonwealth and municipal governments, and PREPA employees was greatly enhanced by Spanish-speaking Corps employees and even more so, those who came from the island. In the initial days of the response, a handful of civilian employees who were born and raised in Puerto Rico were able to build trust and ultimately gain access to the leadership and technicians within PREPA and assure them of the Corps' genuine desire to help with the crisis. Opening these lines of communication enabled critical information sharing, which in turn gave Task Force Power the ability to assess the true status of the grid, build a comprehensive materials list, design a new acquisition strategy, and organize the arriving contractors for the work ahead. The diversity of the Corps of Engineers, established within the workforce well ahead of the disaster, proved to be extremely valuable throughout the emergency.

Though the Corps brought many strengths to the response mission, USACE also learned that there are areas to improve in order to be best postured for future catastrophic events. The most significant gap is the lack of an operational sustainment capability.

A worker directs placement of poles 18 January 2018 in Ponce, Puerto Rico. The Federal Emergency Management Agency (FEMA), the U.S. Army Corps of Engineers, and contracted companies worked together to deliver tens of thousands of poles to different areas around the island to restore the power grid. (Photo by Eduardo Martinez, FEMA)

The USACE Logistics Activity is designed to support districts in basic sustainment functions such as acquiring and accounting for supplies and furniture, and managing government fleets. It has an additional role of reception, staging, onward movement, and integration for Corps employees during disaster response.[26] For sustainment requirements beyond those tactical level functions, the Corps normally relies on other agencies or contractors, which is sufficient when such arrangements are planned and in place before execution. However, the logistics requirements in support of the power grid restoration mission in Puerto Rico far exceeded USACE's sustainment capabilities and processes. Other agencies that would normally support USACE in a disaster, or the joint force in an expeditionary operation, could not commit to holistic sustainment of this mission because of competing priorities. The USACE is reviewing several alternatives for future contingencies such as additional pre-awarded contracting actions and memorandums of agreement with other Department of Defense entities in order to address its internal sustainment capability gap.

Response to Hurricane Maria in Puerto Rico was difficult in ways that it would otherwise not have been had the damage occurred on the mainland with transportation nodes and networks still in place or only minimally impacted. The Corps, along with all agencies, is reviewing how it supports disaster response operations on islands and other locations that would likely sustain severe damage to transportation networks or nodes.[27] One of the key improvements must be to establish a system that prioritizes transportation assets and provides visibility on the flow of people, equipment, and supplies for all response agencies in support of a disaster location.

In the aftermath of Hurricanes Harvey, Irma, and Maria, and many other natural disasters of 2017, federal, state, and local governments are examining how to

better support response and recovery operations in the future. However, even with improvements, providing federal assistance in a timely manner during multiple simultaneous catastrophic events will continue to be very difficult and increasingly expensive.[28] Restoring power to the island of Puerto Rico following Hurricane Maria required federal, commonwealth, and off-island utility assets and almost ten months to complete. This case study should serve as a warning. It will be important for Americans at the individual, neighborhood, and community levels to emphasize self-sufficiency and preparedness so they can continue to function for days and weeks without essential services.

The USACE has formally participated in federal disaster response for more than a century. Its vast set of existing responsibilities in support of the nation, extensive competencies and authorities, and unique organizational composition and structure make it a valuable institution to support states and territories following manmade and natural events. The historic response operation in Puerto Rico following Hurricane Maria is one example of how the two hundred and forty-three-year-old organization employs extensive capability, even under the most challenging conditions, to assist fellow Americans in their time of greatest need.

> *We went next door to the Catholic church … mass was delivered in Spanish … At the end of mass, a lady walked up to the lectern and pointed at the three of us. She said … 'Thank you three, thank you all for being here and helping the people of Puerto Rico. We are so grateful.' Everyone in the church … then stood up and applauded. It was very powerful … their gesture of kindness makes all this worthwhile.*
>
> —Phillip Tilly, USACE Responder, 2017[29] ■

Notes

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Epigraph. Ibid.

1. Federal Emergency Management Agency (FEMA), *National Response Framework*, 3rd ed. (Washington, DC: Department of Homeland Security, June 2016), accessed 25 February 2019, https://www.fema.gov/media-library-data/1466014682982-9bcf8245ba4c60c120aa915abe74e15d/National_Response_Framework3rd.pdf.

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3. William Baldwin, *The U.S. Army Corps of Engineers: A History*, 2nd ed. (Alexandria, VA: USACE, 2008), 1.

4. Army Regulation 10-87, *Army Commands, Army Service Component Commands, and Direct Reporting Units* (Washington, DC: U.S. Government Publishing Office, 11 December 2017), 24–25. The assistant secretary of the Army (civil works) provides direction on behalf of the secretary of the Army for the USACE Civil Works program. The assistant secretary of the Army (installations, energy, and environment) provides similar direction for military and construction functions.

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20. Jeremy I. Fischer and Ariel Horowitz, *Commonwealth of Puerto Rico: Puerto Rico Energy Commission* (Cambridge, MA: Synapse Energy Associates, 23 November 2016), 26. "PREPA's system today is in a state of crisis. Deferred and inadequate investment in infrastructure, a loss of key staff, and a myopic management focus on large risky bets have left PREPA with generation and transmission infrastructure literally falling apart, unnecessarily high costs, a utility operating out of compliance with commonwealth and federal law, and alternative options rapidly disappearing."

21. Emergency Management Assistance Compact, Pub. L. No. 104-321 (1996); Christopher Flavelle and Jonathan Levin, "Why States Took So Long to Dispatch Help to Puerto Rico," Bloomberg, 5 October 2017, accessed 28 February 2019, https://www.bloomberg.com/news/articles/2017-10-05/states-aid-to-puerto-rico-delayed-by-slow-request-money-woes.

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25. For example, the Jacksonville District headquarters is located in the Prudential Financial Building, San Marco neighborhood, south of downtown Jacksonville. The Corps maintains a presence on Department of Defense installations (Army and many Air Force bases) through area or resident engineer offices but these are smaller offices designed to support Department of Defense military construction, sustainment, and maintenance missions.

26. National Response Planning Guide, ER 500-1-28, 3-17–3-18.

27. FEMA, *2017 Hurricane Season FEMA After-Action Review* (Washington, DC: U.S. Department of Homeland Security, 2018), accessed 28 February 2019, https://www.fema.gov/media-library-data/1531743865541-d16794d43d3082544435e1471da07880/2017FEMAHurricaneAAR.pdf.

28. In 2017, USACE supported disaster response to thirty-seven events and deployed 5,730 soldiers and employees. The Corps alone expended $4.7 billion.

29. Gerald Rogers, "Task Force Power Restoration Operations Chief Bids Fond Farewell," DVIDS news release, 30 December 2017, accessed 28 February 2019, https://www.dvidshub.net/news/printable/260929.

Civil Authority in Manbij, Syria

Using Civil Affairs to Implement Stabilization Activities in Nonpermissive Environments

Lt. Col. Peter S. Brau, U.S. Army

Author's note: The following is based on personal experience while serving in the Civil Affairs Operations Division (CAOD), J3 Operations, Headquarters U.S. Central Command, and on operational reporting from the lead-up to the liberation of Manbij, beginning in July 2016 to the present. During this time, the CAOD was responsible for creating briefings for the Central Command commander and briefing coalition senior national representatives on the development of the civil authorities in northeast Syria, for coordinating with the Department of State and the United States Agency for International Development on humanitarian aid, and for working with the Special Operations Joint Task Force–Operation Inherent Resolve civil affairs team charged with providing humanitarian assistance and mapping the civil domain in northwest Syria.

Background

"Providing security, maintaining basic public order, and providing for the immediate needs of the population" are core Department of Defense (DOD) stabilization tasks as defined in DOD Directive (DODD) 3000.05, *Stabilization*.[1] In most cases, these activities occur in nonpermissive environments during and immediately following combat operations. Due to the insecure nature of these environments, the Department of State (DOS), the overall lead for stabilization activities, and the United States Agency for International Development (USAID), the lead for stabilization activities implementation, may not be able to lead stabilization activities on the ground. In these types of environments, if directed and given the authorities required, DOD can assume the lead for implementing stabilization activities until it is feasible to transition lead responsibility back to other U.S. government departments and agencies. However, for this to be effective, there must be a shared stabilization plan developed collectively by DOS, USAID, and DOD. And when practical, planning should include coalition and regional partners, partner forces, and nongovernment organizations (NGOs). In cases where DOD is required to lead stabilization activities, civil affairs teams are an excellent asset to employ in order to consolidate military gains and enable the transition back to civil control.

Recently, this is exactly what occurred in northeastern Syria, as Special Operations Joint Task Force-Operation Inherent Resolve, with the assistance of Syrian Democratic Forces (SDF) partner forces, fought to defeat the Islamic State (IS) and liberate the towns and cities from IS rule. The liberation and subsequent stabilization of Manbij, Syria, highlighted numerous gaps between the entities involved with stabilization activities and provided important lessons on the planning effort required among local civil authorities, DOD, DOS, and USAID in nonpermissive environments following combat operations, as well as on the consequences of a lack of joint planning.

Previous page: A Syrian man pushes a wheelbarrow past collapsed buildings 14 August 2016 in the northern Syrian town of Manbij as civilians returned to their homes after Syrian Democratic Forces and U.S. special operations forces liberated the town from Islamic State control. (Photo by Delil Souleiman, Agence France-Presse)

Liberation

In August 2016, the military arm of the Syrian Democratic Council—the Syrian Democratic Forces (SDF)—with the assistance of U.S. special operations advisors, conducted operations to liberate portions of Aleppo Governorate (specifically, Manbij and surrounding areas). IS had occupied and governed Manbij since 2014, replacing its leadership, overseeing essential services, and conducting religious and ethnic cleansing to conform to its religious views. As the SDF approached the final phases of liberating the city, special operations forces (SOF) civil affairs (CA) teams from the 96th Civil Affairs Battalion (Airborne) that were a part of the U.S. advisory package were tasked with consolidating operational gains in Manbij and its environs.

Due to the potential for IS sleeper cells to be operating in the area and high numbers of improvised explosive devices left behind by IS defenders throughout the area, the environment was considered nonpermissive, preventing DOS and USAID from deploying people to the city.

As a result of the nonpermissive environment, there emerged growing disconnects between what USAID implementing partners (for the most part local NGOs hired to provide immediate humanitarian assistance) were reporting back to USAID's Syria Transition Assistance and Response Team (START) located in Ankara, Turkey, and the reports from SOF CA teams that were on the ground in the city. The NGOs reported no issues within the city, even though they had not been able to operate close to

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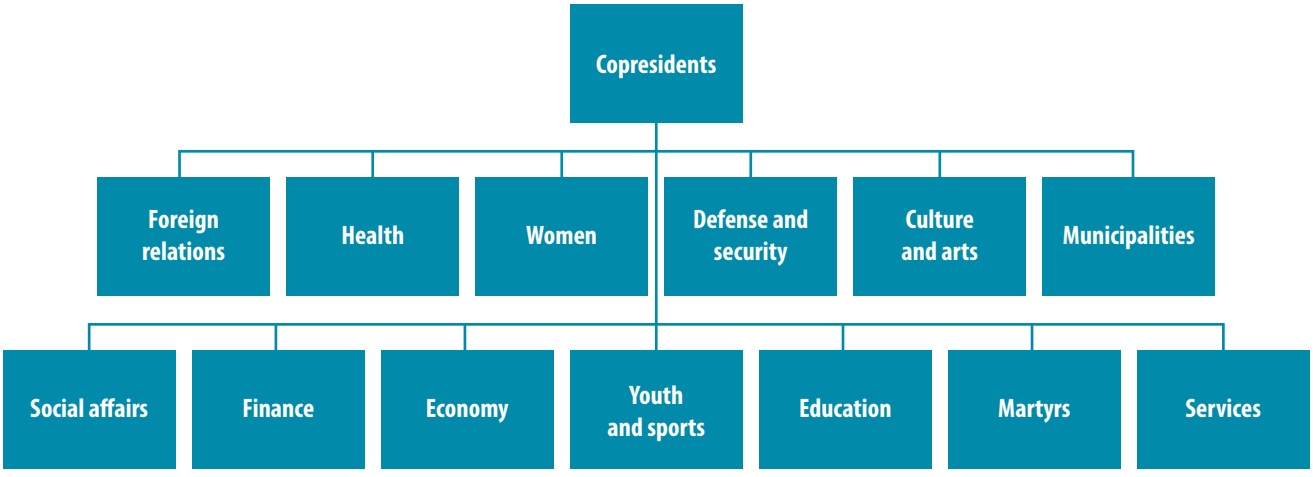


(Figure by author)

Figure 1. Democratic Civilian Administration of Manbij and Its Surroundings, 12 March 2017

the city, and initially numbered fewer than five NGOs in the entire Manbij District of the Aleppo Governorate. Conversely, the SOF CA teams inside the city reported an absence of medical support, a shortage of food, no electricity, a lack of drinkable water, decomposing bodies of dead IS fighters in the streets, increasing numbers of internally displaced persons (IDPs) in the vicinity, and increasing levels of garbage throughout the city. This growing disconnect would lead to a sharp difference between START and the U.S. Central Command (USCENTCOM) in perceived humanitarian support requirements for the residents of the city during the first few months of U.S. operations in the Manbij area.

Civil Council Formation

As liberation operations progressed, the local population self-organized and, with assistance in the form of advice and mentoring from SOF CA teams, established a governance entity in the form of the Manbij Civil Council (MCC)—later renamed the Democratic Civilian Administration of Manbij and its surroundings (see figure 1).[2] The MCC was created with the support of local tribal elders and support of the SDF who liberated the city and enjoyed a high level of popular support. To help assuage Turkish concerns over perceived influence by the Democratic Union Party (PYD) and its military arm, the People Protection Units (YPG)—who are considered terrorists because of their affiliation with the Kurdistan Workers' Party (PKK)—the SDF commander, Gen. Mazloum Kobani, ensured he clearly communicated his intent to allow the MCC to govern the region free of SDF influence while it moved operations forward to continue its offensive to defeat IS east of the Euphrates.

The MCC was formed along the lines of the Kurdish form of government common in northeast Syria with male and female copresidents (one Arab, one Kurd) overseeing up to thirteen committees (also overseen by male and female cochairs) with various subcommittees and membership levels under them. In addition, one of the precepts of this organization was ensuring all ethnicities were represented in proportion to their respective percentage of the population to ensure a truly representative governing body. While not democratically elected, personnel were selected by a representative vote conducted by tribal elders who voted on behalf of their respective tribes.

While popular with the Kurds and enjoying strong Arab support at the time, the MCC did not receive favorable views from either Turkey or START (because of its remote location in Ankara and possible influence from its association with the government of Turkey). The Syrian regime for its part did not support the MCC, but it was not in a position to actively work against it due to the ongoing civil war in much of the country and its existential fight against IS in other areas.

The creation of the MCC occurred without much fanfare in a city desperate for a return to normalcy after years of enduring civil war and IS rule. However,

it was not without concern. With competing international and ethnic agendas (from the Syrian regime, Russia, Turkey, Arabs, Kurds, IS, and the United States, to name just a few) and tribal allegiances (some tribes in the area strongly supported IS, others were strongly against IS, and still others treated governance in the region on a very transactional basis, switching allegiance to whoever was perceived to be the strongest at the time), the MCC was desperate for international support and sponsorship. There was, and still are, no salaries provided to the members of the MCC who hold leadership roles in a volunteer status. There is also no funding for essential services or government operations as of this publication, though some taxation has begun to help provide subsidies for basic essentials and fuel. Because the MCC is not recognized by the international community, there cannot be any official funding of their operations (or to any civil council in northeast Syria) from the United Nations or other international governing bodies. It relies instead on funding provided by donors—the vast majority of which is limited in scope as to what donations can be spent on or what project the monies can support (versus paying salaries or using as a budget to pay for rebuilding the essential service infrastructure).

Competing Interests—the Beginning of the End Game

It is important to understand some of the underlying dynamics in the region that heavily influenced the initial support for and against the MCC, as these contentious points continue between Turkey, the Kurds, the United States, and the Syrian regime.

The last pre-IS civil council that governed Manbij fled to Turkey when IS took control of the city. It became known as the Azaz Council, named after the city of Azaz, Syria, where some of its members operated from while the remainder of the council fled to Turkey. Overwhelmingly Arab in composition, the Azaz Council enjoyed an enduring relationship with USAID's START and the international community prior to the liberation of Manbij due to their close ties to Turkey and the ease with which they could communicate with START.

The chairperson of the Social Services Committee of the Democratic Civilian Administration of Manbij discusses plans for dealing with the return of residents displaced during Islamic State (IS) occupation at a 9 August 2018 meeting in Manbij, Syria. People began returning home to Manbij after Syrian Democratic Forces liberated the area from IS in 2016. (Photo by Sgt. Nicole Paese, U.S. Army)

USAID, the lead federal agency for humanitarian aid (and potential community rebuilding), created START as a platform to further U.S. foreign policy goals with regard to northern Syria. START leadership initiated a major push to reinstall the Azaz Council, as, from START's perspective and the council's close ties in Turkey, this entity was the legitimate governing body of Manbij. However, the Azaz Council's poor reputation amongst the populace, its inactivity as it related to contributions from the international community, and its close connections to Turkey led to reticence by the population of Manbij to reconcile with the Azaz Council. The Manbij populace, by and large, considered the Azaz Council and the Azaz leadership as being comprised of corrupt politicians and thieves, largely due to a common perception that they fled the city with considerable amounts of public money. Some residents continue to call for a trial to address this violation of the public trust. The self-organized and indigenously staffed MCC claimed to have no communication or ties to the Azaz Council, although the MCC has encouraged them to return to Manbij and take roles in the reconstruction of the city while setting early on the expectation that returning members would not be given leadership roles until they had reintegrated themselves and proven themselves to the people who lived in the city.

Members of the Syrian Democratic Forces discuss further operations 12 August 2016 in the Syrian city of Manbij shortly after a fierce fight to liberate it from Islamic State control. (Screenshot of video courtesy of Voice of America)

Manbij is located near Syria's border with Turkey and close to Aleppo and Raqqa, the two key northern Syrian cities that Islamic State jihadists used to control the territory they had seized in an attempt to establish the Islamic State of Iraq and Syria. (Map courtesy of BBC)

The Push for Humanitarian Aid

Evident immediately after the liberation of Manbij was a gap in the delivery of humanitarian aid and the slow return of essential services to the city's residents. This aid gap came to last over three months, and it became a point of contention between START and USCENTCOM, as well as a looming humanitarian disaster. The NGOs locally contracted to provide aid to residents of Manbij were reporting back to their START counterparts that aid was being delivered; however, where and to whom was in dispute. Civil affairs teams in the city reported there were no NGOs operating in the city limits and watched for weeks as the humanitarian situation continued to decline. Finally, the issue came to a head when Gen. Joseph Votel, USCENTCOM commander, approved the issuance of humanitarian aid without concurrence from USAID. It was not until Special Presidential Envoy Brent McGurk visited the city personally, saw the crisis, and directed USAID/START to "fix it immediately" that START (1)

Men repair a road 11 July 2018 in a village outside Manbij, Syria. Reconstruction and maintenance efforts are a sign of the safety and stability that has returned to the region since the Syrian Democratic Forces liberated it from the Islamic State. (Photo by Staff Sgt. Timothy R. Koster, U.S. Army)

began accepting civil affairs teams' reporting as factual and (2) set up START-FWD as a forward element working inside northeast Syria to get a better view of what the ground truth was.

One of the MCC's committees formed a volunteer group that became known as the Manbij Organization for Relief and Development (MORD). Upon Manbij's liberation, the MORD assumed the lead role as the implementer of the $1.5 million Overseas Humanitarian, Disaster, and Civic Aid (OHDACA) program created by the SOF CA teams operating in Manbij.

The MORD was comprised of young activists educated at Aleppo and Raqqa universities who were motivated to strengthen their hometown through a civil society that stood on its own and proved to be an effective implementing partner. Prior to any distribution of assistance to the local population, the MORD deconflicted with other aid agencies, coordinated with the MCC, and coordinated for security. This set the conditions whereby they could unilaterally retrieve and transport payloads of aid from an OHDACA-utilized warehouse and subsequently distribute it to the people of Manbij and elsewhere. This nearly immediate distribution of humanitarian assistance following Manbij's liberation (prior to the ability of NGOs to act) was vital in meeting basic human needs and replicating essential service shortfalls, which was critical in securing the victory and setting conditions to prevent the reemergence of IS.

Even with the MORD assisting in the coordination and collaboration with NGOs, there was a constant pull between the MORD and NGOs who operated outside their construct. These NGOs in many cases were providing the same types of essentials as those working with the MORD, but because they were distinctly separate, those NGOs began to have influence that pulled from the legitimacy of the newly formed MCC. One of the lessons learned early was the MORD could not force NGOs to work with them—every NGO has its own mission, restrictions, and operations. Instead, the MORD had to engage and build those relationships first and then attempt to deconflict efforts.

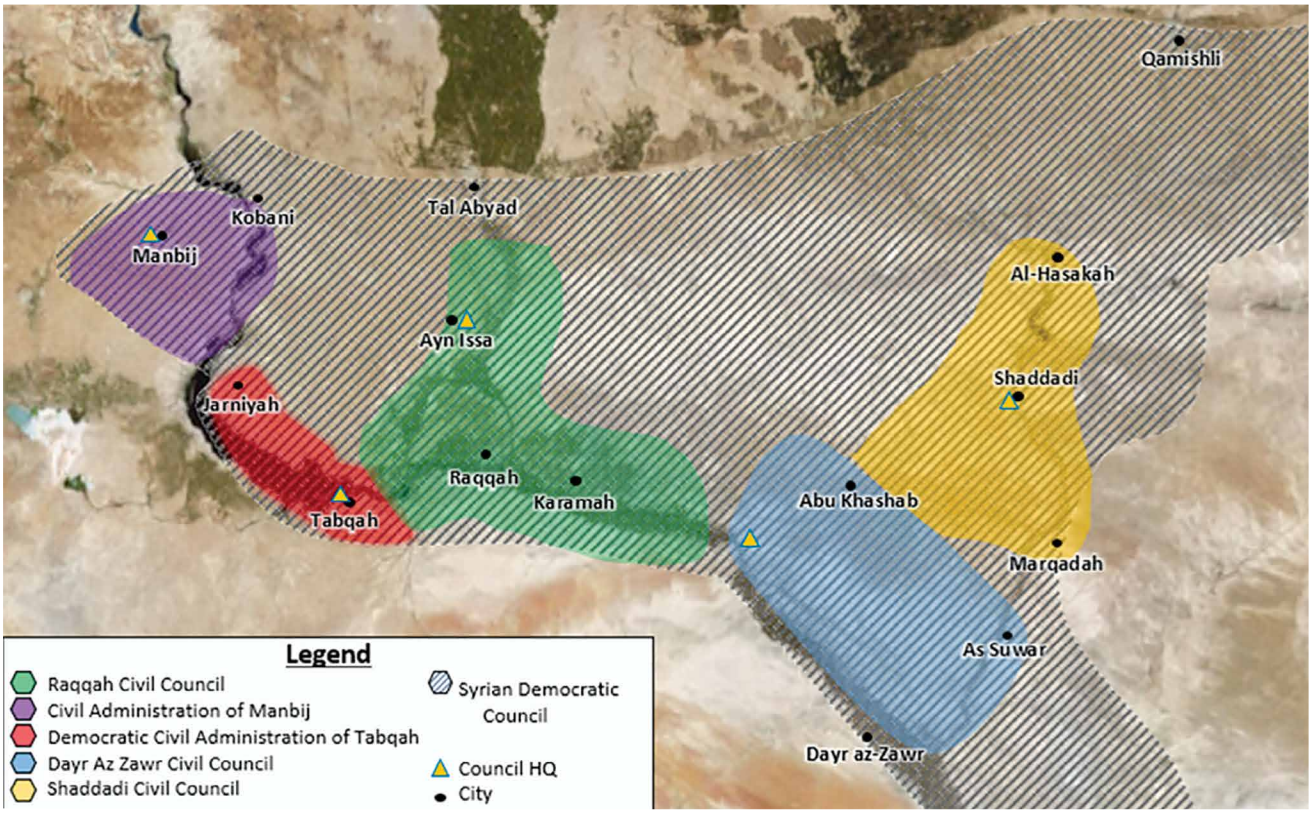
MCC Compared to Other Civil Councils

As the SDF continued its advance against IS and liberated other cities in northeast Syria, there quickly followed the creation of additional civil councils using the same framework as the MCC (see figure 2). Much of the same euphoria met these new civil councils because they represented hope and freedom from IS. But because the organization of the civil councils followed a Kurdish model, the farther southeast the SDF pushed, the more easily these civil councils were challenged, as the Arab minorities became Arab majorities, even though in practice Arabs held as many, if not more, positions of leadership in the inclusive Kurdish governance model.

Raqqa Civil Council. As the SDF crossed the Euphrates and began its approach to Raqqa, several of the lessons learned from Manbij were applied. The aid gap evident after the liberation of Manbij was acknowledged, and civil affairs provided additional OHDACA funding; key infrastructure points were identified that would need immediate rebuilding or refurbishment; NGOs operating in the region stockpiled humanitarian assistance in the form of food, hygiene products, and nonperishable items (e.g., blankets, heaters, and fuel); and several IDP camps were preplanned for the expected civilians fleeing the city. START was intimately involved and eager to avoid a repeat of the gap in provision of the humanitarian aid that had followed the liberation of Manbij.

Similar to the MCC, the Raqqa Civil Council (RCC) developed from internal pressures to identify civil leaders who had remained behind in the city through the civil war and subsequent IS occupation. The RCC organizers refused to consider allowing previous civil leaders who had fled to Turkey an opportunity to assume previously held leadership positions. The RCC's stance was to welcome back any previous resident of the city and incorporate them as volunteers into one of the committees; only then, after having proven themselves, could they begin working their way back into leadership positions.

The largest hurdle the RCC would face would be the move from Ein Issa (north of Raqqa), where it operated preliberation, to the city itself once Raqqa was cleared



(Figure courtesy of the Special Operations Joint Task Force-Operation Inherent Resolve (SOJTF-OIR J9) Human Terrain Analysis Branch at the request of the author)

Figure 2. Assessed Civil Council Areas of Influence as of January 2018

Larry Bartlett, senior advisor for the Syrian Transition Assistance Response Team, and Ambassador William V. Roebuck meet with members of the Democratic Civilian Administration of Manbij to discuss the safety and stability of the city on the two-year anniversary of its liberation from the Islamic State 9 August 2018 in Manbij, Syria. The group discussed topics such as education, civil affairs, and media. (Photo by Staff Sgt. Izabella Sullivan, U.S. Air Force)

of IS fighters. The level of devastation was well beyond that experienced by Manbij or Tabqah (a city fifty-five kilometers west of Raqqa), approaching apocalyptic levels seen in West Mosul as whole neighborhoods had been destroyed. To this day, there are only a few neighborhoods with running water, no electricity, and minimal medical services outside the least damaged areas of the city. While schools have started again, many are underserviced, lacking running water for students and only serving primary-age children. Children in secondary school (grades 6-12) are without schools across almost the whole of the city. The initial euphoria that came from the liberation of the city has worn off, and many residents are increasingly resentful of a civil council that has been unable to make faster and wider improvements (although arguably, without international funding, any council would find the job of reconstruction insurmountable).

Other regional civil councils. Civil councils were formed across northeast Syria in Tabqah, Shaddadi, Deir ez-Zor, and other villages along the same civil council construct. For the most part, these civil councils still enjoy the support of the local population but increasingly are frustrated by the slow return to normalcy with working essential services, as the international community refuses to provide any assistance that could benefit Assad's regime in the long term. As a result, most improvements provide bandages to systemic problems that can only be solved through a large influx of reconstruction monies.

Understanding the Elephant in the Room—Opportunity Lost?

Fast forward two years and the civil council in Manbij has developed and become a magnet for displaced persons looking for an area where stability has taken hold. Essential services are available. Health services are present. Markets are thriving. Normalcy has returned—but maybe not for long.

After Operation Euphrates Shield, in which Turkey secured its border area west of Manbij and east of Afrin, and its subsequent seizure of Afrin during Operation Olive Branch, Turkish-supported civil councils were convened, for the most part made up of refugees located in Turkey who had previously held office but fled IS and who Turkey assessed as being pro-Turkey and not part of the PKK/PYD/YPG. These Turkish-supported civil councils replaced existing councils, even though local residents were firmly against them as they considered these new council

A young man and a girl browse at a market 12 July 2018 in Manbij, Syria. Residents of Manbij and the surrounding areas have the freedom to visit markets and stores without the threat of the Islamic State since the city's liberation. (Photo by Staff Sgt. Timothy R. Koster, U.S. Army)

members illegitimate and not representative of the people who had remained behind under IS rule.

With President Donald Trump's announcement of the pullout of U.S. forces from Syria in December 2018, the future of the civil councils and the stability they have brought are in question. Turkish forces have massed on the border, determined to create a buffer zone free of PKK terrorists (Turkey sees the PKK, PYD, and SDF as all versions of the same organization). The SDF is looking for a safe partner to replace the United States and its coalition partners as a counterweight to Turkey—and a deal with the Russians and the Assad regime is looking more realistic. This is reminiscent of what happened when Turkish forces approached Manbij during Operation Euphrates Shield and the United States faced a potentially tense situation with its NATO ally. The MCC handed over five villages to Assad regime control to create a buffer between approaching Turkish forces and Manbij, and the regime and Russians were able to intervene and stop the Turks and Turkish-vetted Syrian opposition forces.

It is quite possible if the SDF and U.S. forces could have foreseen the Turkish government's continued acrimony toward these new civil councils, they could have advised the Manbij Civil Council from the beginning to include more representation from the Azaz council, or they could have assisted in mentoring the foreign relations committee in designing a strategic communication plan that assuaged Turkish concerns. This might or might not have had the effect of calming the Turks and precluding Turkish operations along their border. Regardless, including Azaz council members would have been a bitter pill for the residents who remained behind and who did not want people they considered traitors or corrupt to regain positions of authority.

In hindsight, with U.S. policy indicating it would remain until a peace settlement was reached, it was the right call at the time. However, knowing what the situation has devolved into today, there may have been other actions that could have been taken. Understanding local

customs and networks is key to civil affairs, but maintaining a view of the strategic environment and potential issues with bordering countries is just as important.

Final Thoughts

Despite scant resources and marginal international support, the MCC demonstrated its capability to return Manbij to normalcy, and distanced the city and its residents from the era of IS control. What resources that were available were consumed at an even faster rate than normal due to Manbij serving as an example of stability throughout the region and causing IDPs to gravitate toward the city. The MCC's well-publicized inclusive governance, security, and administration of basic services attracted four hundred to five hundred IDPs daily as they escaped from other IS-occupied areas, increasing the IDP population to over sixty thousand in the city and its immediate environs.

The key to achieving stability in conflict-affected areas is to conduct early and adequate planning with our DOS and USAID partners for stabilization activities, not only during Phase IV, Stabilization, but across all phases of military operations.[3] When the operating environment precludes the presence of DOS and USAID, DOD must be prepared to step in and lead the execution of these plans. The stabilization of Manbij following its liberation displayed the importance of employing SOF CA teams to work with and through the indigenous population. Employing civil affairs units that are trained to properly target humanitarian assistance and governance programming, as in the case of Manbij, allowed for real-time, on-site observations of the human domain, which supported the organization of the interim civil government and allowed it to develop and sustain itself through its most vulnerable period immediately following liberation from IS. The Manbij example

Shervan Derwish, spokesman of the Manbij Military Council, gives a press briefing 4 June 2016 regarding operations to liberate Manbij from Islamic State control. (Photo courtesy of Cahîda Dêrsim, @dersi4m via Twitter)

Excerpt from the *New York Times*,

"The Safe Zone Northern Syria Needs"

By Shervan Derwish
Spokesman for the Manbij Military Council

Manbij, Syria—23 January 2019

Whether the United States and the international coalition against the Islamic State will protect Manbij and areas controlled by the Syrian Democratic Forces in northern Syria from an unknown future is a significant test of their credibility. I am writing from Manbij, a city of 700,000 people in northern Syria governed by a civilian administration made up of Arabs, Kurds, Turkmen, and Circassians. Thanks to the Kurdish fighters who liberated Manbij in 2016, we have been able to enjoy freedoms unimaginable under either the Islamic State or the Syrian government. In Manbij, where women were once bought and sold as slaves by the Islamic State terrorists, now they run economic cooperatives, serve in the Manbij Military Council, and have equal representation in elected councils. For the first time in Syrian history, we have held free local elections. We have reopened or built several hospitals and 350 schools attended by 120,000 students. We have given 2,000 licenses to factories and flour mills. The physical reconstruction of our city has been slow but steady. Most important, people are living without fear. Our civilian administration has given people the courage to rebuild their lives and, for the first time, participate in building democracy. We formed the Manbij Military Council, a security force composed primarily of local Arabs, to hunt down terrorists and sleeper cells, fighting to ensure that terrorist groups can never again threaten the people of Syria. Without international support, none of this might have been possible.

also illustrated that good governance will have a much greater chance of success through support to local entities that are inclusive, vice attempting to force the locals into accepting what they perceive as an outside and corrupt entity (as with the Azaz Council).

However, this example also points out the need for improved planning between DOS, USAID, and DOD. The lack of an existing plan, interagency skepticism of civil affairs reports, and the need to convince our interagency partners and the international community to support the in-place MCC wasted valuable time. If support to the MCC had been readily given by START and their implementing partners in a timelier manner, the transition to postliberation normalcy and stability throughout the region (extending beyond the city of Manbij) would have been accelerated. However, lessons from Manbij were used to create a template for success in producing stability in nonpermissive areas in Tabqah after the removal of IS and for Raqqa's stabilization following its liberation by the Syrian Arab Coalition with the support of the SDF.

Finally, it's important to understand the local dynamics but also to remain mindful of the regional strategic issues that might arise from neighboring countries. While executing the best option at the time is always desirable, when looking to develop long-term stabilization of a region, the end goal must always be kept in mind. The U.S. position in Syria has always been a one-Syria policy that would prevent a breaking up of the country (meaning whatever civil councils were put in place would have to make peace with the regime), and Turkey's categorization of the PYD as a terrorist organization, and by default the SDF (or major portions of it) similarly categorized as terrorists would have major implications. After all, the United States has been in Afghanistan for seventeen years and in Iraq almost as long, fighting for the same reasons as Turkey is looking to create their buffer—security of its citizens against terrorist networks within and across its borders. The United States refused to acknowledge the name changes from the Al-Nusrah Front when the terrorists in Syria rebranded and disavowed previous relations with their previous organization—it should not have been as hard to understand why Turkey would refuse to do the same thing with the PYD/YPG and SDF when whey disavowed their ties to the PKK and announced they were only conducting operations in Syria and had no hostile intent toward Turkey.[4]

On 16 January 2018, four Americans including two service members, a DOD civilian, and a contractor were killed in a suicide bombing in Manbij. Islamic State claimed responsibility for the attack. While President Trump and Vice President Pence have declared victory over IS in Syria—a symbolic victory over the physical caliphate—ISIS still remains a large and active threat in the region. ■

This article was previously published by Military Review *as an online exclusive in February 2019.*

Notes

1. Department of Defense Directive 3000.05, *Stabilization* (Washington, DC: U.S. Government Publishing Office [GPO], 13 December 2018), 4.

2. Figure 1 is based on information found in "Manbij Democratic Civilian Administration Council Takes Office," ANF News, 12 March 2017, accessed 22 January 2019, https://anfenglish.com/news/manbij-democratic-civilian-administration-council-takes-office-18957, and on reporting by the special operations forces civil affairs teams on the ground at the time.

3. Field Manual 3-0, *Operations* (Washington, DC: U.S. GPO, October 2017), 1-12. Joint operations are delineated into five phases: Phase 0 (Shape), Phase I (Deter), Phase III (Seize Initiative), Phase IV (Stabilize), and Phase V (Enable Civil Authority).

4. Office of the Spokesperson Media Note, "Amendments to the Terrorist Designations of al-Nusrah Front," U.S. Department of State, 31 May 2018, accessed 22 January 2019, https://www.state.gov/r/pa/prs/ps/2018/05/282880.htm.

Iraqi President Fuad Masum (*right*) and Rakan Said al-Juburi, governor of Kirkuk, speak to the press 27 November 2017 following a meeting during a surprise visit to the multiethnic northern Iraqi city of Kirkuk. Influencers often leverage the media to engage target audiences and shape domestic and international opinions, though the number of media is increasingly numerous and diverse. (Photo by Marwan Ibrahim, Agence France-Presse)

How We Win the Competition for Influence

Lt. Col. Wilson C. Blythe Jr., U.S. Army
Lt. Col. Luke T. Calhoun, U.S. Army

The days of securing campaign success solely through traditional combat operations are over. Victories on the twenty-first century's physical battlefields will be fleeting unless tied to an integrated information operations campaign.[1] The achievement of campaign and strategic objectives requires a sustained competitive advantage over other actors in the ability to influence outcomes. Otherwise, hard-won victories

can be negated or even reversed, and our policy makers will be left with limited options by misinformation or disinformation and a resulting perception of illegitimacy planted by adversaries and competitors who employ information-psychological warfare in contested environments to gain a strategic advantage.

The growing salience of the information domain and rapidly advancing technology provide any actor who chooses to compete with a medium through which to influence the decision-making and actions of others. As such, the successful execution of combat operations does not guarantee success in a campaign. Instead, as demonstrated during Operation Inherent Resolve, enduring success requires *convergence*, defined in the Army's multi-domain battle concept as "the integration of capabilities across domains, environments, and functions in time and physical space to achieve a purpose."[2] Our experience shows that planning operations around core influence objectives enable the coordinated employment of all maneuver, fires, and information-related capabilities. Conversely, employing information-related capabilities as an afterthought to maneuver and fires achieves, at best, transitory effects. This article highlights some of the pitfalls and opportunities found in the information environment—an intrinsic part of today's battlefields. Success in the competition for influence requires a radical shift in mindset.

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A Vignette

In the aftermath of the Kurdistan regional government's 25 September 2017 independence referendum, Iraqi Prime Minister Haider al-Abadi signaled his intention to take control of all the border crossing points held by Kurdish forces.[3] This was part of the Iraqi government's consolidation of border control and assertion of the government of Iraq's sovereignty over the entirety of its territory. Understanding that the Faysh Khabur border crossing was a priority for the Iraqi government, Kurdish security forces executed a plan to preempt the Iraqi army's movement to the border post.

On 24 October 2017, a convoy of Peshmerga vehicles with engineer equipment and a Kurdish media team in tow crossed the "Green Line," the historical demarcation line between the Iraqi Kurdish region and the rest of Iraq. The Kurdish convoy traveled fourteen kilometers southwest of the demarcation line to the town of Asilah, Ninawa Province, Iraq. Kurdish forces occupied the town and, over the course of two days, diligently reinforced a previously unoccupied defensive position that was clearly outside the borders of the Iraqi Kurdish region and along the route to Faysh Khabur.

In the early morning of 26 October 2017, an Iraqi army convoy consisting of tanks, mechanized vehicles, and high-mobility multipurpose wheeled vehicles (HMMWVs) approached the newly refurbished checkpoint, and with Kurdish media filming, an engagement ensued that resulted in the destruction of an Iraqi tank and HMMWV, and the death of one Iraqi soldier (the Peshmerga forces also experienced losses, however, their casualties were not officially reported). The Kurds realized information that arrives first to national leaders—irrelevant of its truth—usually has the most impact on policy decisions. This "aggression against the Kurds" was immediately broadcasted to the world. "News" of the incident quickly reached the Kurds' target audiences in the capitals of Western nations. The Combined Joint Task Force–Operation Inherent Resolve (CJTF–OIR) headquarters began receiving inquiries from policy makers on why the Iraqi government was conducting an unprovoked attack on Kurdish forces. Though the entire truth of the incident eventually came to light, the initial

reports galvanized decision-makers across the globe and created the perception that al-Abadi was the aggressor in this latest round of confrontation between Baghdad and Erbil. This is the power of information.

variety of actors, adversaries, competitors, and at times, even our partners. Each of these has their own agendas and interests that they will pursue—at times ruthlessly—with the hope of gaining some sort of position

“In this information environment, adversaries, competitors, and other actors use information to influence decision-makers, and domestic and international sentiment in an attempt to manage perceptions, shape policy, deter unfavorable action, and coerce favorable behavior.”

The Battlefield of Perceptions

The incident portrayed above is simply one of many engagements on the battlefield of perceptions. The physical battleground in Iraq and Syria is overlaid by an increasingly complex information environment. In this information environment, adversaries, competitors, and other actors use information to influence decision-makers, and domestic and international sentiment in an attempt to manage perceptions, shape policy, deter unfavorable action, and coerce favorable behavior. In order to achieve sustainable victories, commanders must apply the familiar principles of mission command and integrated planning to ensure the convergence of capabilities across all domains.

The information environment exists simultaneously in the physical, virtual, and cognitive domains. It is comprised of social, personal, informational, network, and actual (or “real”) elements. To illustrate the difference, a radio station is in the physical domain, its frequency is in the virtual domain, and its messages target the cognitive domain (i.e., the minds of people). An integrated targeting approach, which includes information activities, can target and deliver effects in all three domains: a radio station may be destroyed, its frequency jammed, and its content manipulated to influence its audience.

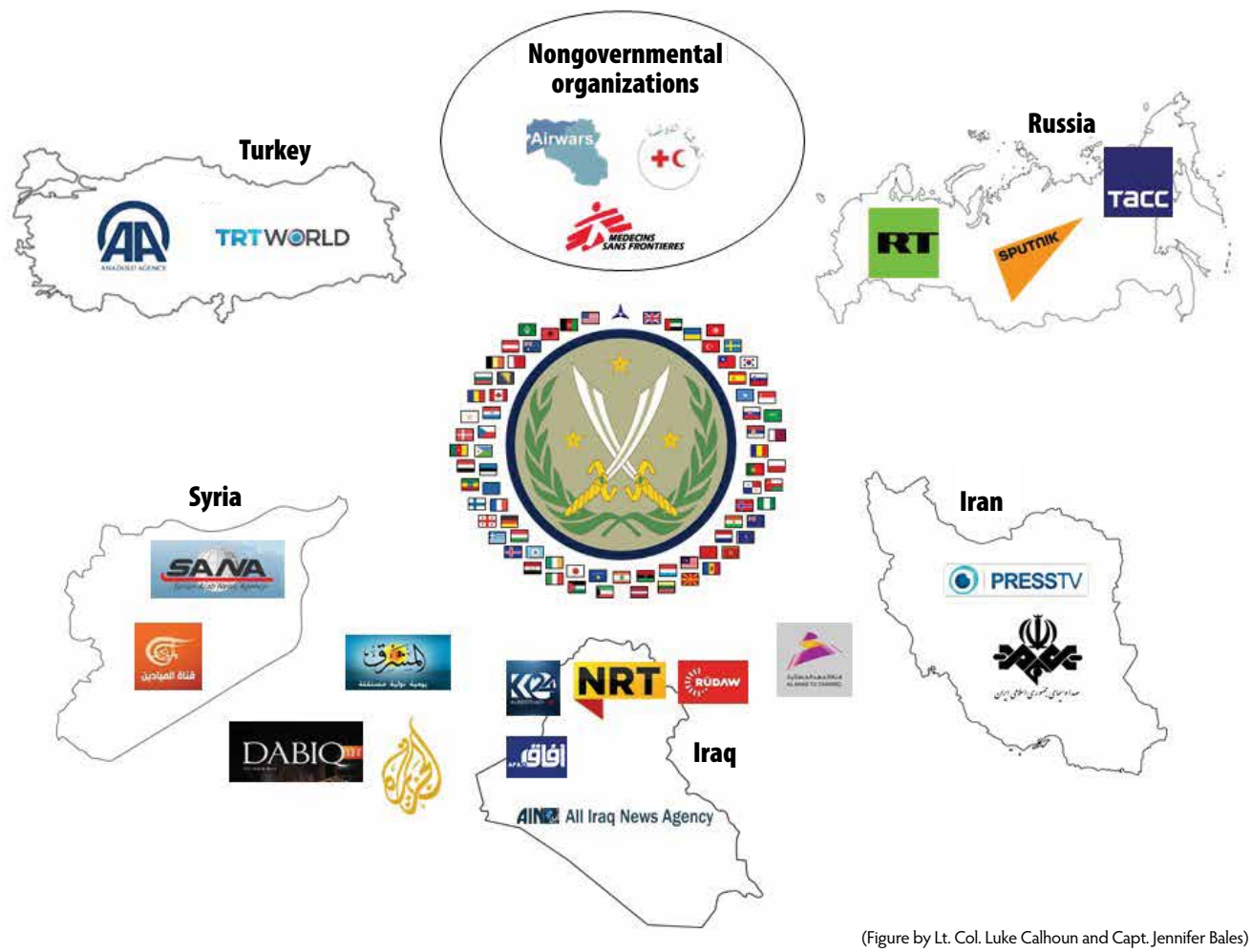
Our adversaries, competitors, and other actors attempt to shape media narratives through the overt and covert use of news and social media. These information operations do not always seek credibility. Instead, they aim to destabilize the target audience by creating uncertainty and fear, undermining “confidence in sources of knowledge” and the very notion of objective truth.[4] In Iraq and Syria, CJTF–OIR is in a content war with a

of advantage. Often they do this without concern for the consequences that their actions have regarding the norms of international behavior or vulnerable populations, much less the truth.

Performing on the Global Stage

Though a life and death struggle is infinitely more serious, some aspects of the conflict in Syria and Iraq, or any other significant international event, can be compared to a theatrical production in order to describe the competition for influence. But unlike most plays, this illustrative example is performed on the world stage, the actors are more often competing than cooperating, and each actor is working from a different script. As the play progresses, the actors are revising their scripts, sometimes alone and at other times collaboratively, in order to boost the importance of their roles, to define who they are in the larger story line, and to undercut or diminish the roles of other actors.

The performance of this play is viewed by each individual in the audience from his or her own perspective. Perspectives are molded by beliefs, preconceived notions, goals, and fears. In CJTF–OIR’s combined joint operating area (CJOA), audiences include the entirety of the populations of Syria and Iraq, composed of various religions and sects (Shi’a, Sunni, Christian, Alawite, Yazidi, and others), ethnic groups (Arab, Kurd, Turkmen, and others), and demographic factors (gender, age, economic status, and geography). Audiences also include key influencers such as political, military, or religious leaders, and mainstream and social media activists. In addition, the information environment for Iraq and Syria can also include audiences far beyond



(Figure by Lt. Col. Luke Calhoun and Capt. Jennifer Bales)

Figure 1. Competitive Platforms

the boundaries of the CJOA, such as U.S., regional state, and coalition national leaders, policy makers, members of the public in coalition and regional states (in fact public opinion itself can be seen as an audience), and family members of deployed coalition members.

Returning to the theatrical production analogy, some of the players on the stage that is Iraq and Syria may be considered malign actors, which we define as any individual, organization, or nation whose actions oppose or undermine the government of Iraq, Iraqi security forces, Syrian Democratic Forces, or the Syrian civil councils. Among the individual malign actors at play in this environment, the most prominent are Russian President Vladimir Putin; his deputy prime minister and presumed propaganda chief Vladislav Surkov; Iranian Revolutionary Guard Quds Force commander Qasem Soleimani; and Syrian President Bashar al-Assad.

Each of these regional and international actors leverages state-run or state-influenced media outlets that have decades of practice in saturating their respective audiences with propaganda designed to prop up their regimes, promote their agendas, and secure their power and influence both domestically and regionally. In the context of Operation Inherent Resolve, the result has been a deluge of inaccurate stories designed to fabricate and amplify coalition mistakes, minimize coalition contributions and successes, overstate the positive role of anticoalition forces in the fight against the Islamic State (IS) of Iraq and al-Sham, or simply spread conjecture to add to the opaque nature of the public's understanding of the conflict. The desire of these malign actors is to create ambiguity through the sowing of discord and confusion, and to turn the information environment—as it relates to this CJOA—into a de facto disruption zone in which

all information being disseminated is seen as equally suspect by audiences, thus negating the coalition's advantages of accuracy and truth.

The Information Disruption Zone

Our adversaries and competitors believe that dominating the information environment will lay the groundwork for victory. In a sense, their actions in the information environment are similar to the security zone described in the doctrine of the former Soviet Union.[5] This doctrine employed forces in front of the main defensive zone in part to sow discord and confusion. However, this information disruption zone has grown exponentially because adversaries and competitors have expanded the battlefield through the use of cyberspace, electronic warfare, and information weapons. According to Russian doctrine, information is a dangerous weapon: "It is cheap, it is a universal weapon, it has unlimited range, it is easily accessible and permeates all state borders without restrictions."[6] Our adversaries and competitors use the platforms of the free press, social media, and the open Internet to manipulate popular sentiment, offer alternative narratives to decision-makers looking to justify inaction, and pit rivals against one another (see figure 1, page 40).

The Firehose of Falsehoods

The above practices were seen as recently as 14 November 2017, when Russian state media published stories claiming coalition forces were deliberately allowing IS fighters to escape Albu Kamal, Syria. These stories included what was purported to be satellite imagery sourced to the Russian Ministry of Defense that appeared to show IS vehicles and equipment moving in convoy across the desert. It quickly emerged—within twenty-four hours of the initial stories—that the video "proof" was, in fact, a screen grab from a popular video game. However, the timely debunking of this Russian propaganda did not stop the Russian defense minister from claiming that their

On Twitter and Facebook posts dated 14 November 2017, the Russian Defence Ministry tried to pass off a still image (*above*) taken from the mobile phone military simulation game *AC-130 Gunship Simulator: Special Ops Squadron* as "irrefutable evidence" of cooperation between U.S. forces and Islamic State militants in Syria. The screenshot (*below*) is from the actual promo video for the military simulation game. The two images are identical except for the effort to slightly obscure vehicles in the Russian proferred image. The Defence Ministry also failed to crop out all of the text from the original video that read "DEVELOPMENT FOOTAGE. THIS IS A WORK IN PROGRESS. ALL CONTENT SUBJECT TO CHANGE." (Images from the Russian Defence Ministry and *AC-130 Gunship Simulator* respectively; see https://www.theguardian.com/world/2017/nov/14/russia-us-isis-syria-video-game-still.)

accusations of U.S. and coalition forces secretly aiding IS were true, even as he was forced to admit that this specific evidence had been falsified.[7]

The example above demonstrates that sometimes the best response is no response. Malign actors attempt (although this can vary according to which malign actor is being discussed) to throw so much mud that they obscure understanding by dragging others into a chaos of information uncertainty from which they benefit. They want to create an environment where regional and international audiences are suspect of all information. On an almost daily basis, much of the propaganda being injected into the information environment by malign actors has devolved into background noise, particularly allegations that the United States created and funded IS in order to justify its continued presence in Iraq and Syria, and charges that coalition forces are planning to form an army of occupation in both countries. For instance, an actor affiliated with the Assad regime asserted that "the claims of the United States and its so-called alliance about the liberation of Raqqa city from ISIS [were] lies aiming to divert international public opinion from the crimes committed by this alliance in Raqqa province."[8] These statements were highlighted by both Syrian regime and Russian media, and later amplified on social media.

Specific coalition or partner force actions can also be seized upon by malign actors looking to support their messaging in an attempt to gain some advantage. In late November 2017, a routine coalition vehicle movement into K-1 base, near Kirkuk, Iraq, was photographed and amplified in the media and on the internet sites by members of the Patriotic Union of Kurdistan Party as evidence that the coalition was supporting the Kurdistan regional government's claim to possess Kirkuk, possession of which was disputed by the government of Iraq. More than a day after it first circulated, the coalition spokesman denied the report and clarified the intent of the convoy. The delay in conveying the coalition's actual intentions and stance on this specific issue allowed the alternative narrative to gain traction. In this case, an actor leveraged benign, even routine, coalition activity to its advantage, which in turn degraded coalition progress in Iraq.[9]

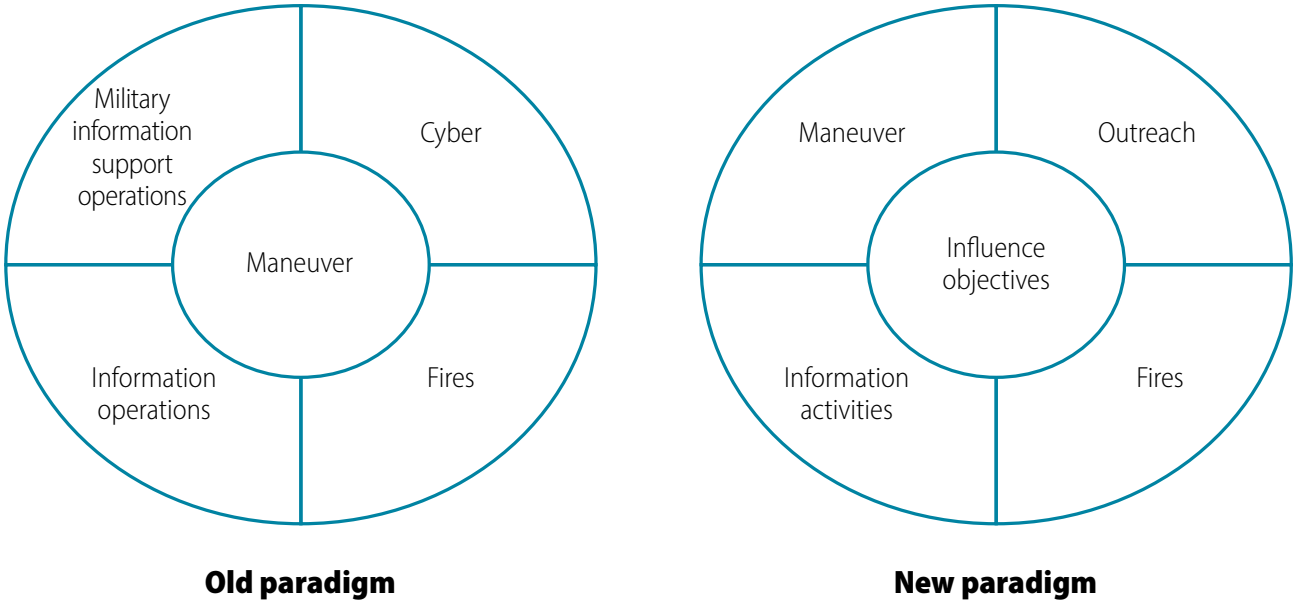
As we plan operations, even seemingly routine ones like the example above, we must factor in how these operations and their perception in the information environment will trigger responses from our competitors. These responses and our counters must be proactively war-gamed and rehearsed just like we would do for any essential task. This means that influence objectives should be the core of our plans. Planning focused on securing influence objectives through the arrangement of maneuver, fires, information activities, and outreach activities must become an integral part of both the military decision-making process and the joint operations planning process in order to successfully execute either offensive or defensive operations (see figure 2, page 43). At the core of this is the development of a strategic communications intent that will allow us to express how our actions, posture, presence, and information-related capabilities work together. Despite the skill of our planners, most of what we do will be dynamic as we react to unanticipated events. This requires agility in our ability to achieve horizontal and lateral coordination, and to gain permission to release.

The Unsocial Network

It is impossible to estimate the number of social media accounts, websites, or blogs associated with—if not actually controlled by—malign actors involved in Syria and Iraq, but it runs into the hundreds, if not thousands, of accounts. An indicator of the emphasis that other actors place on operations in the information environment can be gained from examining their efforts on Facebook, the most popular social media platform used by Iraqis, to spread fake news. There are tens of thousands of Facebook accounts in Iraq posting and amplifying fake news and comments derogatory to the coalition mission. The pro-Iranian Shi'a Popular Mobilization Forces group Kataib Hezbollah, for example has 11,245 Facebook and Twitter followers for its official social media pages (and dozens of associated accounts, both attributed and unattributed), its own news agency, and a satellite television channel. Another Iranian aligned Popular Mobilization Forces group, the Badr Organization, runs Alghadeer Television (a satellite and conventional TV news channel in Iraq), with associated Facebook and Twitter accounts that have 1.89 million followers.[10] Our competitors routinely use their social media platforms and other information infrastructure to saturate the information environment with false and damaging information faster than we can release truthful information.

At times, they do this simply as a diversionary tactic to obscure their own failures or missteps. They have this flexibility in part because of the lack of transparency in their own operations.

Almost all of the malign actors operating in the CJOA are tactically agile and have the advantage of knowing their audiences more intimately than coalition information operations planners. Their abilities should not be underestimated. However, they are not invincible. A well-prepared team across the spectrum of information-related capabilities, working together and in synchronization with maneuver and command elements, can forestall or counter adversary propaganda. An example of this occurred on 7 February 2018, when Syrian pro-regime forces suddenly began shelling Syrian Democratic Forces positions near Khusham, Syria, which prompted coalition forces to respond in self-defense. Within two hours, CJTF–OIR public affairs, in coordination with the unit on the ground, issued a news release entitled "Unprovoked attack by Syrian pro-regime forces prompts coalition defensive strikes."[11] The news release prompted a flood of media queries from around the world, and CJTF–OIR public affairs worked into the early morning to respond to queries with strategic messages and emphasized that the strike was in self-defense, that the pro-regime forces had initiated the firefight, and that CJTF–OIR was in communication with Russian officers in Syria the entire time as part of the deconfliction process. By responding quickly, truthfully, and decisively, CJTF–OIR succeeded in setting the agenda for the media coverage that followed. Even Russian news outlets were forced to lead their stories with the coalition narrative of events, before attempting to "spin" the official Russian messaging by claiming the coalition in Syria was supporting terrorists.[12]



(Figure by Lt. Col. Wilson C. Blythe, Jr.)

Figure 2. Planning Focused on Influence Objectives

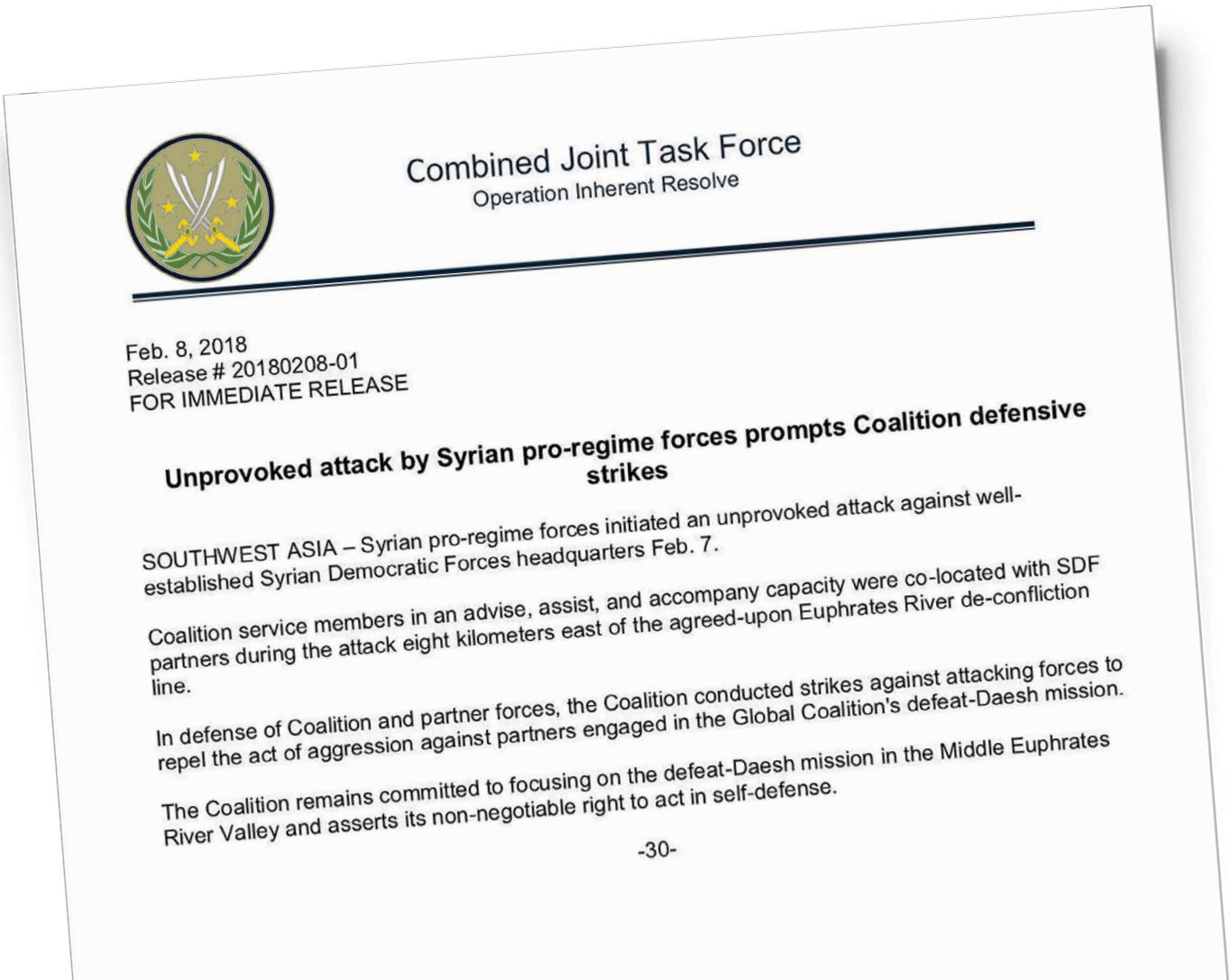
In the fall of 2017, a Turkish newspaper published a story accusing the United States of shipping weapons and deploying more than three thousand soldiers to Kirkuk, Iraq, an area of contention between Baghdad and the Kurdish regional government. The newspaper went on to claim that the troop buildup was a move by the Americans to support the referendum and ensure the creation of an independent Kurdish state.[13]

Despite an almost immediate denial by the coalition spokesman, the story was retweeted and

reposted by social media users across Iraq and Turkey—a coalition member nation and NATO ally. This demonstrates another limiting factor in countering malign propaganda in the information environment: even when a response is timely, it may not affect target audiences' susceptibility to malign messages. In many cases, by even responding to malign actors' claims, the coalition runs the risk of lending credence to their allegations. By denying these lies, we risk giving currency to them. In practical terms, any response may give additional life to the original propaganda, moving it back to the top of users' Facebook news feeds, for example.

Our partners in the Iraqi security forces have shown remarkable organizational adaptability in response to the demands of the competition for influence. In contrast to the Iraqi security forces, from the beginning, IS built its military operations around, and sometimes in support of their narrative and strategic communications. IS captured Mosul in part through the employment of a multifaceted influence campaign, which spread fear and terror amongst the Iraqi security forces and led to the submission of the residents of Mosul.[14]

The leaders of the Iraqi security forces, most of whom were not familiar with the power of social media, could not comprehend the impact that IS media was having on their frontline forces in 2014. Gruesome images and videos of IS beheadings and torture instilled fear and terror in the Iraqi security forces, prompting



Combined Joint Task Force
Operation Inherent Resolve

Feb. 8, 2018
Release # 20180208-01
FOR IMMEDIATE RELEASE

Unprovoked attack by Syrian pro-regime forces prompts Coalition defensive strikes

SOUTHWEST ASIA – Syrian pro-regime forces initiated an unprovoked attack against well-established Syrian Democratic Forces headquarters Feb. 7.

Coalition service members in an advise, assist, and accompany capacity were co-located with SDF partners during the attack eight kilometers east of the agreed-upon Euphrates River de-confliction line.

In defense of Coalition and partner forces, the Coalition conducted strikes against attacking forces to repel the act of aggression against partners engaged in the Global Coalition's defeat-Daesh mission.

The Coalition remains committed to focusing on the defeat-Daesh mission in the Middle Euphrates River Valley and asserts its non-negotiable right to act in self-defense.

-30-

Combined Joint Task Force–Operation Inherent Resolve public affairs issued this press release within two hours after a 7 February 2018 attack by Syrian pro-regime forces. Their rapid and truthful response enabled them to set the agenda for subsequent media coverage and negate the effectiveness of adversary propaganda.

them to abandon their positions and equipment. The coalition worked with the Iraqi Ministry of Defense Media Center and provided training and assistance to improve the Iraqi security forces' information-related capabilities and media content. Initially, it was a struggle to convince senior Iraqi leaders to support the efforts of the Ministry of Defense Media Center. However, senior Iraqi leaders eventually recognized the power of information, which led to the establishment of the War Media Cell in mid-2015. The War Media Cell became the hub of the Iraqi security forces' information operations and media enterprise. It coordinated the efforts of all components of the Iraqi security forces to achieve convergence. The War Media Cell's operations were synchronized with the Iraq Joint Operations Command and CJTF–OIR to ensure the coalition-wide convergence of nonlethal and lethal effects against IS, and it has been instrumental in the success of the Defeat-IS campaign.

How We Win

We must change our collective mindset; influence does not rest exclusively within the purview of information operations. Instead, wielding influence to achieve our objectives requires the convergence of capabilities across all domains. We must possess agility in the information operations realm so that we can exploit opportunities and keep up with changes both in the information environment and on the physical battlefield in order to effectively address unfolding events and adversary narratives, and ultimately achieve our influence objectives. To do this, we must leverage new media capabilities while defending against their employment counter to our interests, all while maintaining operations security. Conducting effective information operations can increase our options, at all levels, while reducing them for our adversaries and competitors.[15] Commanders need the flexibility to influence a broad set of target audiences and the means to coordinate faster between echelons, and within and between governments.

In order to achieve our desired effects in the information environment, the efforts of our partner organizations must be further synchronized with those of the rest of the Department of Defense and our interagency partners. This requires strategic communications guidance that defines the communications intent and provides guidance for planning to achieve the desired influence effect. In turn, this facilitates the timely and agile synchronization and execution of fires, maneuver, information activities, and engagements within the commander's intent. In addition, strategic communications provide a framework to enable mission command and unity of effort. Effective strategic communications are an essential mechanism for aligning influence activities both horizontally and vertically. The Army's role in support of a U.S. whole-of-government strategy to counter malign activities in the information environment requires greater clarity along with synchronization between Army doctrine and concepts that adequately describe its role in today's contested information environment.

The coordination and synchronization of all information-related capabilities across the information environment is critical to the successful monitoring, assessing, and countering of the propaganda output of malign actors and achieving timely effects across the spectrum of capabilities. We must also ensure consistency in the messages contained in public affairs news releases, spokesman statements, key leader engagements, web operations, psychological operations, and cyber products. This is not only true for the military but also for the interagency. At a minimum, U.S. government messages must reinforce each other. Without integrated strategic communications, we cannot exert influence.

Rather than attempting to directly counter hostile propaganda, our aim should be to counter its effect. We cannot and should not engage in a tit-for-tat competition with, for instance, Russian propaganda. The sheer volume of propaganda produced by the Russian system—aptly called a "firehose of falsehood"—makes matching their output a difficult, if not impossible, task. Instead, the best method of reducing the impact of hostile propaganda is to make the target audience less susceptible by offering them the truth, either from us or from credible voices within the region or the coalition.[16]

Our commanders need the flexibility to engage relevant target audiences with information-related capabilities. Commanders should be able to shape the battle of perceptions with messaging long before the decisive action. The supported commander is often best positioned to adjudicate gains and losses and to determine release. The authority to authorize

such nonlethal targeting should rest with the commander on the ground. When we go silent, we cede influence to other actors.

The targeting process is designed for, and therefore tends to favor, kinetic weapons. However, it should focus on desired effects rather than which system to employ. The first question asked in developing a target needs to be, "What effect do we want to achieve?" rather than an assumption that it will involve munitions. Effects generated by information operations should be considered for all targets, no matter how kinetic they may initially seem. An effect of "destroy" on an enemy battle position for example, could be amplified by information operations that use gun camera footage to demoralize other enemy battle positions in the same area with a leaflet, radio message, or social media post to the effect of, "This is what is in store for you."

To achieve the required influence effects, targeteers need to integrate all of the information related capabilities—public affairs, military information support operations, cyber/web operations, cyber electromagnetic activities, key leader engagements, and counterpropaganda, as well as information operations plans, strategic communications, future operations and current operations—throughout the targeting process from the beginning. Planning for these information-related capabilities must become an organic part of the target development working group and the joint target coordination board in order to synchronize the effects of fires, maneuver, and information operations to achieve the commander's intent.

In many cases, key leader engagements will be an important lever for influencing partner forces and governments, and to facilitate the flow of information between the coalition and our partners. Joint task force staffs need to be structured or augmented to adequately fulfill this critical targeting role.

CJTF–OIR has operationalized this approach by putting strategic communications in the lead in order to define the commander's intent and the key messages—the information and perception that we wish to convey. Information operations, maneuver, fires, and outreach activities can then operate within that intent to influence the target audience. We have institutionalized a joint effects coordination board, which brings together all effects for synchronization under a single joint effects coordinator within the CJ-3 (operations) to develop targets from the beginning using a full-spectrum approach and understanding of how desired effects can be achieved using the full suite of available kinetic and nonkinetic assets. The CJ-34 (fires) and CJ-39 (information operations) cannot be separated at the planning and synchronization stage. In delivery and execution, the branches can be separated; however, their efforts must remain synchronized. There is still work to be done to achieve a full-spectrum targeting approach to accomplish influence objectives, but we are heading in the right direction.

Way Ahead

The U.S. military must change its mindset in order to put influence objectives at the heart of its planning and operations. The information environment is an inherent part of today's battlefields. As such, the successful execution of combat operations no longer guarantees the achievement of campaign objectives. The requirements for successful information operations are already familiar—mission command, synchronization, agility, tempo, integrated planning, and acceptance of defined levels of risk—because we use similar principles to fight in the information environment as we do to fight in other domains. Failure to execute operations in this manner will result in victories on the physical battlefield negated or even reversed by misinformation or disinformation and a resulting perception of illegitimacy planted by adversaries and competitors who employ information-psychological warfare in contested environments in order to gain strategic advantage. By influencing actions better than our competitors, we are able to achieve our objectives with greater efficiency and preserve options for policy makers. If we allow ourselves to be outmaneuvered in the competition for influence, our victories on the twenty-first century's physical battlefields will be fleeting, and our policy makers' options will be limited. ■

Authors' note: We would like to thank Lt. Col. Matthew Brocklesby, British Army; Lt. Col. John Mark Wilson; Maj. Christopher Wattie, Canadian Army; Capt. Jennifer Bales; and Capt. Abdulla Mizead for their considerable assistance with this article.

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Symphony or Jazz
Mission-Planning Timelines

Capt. Victoria Hulm, U.S. Army

Late in the day on 5 April 2003, Col. David Perkins received the order from the 3rd Infantry Division commanding general: his 2nd Brigade Combat Team (BCT) would conduct a limited objective attack into the center of Baghdad in two days.[1] Less than twenty hours later, Perkins briefed his battalion commanders and published an order consisting of four sparse pages.[2] About thirty hours after receiving the order, 2nd BCT began movement toward the center of Baghdad in one of the last large-scale offensive operations against an enemy conventional force that any U.S. brigade has conducted.[3] On 10 April, the Ba'athist regime and its military collapsed.[4] Many years later, Perkins equated the deliberate, detailed orders briefed at career courses to practicing scales on an instrument, while the smooth synergy 2nd BCT displayed over those days in April 2003 was the military equivalent of playing jazz.[5]

The newly published Field Manual 3-0, *Operations,* refocuses the U.S. Army on large-scale combat operations and claims those operations will be "much more demanding in terms of operational tempo" when compared to the Army's experiences in Iraq and Afghanistan.[6] However, doctrine does not provide any concrete references on how much operational tempo will change. This research is intended to fill that gap and provide the Army a quantifiable reference point to assess tempo. Specifically, this article attempts to answer this question: Historically, how much time do

brigade or equivalent staffs have to plan ground offensives in large-scale combat operations? To do this, the author examined the time between a division order and brigade departure in sixty-seven cases from World War II, the Korean War, and the 2003 invasion of Iraq.

Based on the limited data available to this author, the multiple days allowed for offensive planning at the National Training Center (NTC) dwarfs the historical average of fifteen hours.[7] To continue the metaphor, the tempo of historical combat operations demands a unit that can play jazz, but our training centers allow brigades the time to compose a symphony of precise synchronization. This article proceeds in three parts: an extended methodology, a descriptive discussion of the results, and a conclusion with recommendations for training modifications and for future study.

Methodology

This section discusses the screening criteria used to select comparable historical cases, the method by which each case was processed to limit error, and the sources of error and uncertainty that inevitably persist in the results.

Case screening. Military operations are necessarily diverse, which inhibits comparison among them. The screening criteria used here limit the data set to operations that are reasonably similar to one another to maximize the predictive value of analyzing them as a group. The conflicts chosen were limited to U.S. large-scale combat operations where the predominant form of transportation was motorized and mechanized vehicles. This research only used U.S. operations to minimize the impact of culture and divergent operational thought on the data. Arguably, the U.S. Army in World War II had a very different culture than the U.S. Army today, but that distinction remains smaller than the difference between the United States and Germany or Israel, for example. Removing foreign case studies presented the simplest option for limiting the influence of cultural factors.

Within U.S. conflicts, this research selected only large-scale combat operations with a conventional threat that occurred after motorized and mechanized vehicles replaced the horse as the primary means of ground transportation. Crisis responses and limited contingency operations (e.g., the 1983 invasion of Grenada) are influenced by a plethora of nonmilitary factors that make a comparison to large-scale combat operations unreasonable. Although arguably large scale, this research also eschews counterinsurgency operations as they do not reflect the exigencies a conventional military adversary poses. Finally, the advent of motorized and mechanized vehicles as the dominant mechanism for ground movement and maneuver represented a revolutionary change in the operational tempo possible. Although technology has continued to improve, this article assumes that the tempo possible in World War II somewhat resembles the tempo possible today, while all prior conflicts are rejected as too dissimilar.[8]

Thus screened by conflict, the cases are further restricted to orders within a campaign, not orders beginning a campaign. Initial orders, or orders bringing a unit into theater, do not have a discernible starting point; planning may have begun months or years prior to the operation. While planning prior to start of operations may support subsequent orders, this research limited cases to operations where the mission was not known prior to entering the theater, so the military decision-making process (MDMP) or its historical equivalent had to be conducted where contact with the enemy was possible if not continuous.

Finally, the operations used were only ground offensives. Clearly, administrative and movement orders that do not anticipate contact with the enemy do not demand a similar level of planning. By definition, the enemy (the attacking force) has the initiative during defensive operations, and planning only

Previous page: U.S. Army Materiel Command band members (*from left*) Spc. Andrew Webb, Sgt. Clint Brandeu, Sgt. Paul Scherer, and Spc. Michael McGinn perform at Redstone Arsenal's 75th Anniversary and Armed Forces Celebration Week 28 June 2016 with a multimedia performance at Huntsville High School, Huntsville, Alabama. (Photo by Sgt. Eben Boothby, U.S. Army)

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truly ceases for the defenders when the enemy makes contact.[9] Stability operations, even in the rear area of a conventional conflict, do not provide comparable data since planning is essentially continuous and because maneuver occurs almost exclusively below the brigade level. Finally, offensive operations involving air assault, airborne, or landing operations require specialized planning and thus are not comparable to operations that are more mundane.

After winnowing all of the possible data, this research covers World War II, the Korean War, and the 2003 invasion of Iraq. Almost all of the World War II data is from the European theater, since research for this study only yielded one usable data point from Northern Africa. The invasion of Iraq referenced here only extends through 10 April 2003, after which Saddam Hussein's regime collapsed and no conventional threat remained. The Pacific theater of World War II and the Vietnam War include comparatively few cases that fit the above constraints, thus research effort was concentrated elsewhere. Finally, ground offensive operations in Operation Desert Storm did not substantially extend beyond the initial order and thus did not provide any usable cases for this research.[10]

Data processing. Within the operations selected, this research examined instances of mission planning to determine their length. The division order begins mission planning, and the departure of the first main body element marks the end of planning time available. When both verbal and written orders were given, the earliest time was used to reflect the earliest time the staff could have begun planning. Doctrinally, reconnaissance forces depart prior to planning completion, so their movement did not impact departure times in this research.[11] Sources often left the line of departure unclear, and sometimes movement occurred to another assembly area or attack position prior to actually launching the offensive. In almost all cases, the start of movement was considered departure. Departure was only determined to be after an initial movement when the source clearly indicated that planning or orders publication occurred at a subsequent assembly area. Since divisions command multiple brigade-size elements, a single division order usually covered multiple units. Each brigade-size element represented a separate data point, even when the division dictated a synchronized attack, so multiple brigades had the same order and departure times.

Table 1. Standard Times for Common Descriptions

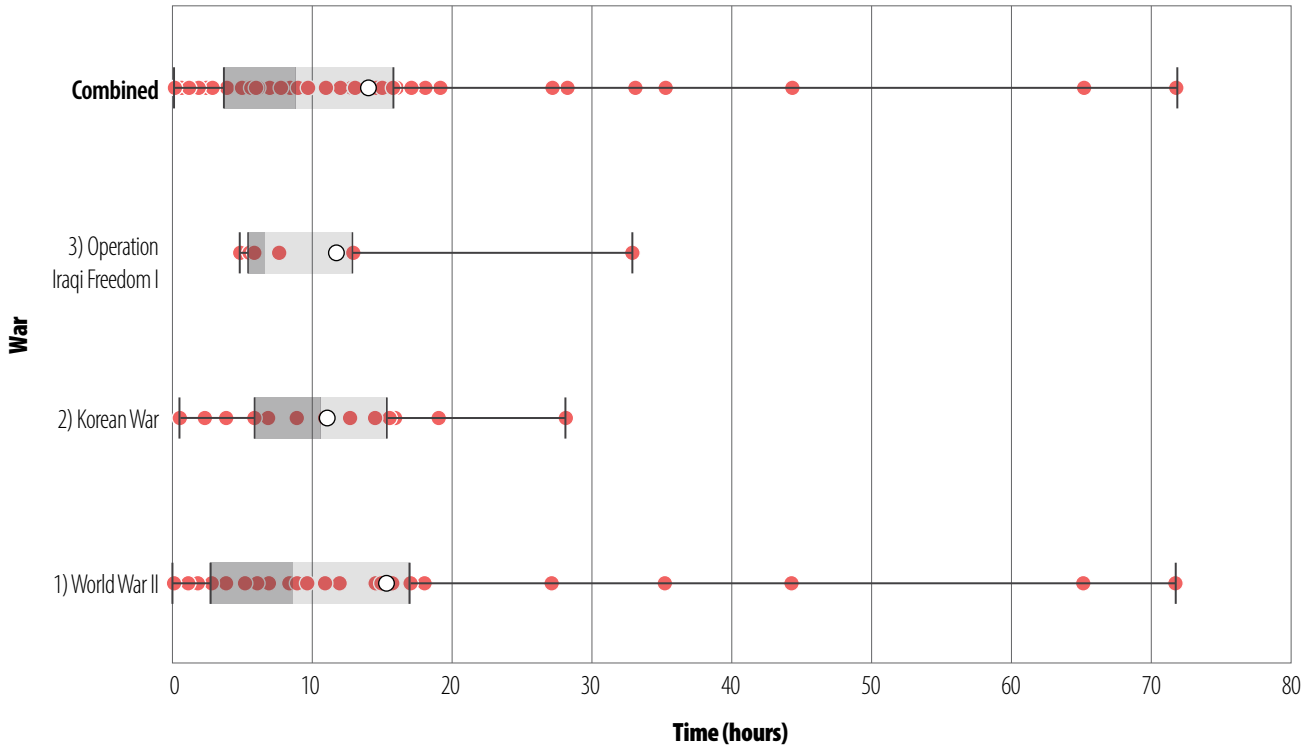
Before morning	0300
Early	0600
Morning	0800
Afternoon	1500
Late afternoon	1600
Late evening	1800
Night	2400/0000

(Table by author)

Historical evolution of naming conventions and extensive task organization changes in World War II and the Korean War muddle recognition of brigade-size elements.[12] For this research, a brigade is defined as a command incorporating two or more maneuver battalions. That definition applied to elements titled brigade, regiment, task force, or combat command. Accordingly, the "division order" may not come directly from a division headquarters but rather may filter through a regiment or other intermediate headquarters. The order time used here is always the time the unit received the order if different from the time the division issued it.

Uncertainty and error. Documentation of military conflict necessarily includes some uncertainty. Data points were only included if the source text referenced the time, not just the date, either explicitly or by relation to other events. An order date without an associated time was only accepted when the total period (order to departure) exceeded twenty-four hours. Considering that orders in these cases were most likely published during the day (between 0600 and 1800 hrs.), estimating the order time as 1200 restricted the possible error to six hours. In this way, all data points had a possible estimation error of 25 percent or less of their duration.

Just over half of the data points used had some uncertainty associated with the order time, and a quarter had uncertain departure times. Commonly, the uncertainty stemmed from a descriptive reference to



(Figure by author)

Figure. Box-and-Whisker Chart of Planning by Conflict

time rather than listing the hour (e.g., "morning," "late afternoon," "night," etc.). To mitigate this, the author established a standard for common descriptions (see table 1, on page 50). When the description referenced light data (e.g., "at sunset"), the author used historical light data to approximate the hour.

The data available that met selection standards and the methods used to approximate uncertain times resulted in a level of random error. This research differs from similar efforts primarily because it uses a large sample size to mitigate the influences of random error. However, it is not an exhaustive examination of the historical record.[13] These data, therefore, may have a selection bias, but the direction and magnitude of that bias is currently unknown.

In addition to the random error, the complexities of human interactions insert systematic error. The research methods used here assume no parallel planning occurred, but in reality, commanders often communicate informally about the next operation enabling staffs to begin mission analysis prior to the order. Furthermore, initial planning and preparation before arriving in theater or during periods of reconsolidation often support planning for later operations. None of this time is accounted for in the data presented. However, BCTs in a combat training center (CTC) rotation have similar opportunities for preparation and parallel planning that are not incorporated in that measured timeline either. This error can be assumed to be approximately equal between training and historical cases. Thus, the relative results remain valid.

Results

The figure displays the historical results as a box-and-whisker chart by war. The top line shows the combination of all the data points. The shaded box on each data line demarcates the second and third quartiles with the line between the two levels of shading marking the median. The colored dots annotate all of the data points while the big white dot represents the mean. In total, sixty-seven data points are represented with six from Operation Iraqi Freedom (OIF) I, thirteen from the Korean War, and forty-eight from

World War II (see table 2 for summarized figures and table 3, pages 54–57, for complete data).

World War II engendered the greatest quantity of available data and displayed the greatest variation. However, the means of all three conflicts are remarkably similar (12.71, 12.22, and 16.19 respectively). As they occurred only five years apart, the technological similarity between World War II and the Korean War corroborates that their tempo should also be similar. Yet Korea and western Europe represent dramatically different terrain, so this data indicates that terrain may not substantially influence operational tempo. Furthermore, the consistency reinforces the idea that past experience may correlate to future experience.

The data set from the 2003 invasion of Iraq (OIF) is simply too small to draw many conclusions, but it remains significant, as OIF was the first and only large-scale combat operation to employ digital battle command systems (e.g., Blue Force Tracking systems). While enormous technological changes have occurred since the Korean War, digital battle command systems represent the greatest paradigm shift in mission planning. The data from Iraq strongly support the conclusion that these systems do not make mission planning longer on average, but it remains unclear whether battle command systems actually increase operational tempo.

All of the data studied here averages to 15.1 hours between division order and brigade main body departure. Applying the "one-third–two-thirds rule" that a brigade staff should not use more than one-third of the time available for its own planning, brigades should be completing MDMP in five hours.[14] Following the same logic, battalions should be completing MDMP in approximately three hours and twenty minutes. The reader should also note the handful of data points wherein the brigade had to depart in under two hours, leaving only minutes to plan.

Table 2. Summarized Results

	Quantity data points	Mean	Median	Minimum	Maximum
World War II	48	16.19	9.75	1.33	72.00
Korean War	13	12.22	12.00	1.75	29.00
Operation Iraqi Freedom	6	12.71	7.88	6.75	33.77
Combined	**67**	**15.10**	**10.00**	**1.33**	**72.00**

(Table by author)

This research did not analyze when brigades actually produced orders, and thus the author will refrain from making any conclusions on the topic. However, the author generally observed that shorter timelines led to less relative brigade planning. For instance, an after action report from the 36th Armored Regiment in World War II reads, "22 December 1944. At 0445 hrs, CO, Combat Command 'R' returned from Div and issued orders for an attack at 0900 this date."[15] Given only 4.25 hours, the commander issued his orders without taking any additional time to plan, whereas then Col. Perkins in the introductory anecdote used approximately nineteen of his thirty-four hours (55 percent of the available time) for brigade planning.[16] These examples are not given to judge the commanders involved or show a change in planning over time, but rather they simply reinforce that the "one-third–two-thirds rule" is only a rule of thumb that may not be evenly applicable to very short or quite long time scales. Similarly, the

Members of the Tennessee Army National Guard's 1st Squadron, 278th Armored Cavalry Regiment, out of Knoxville, Tennessee, formulate a plan of action to move forward toward opposing forces 12 May 2018 during a predeployment exercise at the National Training Center, Fort Irwin, California. (Photo by Sgt. Sarah Kirby, U.S. Army)

author could not conclusively assess the quality or level of detail available in the division orders. Some appear to have been merely a meeting between division and brigade commanders, either by radio or in person.

The NTC provided the author only one example from a training rotation that showed the BCT in question had eighty-seven hours between division order and main body departure and used fifty-eight of those hours for brigade planning.[17] One data point certainly cannot confirm a trend, yet the mere fact that a presumably typical planning timeline exceeded the longest historical example and was almost six times the historical average indicates that training scenarios do not adequately reflect the time constraints of combat.

Conclusion and Recommendations

ADRP 5-0, *The Operations Process,* acknowledges "taking more time to plan often results in greater synchronization" just before pointing out that taking too much time may yield the initiative.[18] Army doctrine demands units seize, retain, and exploit the initiative, so yielding that initiative in exchange for greater synchronization must be an unacceptable tradeoff.[19] The results show that our most sophisticated training scenarios provide unrealistically long planning timelines. Presumably, the increased time does lead to greater synchronization. Therefore, in execution, all elements in the brigade benefit from that synchronization.

In essence, our brigades train as if they are symphony orchestras with each instrument following their own sheet of music telling them when and how to come in and when to fade into the background. In combat, those symphony orchestras have to become jazz bands that can harmonize in the middle of the music. Perhaps in the initial stages of home-station training, highly synchronized plans are necessary to establish a level of competence while limiting risk. However, at a brigade's last performance before combat, they should be playing jazz not orchestrating a symphony.

Table 3. Complete Data

Conflict	Division	Brigade	Order (date/time)	Departure (date/time)	Order unclear	Departure unclear	Time available	Citation
1) WWII	9th Infantry	47th Infantry	3/27/43 16:00	3/28/43 5:00	N	Y	13.0	Headquarters 9th Infantry Division, "Report on Operation Conducted by 9th Infantry Division, United States Army, Southern Tunisia," 26 March - 8 April 1943, 33 and 14.
1) WWII	9th Infantry	47th Infantry	4/20/43 12:00	4/23/43 5:30	Y	N	65.5	Ibid., 86 and 64.
1) WWII	9th Infantry	39th Infantry	4/20/43 12:00	4/23/43 5:30	Y	N	65.5	Ibid.
1) WWII	9th Infantry	60th Infantry	4/20/43 12:00	4/23/43 5:30	Y	N	65.5	Ibid.
1) WWII	9th Infantry	47th Infantry	5/5/43 20:00	5/6/43 6:00	N	Y	10.0	Ibid., 97 and 71.
1) WWII	2nd Armored	CCA	7/21/43 18:00	7/22/43 6:00	Y	N	12.0	Headquarters 2nd Armored Division, "Historical Record - Operations of U.S. Second Armored Division (Kool Force)," 22 April - 25 July 1943, 8–9.
1) WWII	5th Armored	CCA	8/2/44 11:00	8/2/44 16:00	N	Y	5.0	Vic Hillery and Emerson Hurley, *Paths of Armor: The Fifth Armored Division in World War II*, (Battery Press, 1986), 46–47.
1) WWII	5th Armored	CCB	8/2/44 11:00	8/2/44 16:00	N	Y	5.0	Ibid.
1) WWII	5th Armored	CCA	8/6/44 14:30	8/7/44 0:00	N	Y	9.5	Ibid., 50.
1) WWII	5th Armored	CCB	8/6/44 14:30	8/7/44 0:00	N	Y	9.5	Ibid.
1) WWII	28th Infantry	Task Force A	8/9/44 17:00	8/10/44 3:00	N	N	10.0	Headquarters 66th Armored Regiment, AAR #586U, "After Action Report 66th Armd Regiment 2nd Armored Division," August 1944 - May 1945, 9.
1) WWII	5th Armored	CCA	8/9/44 17:40	8/9/44 20:00	N	N	2.3	Hillery and Hurley, *Paths of Armor*, 57–58.
1) WWII	5th Armored	CCB	8/9/44 17:40	8/10/44 0:00	N	N	6.3	Ibid.
1) WWII	5th Armored	CCA	8/11/44 19:45	8/12/44 6:30	N	Y	10.8	Ibid.
1) WWII	5th Armored	CCR	8/11/44 19:45	8/12/44 6:30	N	Y	10.8	Ibid.
1) WWII	5th Armored	CCA	8/14/44 22:00	8/15/44 16:00	N	N	18.0	Ibid., 66–68.
1) WWII	5th Armored	CCB	8/14/44 22:00	8/15/44 16:00	N	N	18.0	Ibid.
1) WWII	5th Armored	CCR	8/14/44 22:00	8/15/44 16:00	N	N	18.0	Ibid.
1) WWII	5th Armored	CCA	8/18/44 8:00	8/18/44 12:00	Y	N	4.0	Ibid., 72.
1) WWII	5th Armored	CCB	8/18/44 8:00	8/18/44 12:00	Y	N	4.0	Ibid.

(Table by author)

Table 3. Complete Data (continued)

Conflict	Division	Brigade	Order (date/time)	Departure (date/time)	Order unclear	Departure unclear	Time available	Citation
1) WWII	5th Armored	CCA	8/20/44 0:00	8/20/44 9:30	Y	N	9.5	Ibid., 75.
1) WWII	5th Armored	CCB	8/20/44 0:00	8/20/44 9:30	Y	N	9.5	Ibid.
1) WWII	5th Armored	CCA	9/13/44 12:00	9/13/44 15:00	Y	N	3.0	Ibid., 117.
1) WWII	5th Armored	CCB	9/13/44 12:00	9/13/44 15:00	Y	N	3.0	Ibid.
1) WWII	5th Armored	CCR	9/13/44 12:00	9/13/44 15:00	Y	N	3.0	Ibid.
1) WWII	5th Armored	CCR	9/13/44 19:25	9/14/44 11:00	Y	N	15.6	Ibid., 117–8.
1) WWII	5th Armored	CCB	9/16/44 8:00	9/16/44 16:00	Y	Y	8.0	Ibid., 121.
1) WWII	3rd Armored	36th Infantry	12/7/44 7:30	12/10/44 7:30	Y	N	72.0	Headquarters 36th Armored Regiment, AAR# 379-U, "After Action Report 36th Armored Inf. Regt. 3rd Armored Division", November 1944 - April 1945, 21–22.
1) WWII	3rd Armored	CCR	12/22/44 4:45	12/22/44 9:00	N	N	4.2	Ibid., 26.
1) WWII	5th Armored	CCA	1/28/45 12:00	1/30/45 0:00	Y	Y	36.0	Hillery and Hurley, *Paths of Armor*, 219.
1) WWII	5th Armored	CCB	2/25/45 8:00	2/26/45 12:00	Y	N	28.0	Ibid., 224.
1) WWII	3rd Armored	CCR	2/25/45 9:35	2/27/45 6:30	N	Y	44.9	"After Action Report 36th Armored Inf. Regt.," 68–70.
1) WWII	3rd Armored	CCB	2/25/45 9:35	2/27/45 6:30	N	Y	44.9	Ibid.
1) WWII	5th Armored	CCA	2/28/45 12:00	3/1/45 7:10	Y	N	19.2	Hillery and Hurley, *Paths of Armor*, 234.
1) WWII	3rd Armored	Task Force Richardson	3/20/45 13:00	3/21/45 6:00	Y	N	17.0	"After Action Report 36th Armored Inf. Regt.," 83–84.
1) WWII	3rd Armored	CCB	4/5/45 8:15	4/5/45 12:00	N	N	3.8	Ibid., 98–99.
1) WWII	3rd Armored	CCA	4/5/45 8:15	4/5/45 12:20	N	N	4.1	Ibid.
1) WWII	3rd Armored	CCR	4/7/45 16:00	4/8/45 11:00	N	N	19.0	Ibid., 100.
1) WWII	3rd Armored	CCR	4/8/45 22:00	4/9/45 0:00	N	N	2.0	Ibid., 100–1.
1) WWII	3rd Armored	Task Force Hogan	4/9/45 14:40	4/9/45 16:00	N	N	1.3	Ibid., 102.
1) WWII	3rd Armored	Task Force Hogan	4/10/45 22:50	4/11/45 6:00	N	N	7.2	Ibid., 103–4.
1) WWII	3rd Armored	Task Force Richardson	4/10/45 22:50	4/11/45 6:00	N	N	7.2	Ibid.
1) WWII	3rd Armored	Task Force Hogan	4/11/45 15:00	4/12/45 7:44	Y	N	16.7	Ibid., 105.

(Table by author)

Table 3. Complete Data (continued)

Conflict	Division	Brigade	Order (date/time)	Departure (date/time)	Order unclear	Departure unclear	Time available	Citation
1) WWII	3rd Armored	Task Force Richardson	4/11/45 15:00	4/12/45 7:00	Y	N	16.0	Ibid.
1) WWII	3rd Armored	Task Force Richardson	4/12/45 18:00	4/13/45 4:00	Y	N	10.0	Ibid., 106.
1) WWII	3rd Armored	Task Force Richardson	4/15/45 13:00	4/15/45 16:15	N	N	3.2	Ibid., 105.
1) WWII	3rd Armored	Task Force Richardson	4/17/45 10:00	4/17/45 14:00	N	N	4.0	Ibid., 112.
1) WWII	3rd Armored	Task Force Hogan	4/19/45 11:00	4/19/45 13:15	N	N	2.3	Ibid., 115
2) Korean War	8th Army	27th Infantry Regiment	8/18/50 8:00	8/18/50 13:00	Y	N	5.0	Roy E. Appleman, *South to the Naktong, North to the Yalu* (Washington, DC: U.S. Government Printing Office, 1961), 354–55.
2) Korean War	1st Cavalry	23rd Infantry Regiment	8/23/50 0:00	8/23/50 6:00	Y	Y	6.0	Ibid., 361–62.
2) Korean War	25th Division	24th Infantry	9/2/50 14:45	9/2/50 16:30	N	N	1.8	Ibid., 480.
2) Korean War	2nd Division	5th Marines	9/2/50 16:00	9/3/50 8:55	Y	N	16.9	Ibid., 462–64.
2) Korean War	1st Cavalry	7th Cavalry	9/21/50 0:00	9/21/50 8:00	N	Y	8.0	Ibid., 566.
2) Korean War	1st Cavalry	Task Force 777	9/21/50 3:00	9/22/50 8:00	Y	N	29.0	Ibid., 589–91.
2) Korean War	25th Division	27th Infantry Regiment	9/23/50 12:00	9/24/50 8:00	Y	Y	20.0	Ibid., 574.
2) Korean War	1st Marine Division	5th Marines	9/23/50 22:00	9/24/50 8:00	N	Y	10.0	Ibid., 526.
2) Korean War	7th Division	32nd Infantry	9/24/50 14:00	9/25/50 6:30	N	N	16.5	Ibid., 528–30.
2) Korean War	1st Cavalry	Task Force 777	9/26/50 8:00	9/26/50 11:30	Y	N	3.5	Ibid., 593.
2) Korean War	1st Cavalry	7th Cavalry	10/17/50 17:00	10/18/50 6:45	Y	N	13.8	Ibid., 647.
2) Korean War	1st Cavalry	5th Cavalry	10/18/50 17:00	10/19/50 5:00	Y	N	12.0	Ibid., 648.
2) Korean War	24th Division	21st Infantry	11/4/50 16:30	11/5/50 8:00	N	Y	15.5	Ibid., 711–12.

(Table by author)

Table 3. Complete Data (continued)

Conflict	Division	Brigade	Order (date/time)	Departure (date/time)	Order unclear	Departure unclear	Time available	Citation
3) OIF I	3rd Infantry	1 BCT	3/24/03 18:00	3/25/03 0:00	Y	N	6.0	Gregory Fontenot, E. J. Degen, and David Tohn, *On Point: United States Army in Operation Iraqi Freedom* (Fort Leavenworth, KS: Combat Studies Institute Press, 2004), 196–98.
3) OIF I	3rd Infantry	3 BCT	3/31/03 17:15	4/1/03 0:00	Y	N	6.8	Ibid., 282–86.
3) OIF I	3rd Infantry	1 BCT	3/31/03 17:15	4/1/03 2:00	Y	N	8.8	Ibid.
3) OIF I	3rd Infantry	1 BCT	4/3/03 8:00	4/3/03 15:00	Y	N	7.0	Ibid., 300–2.
3) OIF I	3rd Infantry	2 BCT	4/4/03 16:00	4/5/03 6:00	N	N	14.0	Anthony Carlson, "Thunder Run in Baghdad, 2003," in *Mission Command in the 21st Century: Empowering to Win in a Complex World*, ed. Nathan K. Finney and Jonathan P. Klug, (Fort Leavenworth, KS: The Army Press, 2016), 95–96.
3) OIF I	3rd Infantry	2 BCT	4/5/03 18:00	4/7/03 3:46	Y	N	33.8	Carlson, "Thunder Run in Baghdad, 2003," 97; Jim Lacey, *Takedown: The 3rd Infantry Division's Twenty-One Day Assault on Baghdad* (Annapolis, MD: Naval Institute Press, 2007), 238.

(Table by author)

Late in 2002, the 3rd Infantry Division deployed to Kuwait where they conducted months of intense maneuver and live-fire training in preparation for the impending invasion. Perkins later reflected that mission command "requires a lot of training" and "a lot of dialogue between commanders" to gain "common visualizations," and the time his brigade spent in Kuwait proved invaluable if not necessary for the tempo of combat they experienced while invading Iraq.[20] Common visualizations allow a commander to give minimal guidance yet share an understanding with his or her subordinates of how that mission will be executed. Since many BCTs can only train as a brigade at a CTC, that time may not be sufficient to develop the common visualizations needed for "jazz." NTC claims in its mission to prepare units for combat, yet this research undermines the conclusion that a CTC rotation is sufficient to prepare a brigade for the tempo of large-scale offensive operations. So how much more time would a BCT need to be truly ready for an impending conflict?

More training would streamline a given staff or unit but cannot be considered a panacea. Aside from the impracticalities of brigades spending more time at CTCs in peacetime or having the opportunity to train specifically for an expected conflict, turnover and battlefield attrition inevitably disrupt the most efficient teams. As discussed above, rapid planning is not merely the same steps done faster but should be considered qualitatively different. Current doctrine is agnostic towards time, allowing planning processes to adjust the level of detail to the time available. Simply requiring training exercises with less time available (e.g., departure on a movement to contact required within ten hours of the division order) would catalyze adaptations to streamline MDMP and build confidence when facing the ambiguity associated with rapid planning.

The skills and events associated with developing highly detailed plans and preparations—the "symphonies"—cannot be abandoned. Indeed, they should retain a prominent place in the American way of war. Operations

A Georgia National Guard soldier from the 48th Infantry Brigade Combat Team prepares a sand table in a field environment 12 May 2018 during Joint Readiness Training Center (JRTC) rotation 18-07 in Fort Polk, Louisiana. (Photo by JRTC Operations Group Public Affairs)

like Desert Storm and Overlord relied upon such careful orchestration, as do many specialized operations such as those associated with airborne and air assault missions that this research did not study. Rather, staffs at all echelons should recognize that future operations are likely to require rapid planning—"jazz"—more often than detailed planning and should train accordingly.

Shrinking time available for planning applies not only to CTCs but also to Army centers of excellence. Applying time restrictions to culminating exercises that are reasonably rigorous compared to the historical time available would encourage officers not only to complete products but also to apply sound judgment in prioritizing those products and in assuming risk when time constrained. And perhaps more significant, basing time standards off the data presented here or off other, similar historical precedents would normalize perceptions of time among centers of excellence.

While more than sufficient to identify a discrepancy between training and historical timelines, this data could be substantially improved by including more conflicts and data points in each conflict. In particular, primary source documents for World War II and the Korean War (e.g., after action reports, operations reports, etc.) exist but are difficult to access. Future research could use these to increase the fidelity of data from those conflicts. Studying foreign conflicts since 1950, including the Arab-Israeli conflicts, may give further insight into how improving technology has influenced operational tempo. Foreign cases may reveal whether other militaries tend to conduct operations faster than the United States does. Finally, examining a larger data set on mission planning from our CTCs would provide better context for this research and may provide insights into how brigade planning changes with shorter or longer times available. All of this research would refine the training recommendations presented here and, thereby, could make our training more realistic and our brigades better prepared for large-scale conflict. ■

Notes

1. Anthony Carlson, "Thunder Run in Baghdad, 2003," in *Mission Command in the 21st Century: Empowering to Win in a Complex World*, ed. Nathan K. Finney and Jonathan P. Klug (Fort Leavenworth, KS: The Army Press, 2016), 97.

2. 2nd BCT, 3ID, FRAGO 20 to OPORD 03-09 A, 6 April 2003. A FRAGO, or fragmentary order, is an abridged version of an OPORD, or operation order, used to relay changes to an original OPORD or when required for expediency. In FRAGO 20, five paragraphs of the order are contained within the first two pages. A third page is used for an execution matrix, and a target list occupied the fourth. Operations graphics also accompanied the order.

3. Jim Lacey, *Takedown: The 3rd Infantry Division's Twenty-One Day Assault on Baghdad* (Annapolis, MD: Naval Institute Press, 2007), 238. The last offensive occurred on 10 April when 3rd BCT attacked against weak resistance from north of Baghdad to link up with 2nd BCT downtown; Gregory Fontenot, E. J. Degen, and David Tohn, *On Point: United States Army in Operation Iraqi Freedom* (Fort Leavenworth, KS: Combat Studies Institute Press, 2004), 377. Although other large-scale offensives occurred throughout Operations Iraqi Freedom, Enduring Freedom, and New Dawn, their enemy remained entirely irregular in nature. 10 April 2003 remains the last time the U.S. Army fought in combat against a nation-state actor with a regular military force.

4. Fontenot, Degen, and Tohn, *On Point,* 378.

5. David Perkins, "April 7th Thunder Run," (video teleconference with 5th Squadron, 7th Cavalry Regiment leaders, Fort Stewart, GA, May 2017).

6. Field Manual (FM) 3-0, *Operations* (Washington, DC: U.S. Government Publishing Office [GPO], October 2017), 1-3.

7. National Training Center (NTC) Operations Group Plans Team 2, email message to author, 14 February 2018.

8. Aviation and other technologies that have proven to be force multipliers for ground forces are not used as screening criteria because they only indirectly influence the possible operational tempo. In contrast, the transition from the horse to motorized and mechanized vehicles changed the tempo physically possible for a ground force. Although this point is certainly arguable, it is beyond the scope of this article.

9. FM 3-90-1, *Offense and Defense Volume 1* (Washington, DC: U.S. Government Printing Office, March 2013), 6-1.

10. *24th Mechanized Infantry Division Combat Team Historical Reference Book* (Fort Stewart, GA: Headquarters of the 24th Infantry Division, 1992), 67 and 69. The 24th Infantry Division is assumed to be representative of all ground divisions in Operation Desert Storm. The final order prior to the invasion was given on 23 February 1991 and was followed only by an order on 6 March for reconnaissance of egress routes from Iraq. This shows that no offensives were planned after the invasion began.

11. FM 3-98, *Reconnaissance and Security Operations* (Washington, DC: U.S. GPO, July 2015), 4-15; see also Army Techniques Publication 3-20.96, *Cavalry Squadron* (Washington, DC: U.S. GPO, May 2016), 2-5–2-6.

12. Units during these wars were not organically combined arms. Task organization usually resulted in a combined arms formation with varying combinations of infantry and armor forces.

13. Many primary sources for World War II and the Korean War are not digitized. This author did not have the resources available to access these documents physically.

14. Army Doctrine Reference Publication (ADRP) 5-0, *The Operations Process* (Washington, DC: U.S. Government Printing Office, May 2012), 2-23.

15. Headquarters 36th Armored Regiment, AAR# 379-U, "After Action Report 36th Armored Inf. Regt. 3rd Armored Division", November 1944–April 1945, 26. The order in this case was likely delayed to avoid extraneous events during the night, and the staff also likely published a warning order to mitigate the impacts of a later order. The official accounts currently available cannot confirm or deny any of this. However, these speculations only reinforce that longer timelines provide commanders more opportunity to manipulate planning timelines beyond one third of the time available.

16. Carlson, "Thunder Run," 97; Lacey, *Takedown*, 238.

17. NTC Operations Group Plans Team 2, email message to author, 14 February 2018.

18. ADRP 5-0, *The Operations Process,* 2-23.

19. FM 3-0, *Operations,* 1-16.

20. Lt. Gen. David Perkins, interview by Tony Carlson and Kelvin Crow, "Operational Leadership Experiences in the Global War on Terrorism," Combat Studies Institute, 6 May 2013.

Military Review

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Targeting in Multi-Domain Operations

Maj. Kyle David Borne, U.S. Army

The introduction of new doctrine is always met with skepticism and trepidation by entrenched bureaucracies. AirLand Battle had its critics, and the introduction of multi-domain operations (MDO) is no different. This article capitalizes on the experiences of a small cadre of planners from late 2017 to late 2018 garnered from four joint and coalition command-post exercises (CPXs) where MDO effects were planned. The primary focus of the CPXs was to incorporate space, cyber, and electronic warfare (EW) effects into the scheme of maneuver.

(Image courtesy of Lockheed Martin)

On the surface, MDO looks just like what a corps or an equivalent-level staff sees during normal daily operations. However, while some of the processes are indeed similar, it is important to recognize the differences. The primary difference is MDO focuses on multi-domain fires synchronized in time and space to achieve complimentary effects; whereas, cross-domain fires do not.

Cross-domain fires in their simplest form are just one domains affecting another. An example would be surface-to-air missiles or using a shore-based artillery piece to attack a ship. This is what most commanders grew up understanding. Developing an air defense plan for a critical asset on the ground or requesting a Navy EA-18G to provide jamming effects are actions Army staffs regularly execute and are other common examples of cross-domain fires.

Multi-domain fires take cross-domain assets and synchronize them in time and space to create synergistic effects in windows of convergence. A common example is the destruction of an integrated air defense system (IADS). Conventional cross-domain fires would involve an EA-18G providing standoff jamming while a strike package got close enough to deliver a lethal payload. As standoff has increased with recent IADS, this approach is no longer viable as IADS missiles can acquire and engage friendly aircraft at greater distances. A multi-domain effect combining synchronized cyberwarfare, space warfare, and EW effects can reduce standoff room to achieve lethal parity for the air package, thereby enabling destruction.

As warfare has evolved in the modern era, cross-domain fires have begun to leverage the domains of space and cyberspace. During the war on terrorism, the increased use of the information environment by violent extremist organizations hinged on the use of satellite internet providers to move information over cyberspace. Joint task forces (JTFs) and special organizations began to target space and cyber nodes in an attempt to disrupt violent extremist organizations' command and control as well as extremist ideological messaging. The efforts of the JTFs and others were conducted in isolation from each other. The Multi-Domain Task Force (MDTF) is different in that it is the first formation in the Army that brings all five domains under one command.

The novelty of the MDTF is its ability to provide effects in all five warfighting domains synchronized in time and space. As adversaries establish anti-access/area denial (A2/AD) bubbles that outrange conventional U.S. munitions, this formation provides a joint force commander (JFC) an organization that can effectively reduce those A2/AD bubbles by leveraging multiple warfighting domains at the same time to achieve lethal parity or overmatch, tipping the scale in the JFC's favor.

Joint Targeting in Multi-Domain Operations

In order to conduct MDO, the MDTF uses a targeting process very similar to the joint targeting cycle described in Joint Publication (JP) 3-60, *Joint Targeting*.[1] The targeting cycle for MDO is not much different than what joint doctrine currently calls for. Give an Army targeting officer a target and a desired effect, and nine times out of ten, he or she is going to figure out how to affect that target with artillery, close-combat attack, or close-air support. This is generally because Army targeting focuses on what is within the lethal targeting distance of its longest-range weapon systems and best targeting methodology.

Traditionally, targeting occurs in a service-centric mind frame. The Army prepares and targets the enemy's land order of battle, the Navy targets the maritime domain, and the Air Force targets the air and space domains. There has always been an element of cross-domain fires. The Army cares about air threats because they can strike ground targets. The Navy keeps an eye on the air domain as threats have evolved to include carrier-based aircraft and antiship cruise missiles. The Air Force has always had to be concerned with land-based antiair artillery.

Notwithstanding, a major change regarding peer adversaries is that they can now contest the space and cyberspace domains. The services must factor this into their targeting calculations.

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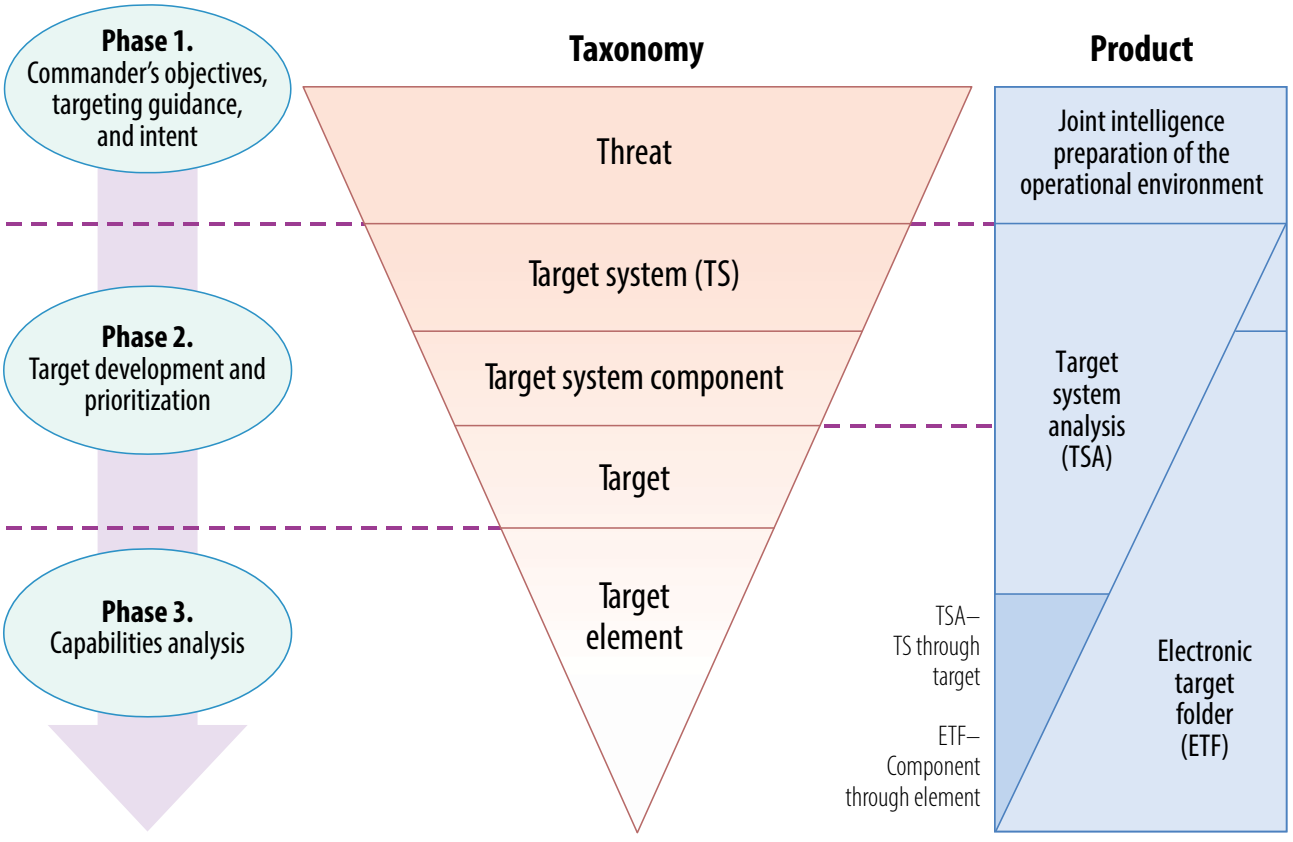


(Figure from Joint Publication 3-60, *Joint Targeting*, 28 September 2018)

Figure 1. Target Development Relationships

Thinking Nonlethally during the Joint Targeting Cycle

The Army traditionally thinks of the physical characteristics of targets. A commander's attack guidance matrix might prescribe firing a certain number of battery- or battalion-level volleys of a munition to achieve an effect on a target. This approach works fine in a traditional peer-on-peer fight or against other well-defined threats. The temptation is to approach all targets through their physical characteristics (as Army doctrine does) and disregard their functional ones (as joint doctrine does).

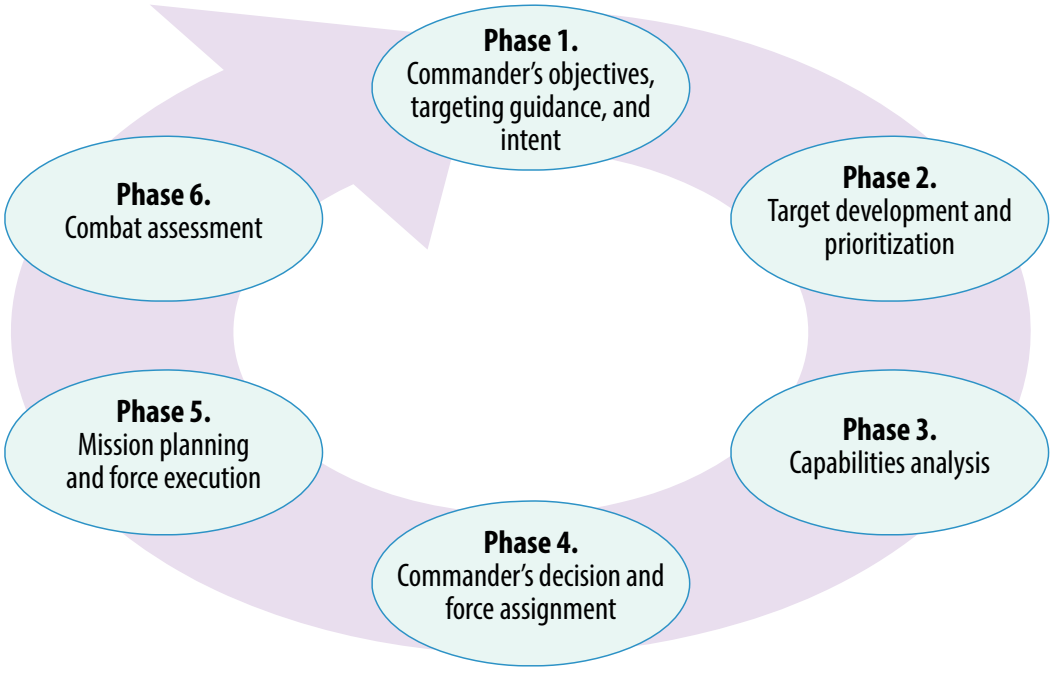
The recently revised JP 3-60 does an excellent job of highlighting the difference between Army targeting and joint targeting. Army artillery formations typically receive targets instead of nominating targets and focus on the Detect, Decide, Deliver, Assess (D3A) model.[2] This is where joint targeting differs; joint targeting focuses on the physical and the functional characteristics of a threat system. This level is associated with the "threat" of the joint targeting taxonomy. The MDTF needs to focus more on the lower portions of the taxonomy in order to mitigate the lethal engagement range overmatch of adversary systems. Targeting the key elements of the functional characteristics enables joint forces to close with threat systems and destroy them. Therefore, a fundamentally more in-depth targeting analysis must occur, making joint targeting doctrine more applicable to MDTF missions (see figure 1).[3]

JP 3-60 states, "Achievement of clear, measurable, and achievable objectives is essential to the successful attainment of the desired end state. The ability to generate the type and extent of effects necessary to achieve the commander's objectives distinguishes effective targeting."[4] Therefore, instead of saying "Deny integrated air defense systems (IADS)" or "Destroy short-range ballistic missiles," we need to shift to the *system* we wish to effect.

For example, a multi-domain commander's intent might look like this: "Deny IADS the ability to engage air targets" or "Delay IADS ability to target aircraft for two hours." This guidance provides the ability to tailor deny, delay, disrupt, destroy, or manipulate (D4M) effects to meet the commander's intent. Through the joint targeting cycle, a targeteer can then decide what ends are feasible, which ways are available, and which means can deliver the desired effects. For IADS, the targeteer may decide they can degrade the IADS air picture by leveraging cyber, space, and EW means in the MDTF to achieve the commander's intent.

The target working group in the MDTF must follow the joint targeting cycle instead of Army targeting while looking at all warfighting domains (see figure 2).[5] Typically, Army targeting is synchronized with an air tasking order cycle that prioritizes and allocates air and space domain capabilities against a commander's joint, integrated, prioritized target list. This is how national-level assets such as the Rivet Joint reconnaissance aircraft, the Joint Surveillance Target Attack Radar System, or the cyber national mission force are allocated. A key difference in the MDTF is similar capabilities now reside at a brigade-sized Army organization that have organic assets capable of delivering effects normally found at the operational and strategic levels.

Despite these capabilities residing at a brigade level in the Army, the joint targeting cycle still provides a common framework with which the Army can target and provide complimentary effects with other services in the joint environment. Attempting to create a new targeting process has proven to just create confusion and resistance from joint partners. For example, while participating in the Rim of the Pacific 2018 international maritime exercise, MDTF planners met resistance from the air operations center (AOC) because the AOC was under the impression that the Army was trying to make a new targeting system that bypassed the AOC's responsibility to synchronize fires for the combatant commander.



(Figure from Joint Publication 3-60, *Joint Targeting*, 28 September 2018)

Figure 2. Phases of the Joint Targeting Cycle

Multi-Domain Targeting through the Joint Targeting Cycle

The six phases of the joint targeting cycle provide a sufficient framework to analyze multi-domain targets. Phase 1, "Commander's Objectives, Targeting Guidance, and Intent," is crucial in providing clear and realistic expectations.[6] Having a clear and concise intent using D4M effects gives the targeting team the maximum amount of latitude to meet the commander's intent. This is essential to enable the centers of gravity (COG) analysis and identifying

the decisive points; or, as described in JP 3-60, target system analysis (TSA).[7]

Unique MDO Targeting Planning Considerations in Phase 2 of the Joint Targeting Cycle

A planning factor for nonlethal effects is the amount of time and effort required to validate a target. Developing targets in the electromagnetic spectrum (EMS) and cyberspace requires more complicated techniques and specialized tools than lethal targeting. In order for an MDTF commander to conduct the necessary intelligence gathering in this phase, "Target Development and Prioritization," the MDTF must have the required authorities to conduct intelligence, surveillance, and reconnaissance (ISR); or cyberspace, surveillance, and reconnaissance (C-S&R); and ultimately to produce effects in gray (e.g., noncombatant and combatant use) or red (combatant space) zones. For example, a Rivet Joint may derive signals intelligence (SIGINT) that provides an exploitable access point (e.g., a wireless hotspot or supervisory, control, and data acquisition data link) for cyberspace to begin conducting C-S&R, requiring the formation to be legally authorized by the national command authority to conduct the activity.

Once this process is complete, a different set of authorities may be required to refine the TSA of that system through cyber ISR (C-ISR). Once established, a cyber-support team will have to develop a tool that meets the commander's intent for that specific system. All of this can take months to years and cost millions of dollars in asset time and man-hours. This places an additional calculation on the targeting team to provide the commander with a cost-benefit analysis estimation of whether using a specific tool for the mission is worth the expense. The assumption is once the tool is delivered it will not be able to be used again.

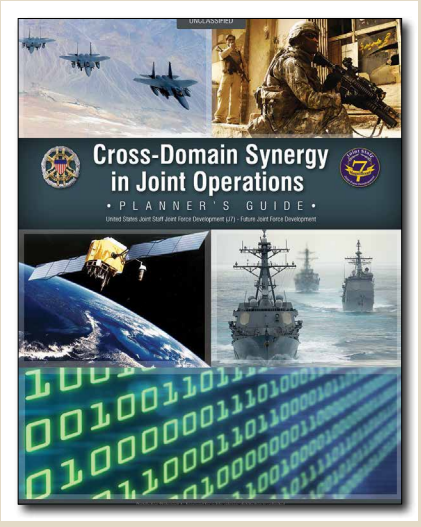
For example, the Stuxnet virus, which was delivered to Iranian nuclear research facilities, would have required extensive intelligence.[8] The actor would have to determine who manufactured the centrifuge equipment, the model of equipment, the software running it, the hardware specifications, and how the system receives instructions from the outside world. From there, the actor would have had to analyze the entire code content of the software to find a vulnerability. Once the vulnerability is discovered, the actor would have to develop a virus that could spin the centrifuges out of control while providing a false picture (manipulation of data) to the operators so they would not see something was wrong until it was too late and the equipment was destroyed.

After the effect was achieved, the Stuxnet virus was discovered both in the Iranian system and on the internet. Several entities then decompiled its code in an effort to understand it and determine who delivered it. The Iranians then patched the vulnerabilities found in their software, rendering further uses of Stuxnet futile.

The MDTF is a hybrid organization that blends the tactical, operational, and strategic levels of war, especially through nonlethal targeting with the Intelligence, Information, Cyberspace, Electronic Warfare, and Space (I2CEWS) Battalion. Nonlethal targeting at the operational and strategic levels elevates the amount of deconfliction that must take place. Intelligence gain/loss has always been a calculation between SIGINT and EW. However, the addition of cyber extends this to the cyberspace domain and involves other government agencies that have a stake in the domain. This phase also raises the specter of the law of armed conflict and rules of engagement. Cyberspace and electrons in the EMS are not confined by geographical boundaries. Adversary systems often leverage this ambiguity by using dual-use systems that engage both civil and military systems. Sometimes the COG is a dual-use system that requires even more tailored effects to minimize the impact on the civilian population.

Phase 3 of the targeting cycle, "Capabilities Analysis," is where a clear definition of the commander's intent allows for maximum flexibility in the I2CEWS's ability to deliver effects.[9] During TSA, targeteers determine which capabilities in which domains are required to achieve the commander's intent. The state in which the conflict lies defines which methods of effect delivery are suitable, feasible, and acceptable. For example, during the competition phase, a lethal strike is less likely to be used for the risk of triggering a shift to conflict phase, whereas C-S&R provides anonymity and reversibility to achieve an effect and may be used as a deterrent to conflict.

With the analysis and capabilities assessment completed, the MDTF commander would then



Military Review
WE RECOMMEND

For those interested in more closely examining joint multi-domain planning concepts, your attention is invited to the Future Joint Force Development's *Cross-Domain Synergy in Joint Operations Planner's Guide*. This guide organizes cross-domain planning information and activities for use by the joint staff, combatant commands, subunified commands, joint task forces, subordinate components of these commands, the services, and the Department of Defense agencies supporting joint operations. You may view or download the guide by visiting https://www.jcs.mil/Portals/36/Documents/Doctrine/concepts/cross_domain_planning_guide.pdf?ver=2017-12-28-161956-230.

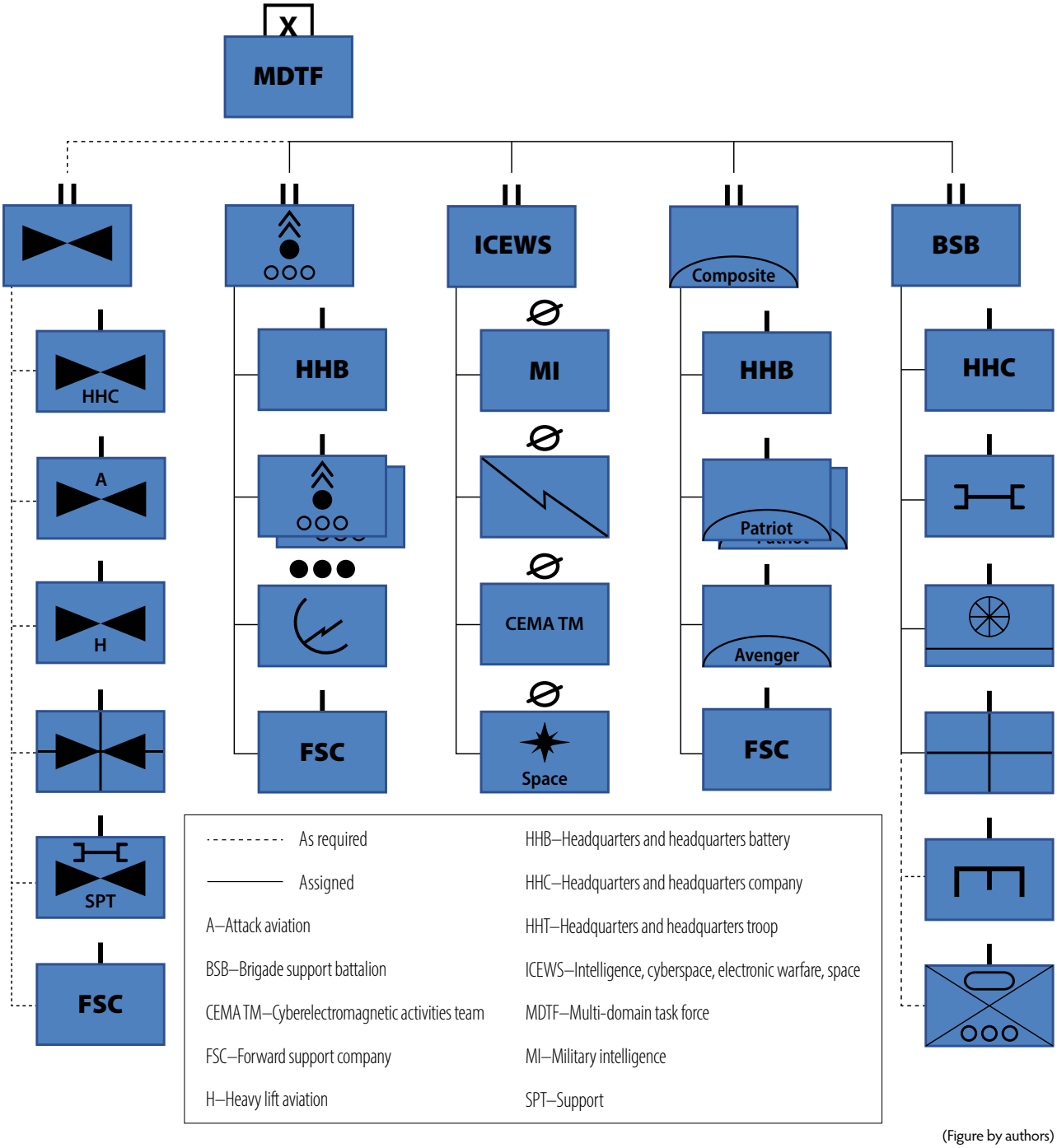
provide his guidance in the fourth phase of the joint targeting cycle, "Commander's Decision and Force Assignment."[10] A novelty of the MDTF is that it is a brigade-size unit directly supporting a geographic combatant command or a JFC (if one is present), and it acts on the same level as a joint force air component commander, which is typically commanded by a two-star general officer. Through both competition and conflict phases, the MDTF commander will nominate targets to the JFC for inclusion on the joint integrated prioritized target list.

More than one unit may be required to engage a target. The MDTF may not even be the best unit for striking a target it nominates. For example, if the MDTF discovers a COG that lays outside the lethal effects range of its long-range artillery, an Aegis cruiser may be able to engage it with a Tomahawk Land Attack Missile. The MDTF may still engage a portion of the target packet by providing a cyber or space effect at the same time in order to enhance the lethality of the strike.

Just like lethal fires, nonlethal effects need an observer to watch effects on a target. For an EW mission, using a SIGINT asset provides the ability to determine if effects are achieving the desired results by monitoring the rest of the EMS in order to determine if the target is transitioning to its primary, alternate, contingency, or emergency plan. A cyber operator can use network monitoring tools to determine if a system administrator on the target system is taking corrective actions or if the desired change in network behavior is occurring. Key outputs of this phase may include a warning order to identified units and an initial strike plan. Once the executing units are designated, phase 5, "Mission Planning and Force Execution," begins.[11]

Phase 5 may find the MDTF executing other-unit-nominated targets and vice versa. Once the MDTF receives the warning order tasking to engage a target, the individual units of the MDTF must begin their troop leading procedures. Each has their own considerations; however, the I2CEWS battalion units are nascent in developing their troop leading procedures. A space detachment will have different mission planning requirements than the cyberspace electromagnetic activities teams. As with all targets, each unit has to validate the assumptions and facts used to plan the mission are still valid. For example, a cyber unit will need to verify the target is still being held at risk or that they can still gain end-point access in order to hold it at risk. Key outputs for this phase are a completed military decision-making process cycle and company-level operations orders.

The sixth and final phase, "Combat Assessment," is crucial.[12] For the I2CEWS units whose effects exist in domains that are not immediately visible, it is imperative during phase 2 that the planners include combat assessment criteria for what success



(Figure by authors)

Figure 3. Objective Multi-Domain Task Force Task Organization

looks like. Unlike lethal effects where the damage is physically apparent by looking at an ISR feed, effects delivered in the EMS and cyberspace do not always lead to visible indicators. Often the nonlethal team is asked to achieve effects the JFC cannot reach physically with lethal munitions. Thus, the mission of the nonlethal team is to create a window of convergence with nonlethal effects that sufficiently provides D4M effects to minimize risk to a kinetic strike package. Timely, well-thought-out combat assessment criteria allows the MDTF to quickly determine if the intended effects were delivered, which may serve as a trigger

for a ship or aircraft to maneuver into contested space and deliver lethal effects.

Bringing It Together

The MDTF is a novel organization that cobbles together elements of the traditional Army with new units found in the I2CEWS battalion. With this addition, the MDTF is able to create windows of convergence across all five warfighting domains simultaneously in order to enable joint maneuver in contested A2/AD environments (see figure 3, page 66).

The inclusion of all five domains requires commanders and staffs to change their frames of thinking from exclusive lethal targeting as the primary method of engagement to include nonlethal means. It also requires them to think across the continuum of operations and realize targeting now must take place all of the time, not just during a conflict, and targeting is conducted in the joint environment through the joint targeting cycle.

This article looked at each phase of the joint targeting cycle and highlighted key similarities and differences for MDO. After exercising the MDTF at Yama Sakura 73 in Japan, Pacific Sentry 18 in Hawaii, Rim of the Pacific 2018 exercise in Hawaii, Valiant Shield 18 in Guam, and Yama Sakura 75 in Japan, the joint targeting cycle has proven to be an effective method.[13] The skill sets exercised by the I2CEWS battalion and MDTF targeting staffs require broadening to actively include nonlethal target systems analysis. When combined, the joint targeting cycle enables the MDTF to seamlessly integrate into joint operations. This is essential, as the A2/AD fight is inherently joint in nature.

The next step in developing MDO doctrine is to look at how the MDTF translates joint targeting into tactical action. The staffing processes have been tested, and with an experienced cadre of soldiers, many of the higher level processes provide a strong foothold for doctrinal development. Translating these processes down to a tactical maneuver unit to begin discerning the "how" to deliver multi-domain effects needs to be tested and bottom-up refinement given to the staff to polish processes. ■

Notes

1. Joint Publication (JP) 3-60, *Joint Targeting* (Washington, DC: U.S. Government Publishing Office [GPO], 28 September 2018), chap. 2.
2. Army Techniques Publication 3-60, *Targeting* (Washington, DC: U.S. GPO, May 2015), 2-1.
3. JP 3-60, *Joint Targeting*, II-6.
4. Ibid., II-4.
5. Ibid.
6. Ibid., II-3.
7. Ibid., II-7.
8. Kim Zetter, "An Unprecedented Look at Stuxnet, the World's First Digital Weapon," Wired, 3 June 2017, accessed 1 March 2019, https://www.wired.com/2014/11/countdown-to-zero-day-stuxnet/.
9. JP 3-60, *Joint Targeting*, II-14.
10. Ibid., II-18.
11. Ibid., II-21.
12. Ibid., II-31.
13. Yama Sakura is an annual bilateral command-post exercise involving the U.S. military and the Japan Ground Self-Defense Force; Pacific Sentry is a field training exercise that focuses on joint training integration among U.S. forces and is designed to exercise U.S. Pacific Command headquarters staff and command components in a real-world, operational level of war scenario; Rim of the Pacific is a biennial international training exercise designed to foster and sustain cooperative relationships that are critical to ensuring the safety of sea lanes and security on the world's interconnected oceans; Valiant Shield is a U.S.-only, biennial field training exercise with a focus on integration of joint training in a blue-water environment among U.S. forces.

When the Balloon Goes Up

High-Altitude for Military Application

Lt. Col. Anthony Tingle, U.S. Army

The potential for change is much greater than our appetite for it.
—Garry Kasparov

Isaac Newton first theorized in 1687 that a projectile shot with enough force would break free of Earth's gravity, subsequently falling into continuous orbit.[1] It would be over two hundred years before the Soviets would begin to harness this aspect of the space domain theorized by Newton with the first satellite, Sputnik, igniting the space race that produced manned spaceflight and today's ubiquitous orbiting satellite capabilities.

For the United States, conquering the space domain with its own satellites required political will, deliberate

targeted government investment, and incremental technical progress. This same grit and persistence is necessary to master the high-altitude domain with other vehicles adapted to the task. This article characterizes the high-altitude domain, explains recent scientific advances that are finally enabling the technology, and identifies the risks of pursuing high altitude for military use.

The High-Altitude Domain

Also called "near space," high altitude most commonly refers to the upper stratosphere roughly from sixty thousand to one hundred thousand feet above the ground, and there are two starkly different designs competing for dominance: heavier than air (HTA) and lighter than air (LTA).

The HTA crafts are closer to a classic aircraft design, dependent on long wingspans, commensurately long solar arrays, and propellers to maintain sufficient speed to prevent stalling.[2] The LTA design is a balloon-centric vehicle containing an altitude-controlling expansive element (usually helium or hydrogen) that provides lift.

While each design presents unique engineering and operational opportunities, the balloon design is the focus of this essay.[3] Intuitively, balloons at such heights could perform missions such as intelligence, surveillance and reconnaissance, communications, missile warning, and precision navigation and timing. As the space domain becomes increasingly precarious, balloons offer resilience and redundancy against overhead capability shortfalls. In regard to the operational and tactical levels of war, this technology could allow commanders to surge mission-tailored effects on demand, augment network capacity, quickly reconstitute lost assets, and integrate payloads into dedicated mission architectures—and do it at a fraction of the cost of satellites. But while we may have crossed a technological threshold that greatly increases the viability of high-altitude balloons, harnessing the power of this inhospitable domain will depend in part on conquering meteorology and physics.

Perhaps the most important aspect of this domain is that at roughly sixty-five thousand feet there is relatively less wind, which theoretically allows for a platform to maintain semigeosynchronous station keeping (the ability to maintain relative presence at a specific altitude) with minimum energy expenditure. In other words, there is a "sweet spot" in the atmosphere that should allow for long overhead-loitering capability.

But winds are diminished at high altitude, not absent, and as balloons are objects in flight, they are at the mercy of physics and basic aeronautical engineering. The large surface area of these vehicles mean high drag, even in the reduced atmosphere of high altitude. Without active means to resist, the natural tendency for balloons is to move with the prevailing winds. This lack of geostationary presence is their major operational shortcoming. Stratospheric weather is variable, dependent on season and latitude, with some regions being relatively inhospitable to high-altitude operations, especially in certain tumultuous latitudes (such as those above the Balkans and North Korea).[4]

Alas, maintaining relative position against the wind is not the only obstacle high-altitude balloons must overcome. High altitude is fraught with environmental dangers. Surging wind gusts are especially dangerous and can threaten the structural integrity of the craft. Also, elevated ultraviolet (UV) radiation and ozone concentrations at altitude have a tendency to weaken materials, shortening available loiter time.[5] Additionally, severe temperature swings in the stratosphere also impact both the payload and platform operations.

Without the ability to maintain location and overcome the natural forces found at high altitudes, the capability of these platforms to replicate space capabilities is severely limited.

Previous page: Flying near the edge of space, a NASA Ultra-Long Duration Balloon (*shown*) broke the flight record for duration and distance. The balloon, almost as large as one and one-half football fields, soared for nearly forty-two days, making three orbits around the South Pole. The U.S. military has periodically explored the practicality of employing high-altitude balloons and other similar vehicles for a range of applications including using them as cost-effective platforms to launch other flight vehicles into space. (Artist rendition courtesy of NASA)

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Luckily, with new designs and operational techniques, the high-altitude industry seems to be advancing in the face of these inhospitable conditions.

New Advances in High-Altitude Balloons

Significant advances in material science and navigation techniques have invigorated the potential for balloons as a viable military technology. One of the world's most innovative firms, Google, has been developing high-altitude balloon technology to deliver the internet to less-connected regions such as Sri Lanka, Puerto Rico, and parts of South America.[6] Google's high-altitude division, called Loon, also plans on delivering internet access via balloon to Kenya in 2019.[7] Other companies, such as Arizona-based World View, have also made serious advances in high-altitude balloons.[8] Based on the commercial interest alone, the technology should be piquing the U.S. military's interest.

The basics of evaluating high-altitude vehicles are rather straightforward. The engineering requirement is to optimize the trade spaces of size, weight, and power of the platform.[9] The total weight of the platform is linear in terms of the size, which means the heavier the total weight of the system, the larger the balloon needed. In contrast, the platform size is exponential in terms of the altitude desired. In other words, the higher the altitude, the greater the external pressure, and thus the stronger the balloon needs to be (in terms of material, size, and shape).[10] This is why some of these balloons expand to enormous size. For example, while blimps commonly found at sporting events are considered large, the same blimps at high altitude would be massive, some larger than a football field.[11] Again, an increase in overall aircraft weight (platform and payload) causes a linear increase in its volume, but increases in altitude require a corresponding *exponential* increase in volume. So the heavier and higher the balloon, the larger it is.

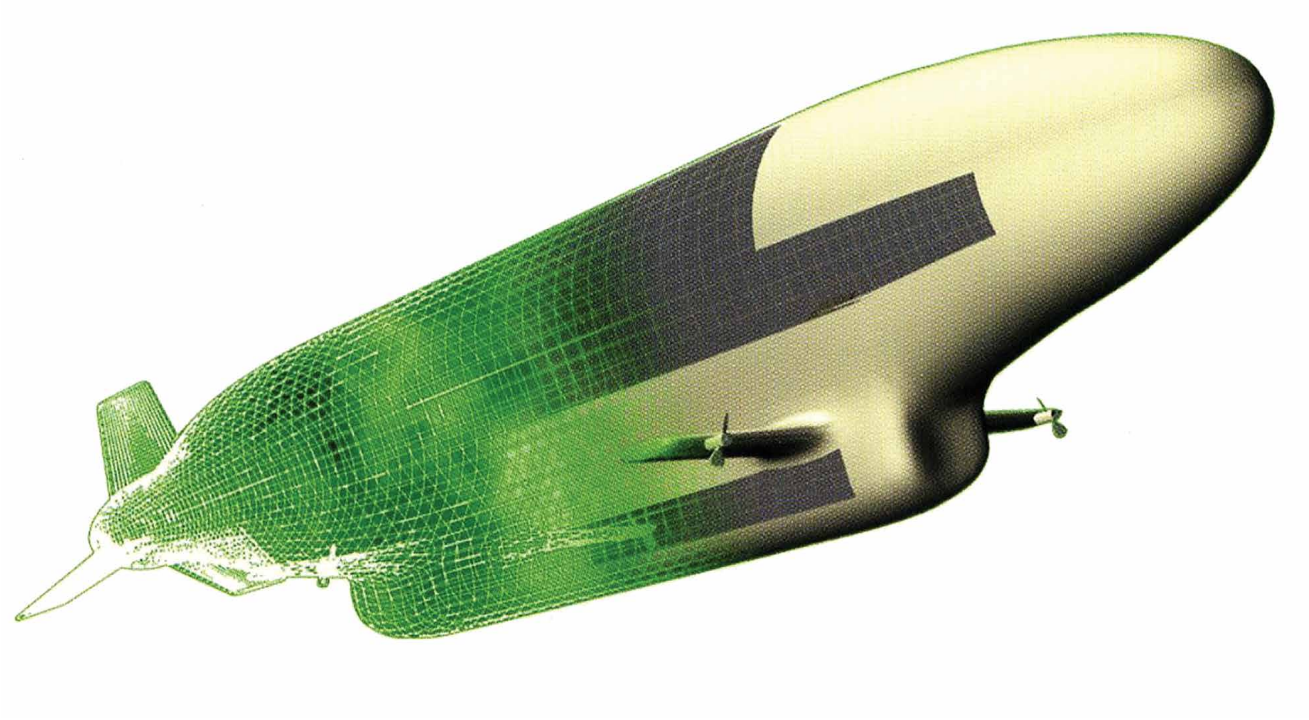
The third major design characteristic is power, and it encompasses both strength and weight. For a majority of high-altitude designs, solar energy is currently the predominant source of power. Unfortunately, available solar energy fluctuates by season and latitude.[12] Throughout the day, the average position of the craft's solar array relative to the sun does not allow for optimal solar collection. Additionally, the weight and size restriction of energy storage systems are limiting. In seasons of favorable solar collection, the added weight of robust energy storage is a liability to the overall system.[13] Solar power technology in the near future is unlikely to be capable of effectively powering the maneuverability of high-altitude aircraft, even in the most favorable range of latitudes and the calmest of seasons.[14] These variations in winds and solar availability are frequently unsynchronized, meaning those times when power is least available may be when it is most needed.

Balloon Construction

Balloons are only as good as the materials that compose them. The state-of-the-art balloon material is an extremely thin and relatively lightweight film of polyurethane blends.[15] Only a few microns thick, these plastics-based materials are able to withstand extreme temperature changes in the stratosphere and the increased solar radiation and ozone effects, all while expanding many multiples of its original (ground level) inflated size.[16] While these balloons have recently maintained altitude for over 180 days, staying aloft is a necessary but insufficient component in providing a useful capability.[17]

To make use of high altitude, it is necessary for these balloons to maintain a presence relative to a location on the earth. The winds in the stratosphere tend to move relatively horizontally and in different directions based on altitude.[18] The ability to change altitudes enables a vehicle to take advantage of this meteorological phenomenon and navigate to maintain a semi-stable presence. Basically, the balloon rises or falls to get into the wind current moving in the desired direction. Current balloon technology accomplishes this change in altitude by increasing or decreasing the balloon's mass by pumping ambient air into and out of a separate section of the balloon called a *ballonet*. At altitude, this minor change in mass causes a corresponding rise or fall in the balloon, enabling it to change direction based on the wind patterns. It follows then that the operational problem now becomes discerning these high-altitude wind directions.

Until recently, science and industry have largely neglected high-altitude weather patterns. Although there has been plenty of scientific examination of the winds and temperature within the stratosphere, the application of these data to balloon maneuvers has not been a major consideration.[19] And although some weather data exists, archival data may be as useful to high-altitude flight as almanacs are to sailing. The extreme variance in stratospheric winds will necessitate more real-time weather



In 2001, the U.S. Army Space and Missile Defense Command began to explore the concept of a lighter-than-air High Altitude Airship (HAA) that could operate for extended periods at an altitude of sixty-five thousand feet. Equipped with an infrared sensor and a steel-track or related radar and data relay equipment, the proposed concept could address both National Reconnaissance Office and ballistic missile defense missions. With a persistent surveillance capability that could range from fifty to four thousand kilometers depending upon the final sensor configuration, the areas of consideration for the unmanned airships ranged from border patrol, counterterrorist, and drug smuggling operations to theater air and missile defense, cruise missile defense, and national missile defense missions. Though a number of tests were conducted to validate the feasibility of the project, the HAA has to date not been built. (Artist rendition of a HAA courtesy of the U.S. Army)

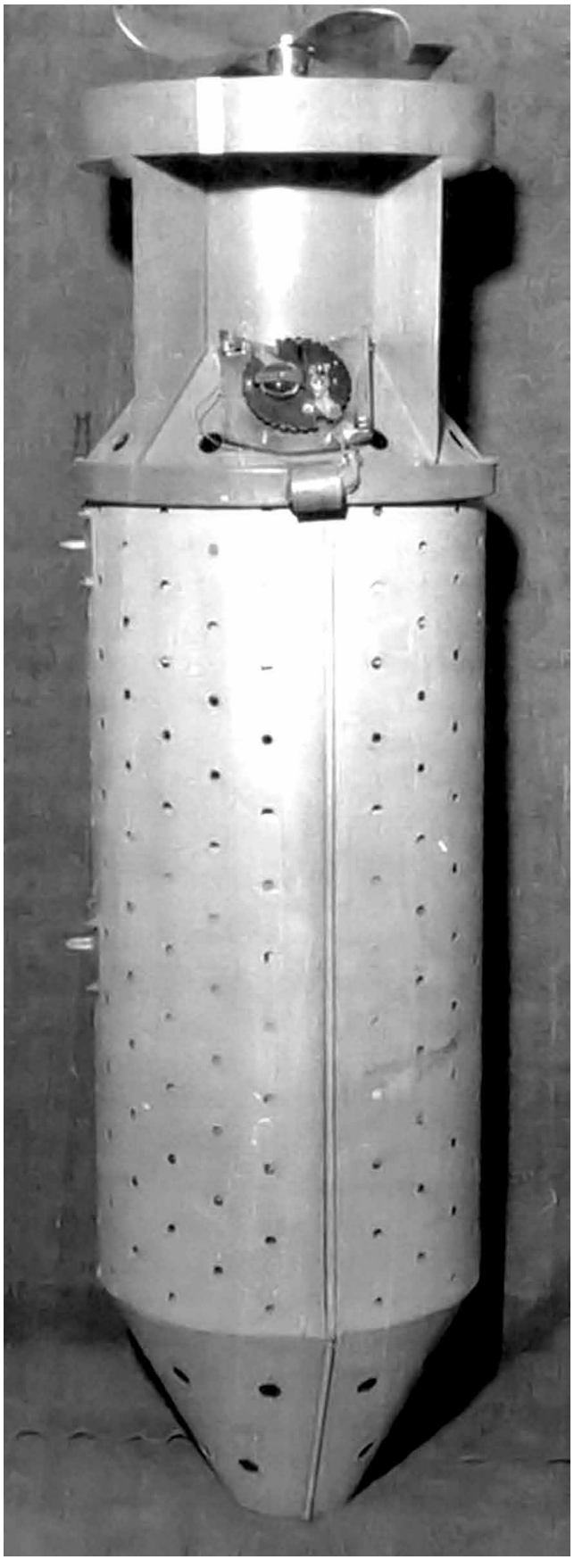
evaluation. In other words, balloon pilots will most likely need to gather a vast majority of wind data during actual operations. The inclusion of new data science techniques, including artificial intelligence and deep learning, may also increase the viability of balloon navigation.

Moving Forward

Like cicadas emerging from hibernation, the scientific community cyclically revives and then summarily dismisses the quest for high altitude. Because the design of this technology encompasses such broad criteria (size, weight, and power), almost any advancement to modern science applies to its development. Consequently, any marked advance in material seems to spur an investigation into the renewed promise of near space. For example, motivated by advances in Kevlar—a lightweight fiber commonly used in body armor—a 1977 U.S. Navy study into high-altitude vehicles determined that advances in "modern materials, structural concepts, methods of analysis, and fabrication techniques will surely make airship structures lighter, stronger, and more efficient."[20]

How can we determine if balloon technology is ready for serious consideration as a viable military technology? New technology is often wrought with information asymmetries (information about the performance of the device or procedure known to only the inventors or developers), the existence of which often makes technology evaluation difficult. One of the fortunate characteristics of high altitude is that the performance criteria are rather straightforward. The vehicle must carry a payload of a specified weight at a certain height, stay aloft for a predetermined amount of time, maintain position relative to a point on the earth, and provide sufficient power to the payload. The vehicle either accomplishes these simple criteria or it does not.

Although the evaluation criteria may be intuitive, the Department of Defense must avoid knee-jerk research funding of extravagant programs, the kind that have



failed extravagantly in the recent past. Periodic resurgence of interest in the high-altitude domain seems to cause periods of irrational exuberance and enthusiastic spending. Convinced that the technology is suddenly viable, government agencies pursue large research-and-development undertakings, and these programs often make unreasonable demands with untested technologies and inexperienced developers, resulting in inevitable failure. These acquisition debacles embarrass the responsible organizations, but even worse, they stagnate high-altitude research-and-development spending.[21]

Perhaps the military needs to start small but continue steadily. For example, the Manhattan Project cost the United States $22 billion in current dollars.[22] At the same time, for roughly $20 million, the military was conducting another secret research project using bats to incinerate Japanese structures.[23] The project called for releasing the bats with tiny incendiary devices attached to their legs over a Japanese city, wherein they would instinctively find refuge in the decorative awnings and structural under-hangings. Once safely ensconced, a timer would detonate the attached devices, burning buildings and consequently the city. The "bat bomb" tests conducted on mock cities were successful, perhaps too successful, as one of the tests almost burned down the historic Carlsbad Army Airfield Base in Carlsbad, New Mexico.[24]

High-altitude balloons are similar to the bat bomb in that they are relatively cheap and effective. But the government must be careful not to incinerate the opportunity to replicate space capabilities just because these balloons are, compared to satellites, inexpensive. In discussion with the author, one high-altitude balloon manufacturer estimated the initial development and operating costs for one balloon at $100,000; compare this to the $1.6 billion each space-based infrared satellite

A "bat bomb" developed circa 1942. The concept called for each canister to hold one thousand bats equipped with small incendiary devices. The bombs, slowed by parachutes, would open at one thousand feet and release the bats, which would seek refuge under wooden building overhangs and covered roof tops in Japanese urban and industrial areas. The incendiary devices would be primed to explode simultaneously, creating thousands of concurrent fires where the bats roosted. Though tested, the bat bombs were never employed outside the United States. (Photo courtesy of the U.S. Army Air Forces)

costs.[25] Like the Manhattan Project, a majority of the recent government programs that have attempted to use high altitude have been extravagant, costly undertakings. However, in the near term, these simple balloons present less technical risk, and they may be ready to populate the stratosphere now. If recent civilian operations are telling, these balloons are sufficiently advanced to maintain a long-endurance presence in the stratosphere while carrying and supplying power to a functional payload. As the space domain becomes more difficult to maintain, our government needs a viable alternative. Given the possibility of a much publicized "impending war in space," should the Department of Defense not entertain relatively inexpensive solutions to this space dilemma?[26]

Conclusion

Recent advances in diverse technological frontiers such as materials and information sciences have reignited hope in harnessing the high-altitude domain. But before balloons can supplant satellites, the technology has to overcome some serious limitations. The solution to maintaining balloon presence is mastering the winds. And although balloon navigation is still in its nascent stages, archival data, experimentation, preoperational flights, and predictive algorithms could eventually allow a functional geostationary presence at most latitudes and in most seasons.

Most importantly, our government must avoid wasteful mistakes that tarnish the idea of using high altitude. Past enthusiasm in high altitude has been akin to the clairvoyant financial "guru" who adamantly proclaims that the stock market is going to crash, although history dictates it will crash eventually. Likewise, it is inevitable that technology will eventually enable high-altitude vehicles to replicate much of the current space capabilities. In the future, advanced algorithms, weather sensors, autonomous flight, advanced artificial intelligence, and data science should help improve station keeping and enhance the viability of the balloon concept. But for the military to develop and implement these technologies will require incremental investment, learning, and patience. ■

Notes

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2. Some heavier than air (HTA) designs use hydrogen-powered engines or a hybrid of hydrogen and solar. For examples of HTA craft, see "NASA Armstrong Fact Sheet: Helios Prototype," NASA, 28 February 2015, accessed 7 December 2018, http://www.nasa.gov/centers/armstrong/news/FactSheets/FS-068-DFRC.html; "Phantom Eye," Boeing, accessed 7 December 2018, http://www.boeing.com/defense/phantom-eye; Mark Zuckerburg, "The Technology behind Aquila," Facebook, 21 July 2016, accessed 7 December 2018, http://www.facebook.com/notes/mark-zuckerberg/the-technology-behind-aquila/10153916136506634.

3. Another rising and relevant technology includes nanosatellites, which promise to supplement and complement current on-orbit satellite capability at costs that could be comparable to lighter than air (LTA) platforms.

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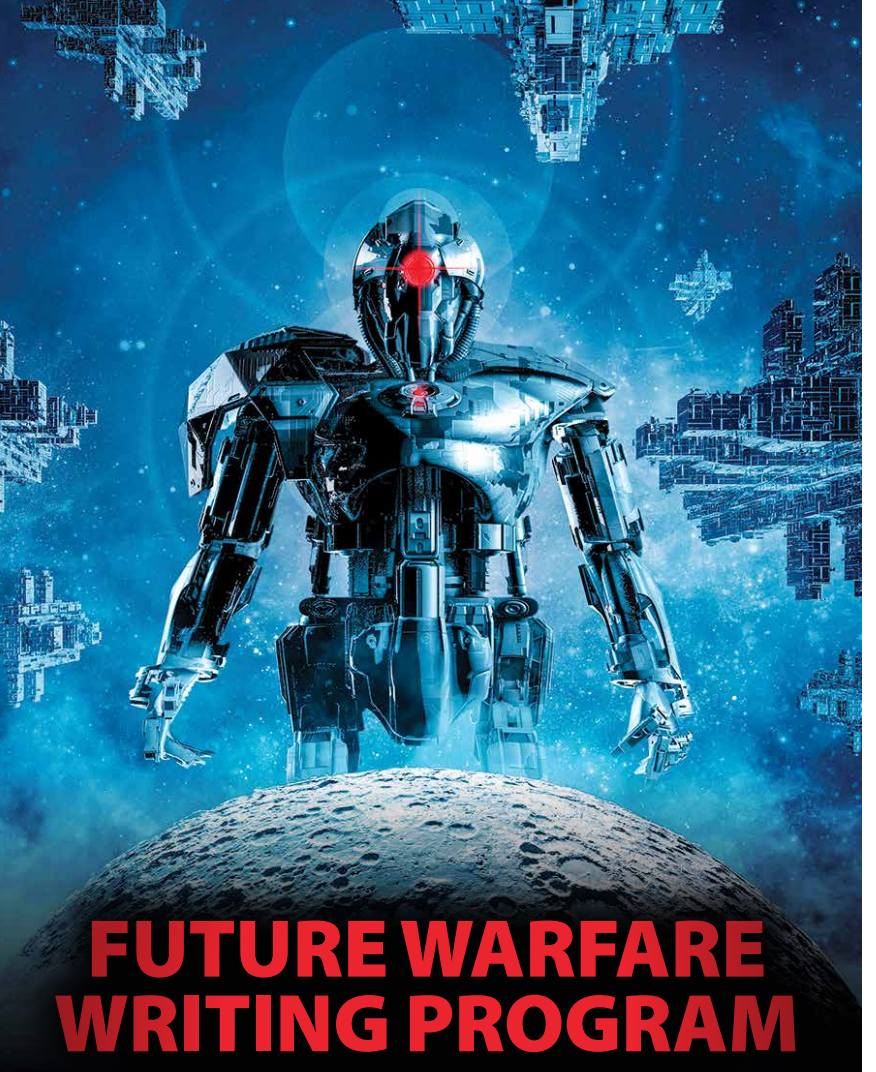

FUTURE WARFARE WRITING PROGRAM

Call for Speculative Essays and Short Works of Fiction

Military Review calls for short works of fiction for inclusion in the Army University Press Future Warfare Writing Program (FWWP) for 2019. The purpose of this program is to solicit serious contemplation of possible future scenarios through the medium of fiction in order to anticipate future security requirements. As a result, well-written works of fiction in short-story format with new and fresh insights into the character of possible future martial conflicts and domestic unrest are of special interest. Detailed guidance related to the character of such fiction together with submission guidelines can be found at https://www.armyupress.army.mil/Special-Topics/Future-Warfare-Writing-Program/Future-Warfare-Writing-Program-Submission-Guidelines/. To read previously published FWWP submissions, visit https://www.armyupress.army.mil/Special-Topics/Future-Warfare-Writing-Program/.

ARMY UNIVERSITY PRESS

12. David Schmidt et al., "Station-Keeping Performance Analysis of a Notional Airship for Near-Space Application" (paper presentation, SANS [Space and Near-Space] Research Group, University of Colorado at Colorado Springs, CO, 2005).

13. Craig Nickol et al., "High-Altitude Long-Endurance Air Vehicle Analysis of Alternatives and Technology Requirements Development" (paper presentation, 45th AIAA Aerospace Sciences Meeting and Exhibit, Reno, NV, 2007), 1050.

14. Ibid.

15. Jeremy Straub and Ronald Fevig, "Formalizing Mission Analysis and Design Techniques for High Altitude Ballooning" (paper presentation, Proceedings of the 3rd Annual Academic High Altitude Conference, Memphis, TN, 2012). Latex is also one of the possible materials for LTA vehicles, although the industry needs to further investigate the longevity of these balloons in the difficult environment of high altitude.

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President Barack Obama meets with Gen. Stanley McChrystal, the commander of U.S. Forces in Afghanistan, aboard Air Force One 2 October 2009 in Copenhagen, Denmark. McChrystal was relieved of command in June 2010, ostensibly due to press reports that indicated members of his forward deployed headquarters staff were being openly disdainful of the president without reprimand or repercussions. Decision conflict, as described in this article, is manifest at even the highest levels of command. (Photo by Pete Souza, White House)

Decision Conflict in Army Leaders

Adrian Wolfberg, PhD

Conflict is an enduring feature of decision-making. Yet, leaders are compelled to make decisions, which means they cannot escape dealing with various planes of decision conflict. Moreover, the more senior a leader, the more difficult decisions he or she must make. However, because difficult decisions are not limited to only the most senior leaders of a given organization, leaders who have ascended to higher levels of decision-making must constantly assess the quality of decision-making among less-senior leaders over whom they have responsibility.

Consequently, studying and improving leadership is an extremely complex and important topic for the Army. Leaders naturally want to improve decision-making as it plays a significant role in professional development, successful mission accomplishment, and promotion. For example, Gen. Robert B. Brown, U.S. Army Pacific commanding general, emphasizes the importance of decision-making in order to trust and empower subordinates to be agile and adaptive leaders.[1] Agility and adaptability can be negatively impacted when one does not effectively deal with the stress of decision conflict. Gen. Stephen Townsend, U.S. Army Training and Doctrine Command commanding general, states that, as a result of these impacts, young leaders are losing their confidence when faced with making hard decisions.[2]

Col. Kenneth Mintz, then battalion commander of 1st Battalion, 32nd Infantry Regiment, 10th Mountain Division, discusses the disposition of forces with a leader of an Afghan Security Forces unit following a successful combined route security operation July 2011 in Kandahar Province, Afghanistan. Decision-making can be more complex and stressful to a leader in a combat environment. (Photo by Staff Sgt. Aaron Baeza, U.S. Army)

This article provides a deeper understanding of the types of conflict within a leader's decision-making landscape. By identifying the types and contexts in which they appear, leaders may be able to recognize their strengths and weaknesses and make improvements. The article also recommends a framework between three types of decision conflicts and three types of decision contexts, which leaders can use to assess themselves.

Motivation for Research

Decision-making conflict has been extensively studied in the national security domain. Conflict is defined as a process where one person believes their interests are being opposed or negatively affected by another person.[3] Among civilian national security policy makers, knowledge-based conflict (i.e., cognitive) between what an individual believes and what new information reveals can often cause an individual to reject or distort new information.[4] This is a potential danger to decision-making.

However, a recent study of twenty-one Army three- and four-star combat arms general officers, who commanded major formations during the recent wars in Iraq and Afghanistan, indicated the opposite.[5] When presented with conflicting information, they did not reject or distort new information. Instead, their decision-making process improved because the conflicts triggered self-learning and critical-thinking abilities needed to resolve the problems. Since the study produced such unexpected results, it suggested

the need for a follow-on study on how decision conflict is exhibited in less-senior Army officers. Data for this follow-on study was collected in late 2016 and early 2017, while the author was the Defense Intelligence Agency representative to the U.S. Army War College, and is provided in this article.

Methodology

The follow-on study collected 193 decisions from eighty Army officers, consisting of sixty-three colonels and seventeen lieutenant colonels, of which sixty-nine were active duty, six were National Guard, and five were Army Reserve officers. The study focused on how officers experienced decisions and did not systematically focus on decision-making processes, the outcomes of decisions, or mitigation strategies in efforts to overcome conflict.

Decision Contexts and Decision Conflicts

The results indicate that conflict was widespread in leader decision-making, not only on a knowledge-based (cognitive) level but also emotionally. Just as cognitive conflict within a leader can negatively affect one's decision-making, so too can emotionally based conflict.[6] The greater the intensity in emotional conflict, the greater the likelihood that deliberative decision-making will be negatively impacted.[7] However, the presence of emotionally laden factors within organizational decisions has not been extensively researched.[8]

Table. Decision Contexts

Decision contexts of the 193 decisions	**Subcategory of decision contexts**	**Number of decisions**
Mission 103 decisions	Resource allocation	40
	Process improvement	27
	Reorganization	18
	Partnering	14
	Systems	4
Subordinate 39 decisions	Poor judgment	13
	Toxic leadership	10
	Sexual misconduct	7
	Contractual	5
	Illegal	4
Oneself 51 decisions	Relation with superior	23
	Relation with subordinate	15
	Relation with foreign leader	8
	Relation with self	3
	Relation with peer	2

(Table by author)

Decision contexts. In the follow-on study, conflict occurred within three contexts: (1) oneself, (2) the subordinate, and (3) the mission. The first, *oneself*, reflects decisions where leaders are the core source and focus. This typically is noticeable in one-to-one or one-to-few relationships between superiors and subordinates. The second, *subordinate*, is personnel-related where decisions regarding individuals are made based on a leader's formal authority over subordinates and the duty to respond to inappropriate behavior. The third, *mission*, consists of leadership decisions about organizations. The table provides details about the types of contexts and subcategories collected in the study.

Decisions regarding resource allocation involved moving or repositioning organizational elements to accomplish an objective. Process improvement involved decisions that the leader sought to correct insufficiency or ineffectiveness within the organization. Reorganization decisions involved the restructuring of specific units or elements but not necessarily for improvement. Partnering

decisions involved working with other U.S. military forces or U.S. executive departments. Systems decisions involved the application of technology and its support to the mission; however, because there were so few decisions, it is only included in the overall analysis.

Within the *subordinate* row, decisions were made because of a subordinate's poor judgment, toxic leadership, sexual misconduct (e.g., sexual abuse and sexual harassment), contractor misbehavior, which typically involved contractor power projection issues against the leader, and illegal activity.

The decisions within the *oneself* row occurred during a leader's interaction with someone of higher rank—typically a general officer or equivalently ranked civilian—with a subordinate or with a foreign leader. Mentions of peer and self-aware decisions were so small that details from them were not included in the article, but they were included in the overall analysis of the table (on page 77).

The three decision contexts are nested—fully contained within another—and these types of relationships are typical in hierarchical systems such as the Army.[9] For example, the *mission* is the function that an organization serves. The people in the organization, the leader's *subordinates*, are the means by which the mission is executed, and the leader has a personal stake in leveraging personnel in order to accomplish the mission. The object of a leader's *oneself* decision is not knowledge (i.e., concepts, tactics, or strategy of an organization) or influencing other's behavior. Rather, it is about the leaders themselves, because, whether by design or circumstance, they place themselves reflexively in a very personal interaction with the people around them. This suggests that the leader is the critical player because he or she is at the center of all three decision contexts.

Adrian Wolfberg, PhD, is a Defense Intelligence Agency officer who recently finished his rotation as the chairman of Defense Intelligence at the Department of National Security and Strategy, U.S. Army War College, Carlisle, Pennsylvania. He earned his MS from the National War College and PhD in management from Case Western Reserve University.

Decision conflict. The aforementioned decision contexts were affected by three distinct types of conflicts in the study: (1) psychological, (2) social, and (3) cognitive. Psychological conflict, for the purposes of this study, emanates from within and is defined as internal, emotional tension during a situation in which the leader has a personal stake while interacting with others, regardless of the decision-making context. Social conflict is defined as emotional pressure, behavioral resistance, or verbal threats toward the leader. Cognitive conflict, or cognitive factors—which most studies of individual decision-making within organizational contexts focus on—is conceptual and is defined as the differences in intent, interpretation, meaning, and understanding between the leader and others during decision-making.[10]

A distinguishing feature of the psychological and social conflicts are their emotional nature: the former emerges from within; the latter from outside, from others. Because of the interpersonal and group dynamic nature of work, understanding of emotions is an important factor for leaders to achieve successful outcomes.[11]

What follows next are quotations, each one from different officers participating in the study, illustrative of each type of conflict within the aforementioned contexts. Name, gender, specific organization, location, and rank have been anonymized.

Psychological conflict. Examples of psychological conflict are listed below for many of the types of decision contexts. Note the internal emotional tensions experienced by the leader in these examples.

Oneself: Interaction with a subordinate

> Despite my specifically stated objection to hiring the applicant, they hired the individual behind my back and then lied about it. Firing or terminating them meant losing their significant amount of technical/institutional knowledge and potentially risking mission degradation or failure. **Keeping them, doing nothing would set a dangerous precedent and diminish my authority as the commander**. (Active duty O-5)

Subordinate: Subordinate's toxic leadership

> I made the decision to relieve a battalion senior warrant officer … **he had become verbally and physically aggressive** with other battalion leaders, both officer and noncommissioned officers. I had personally known and served with this warrant officer for over a decade, including in combat. I had also personally hired him for the job **because of my trust in him and his professional competence**. (Active duty O-6)

Col. Ross Coffman (*seated, left center*), 1st Brigade, 1st Armored Division brigade commander, and his brigade staff and battalion commanders listen to an intelligence brief 22 January 2015 during the Leader Training Program at the National Training Center, Fort Irwin, California. Commanders are faced with decisions every day that impact their subordinates, their superiors, and themselves. (Photo by Capt. Sean Williams, U.S. Army)

Mission: Reorganization

I went to my leadership with organizational structure issues in my directorate in April. I staffed it with my boss and **began making changes** as briefed. I was informed in July that I was being investigated for toxic leadership. **This churn since April has affected my self-esteem and caused me to, at times, second guess my leadership skills on dozens of issues**. I also have isolated my views more than in previous years because of fear of being misrepresented. Have had to fight my gut instinct to shut down my input. (Active duty O-6)

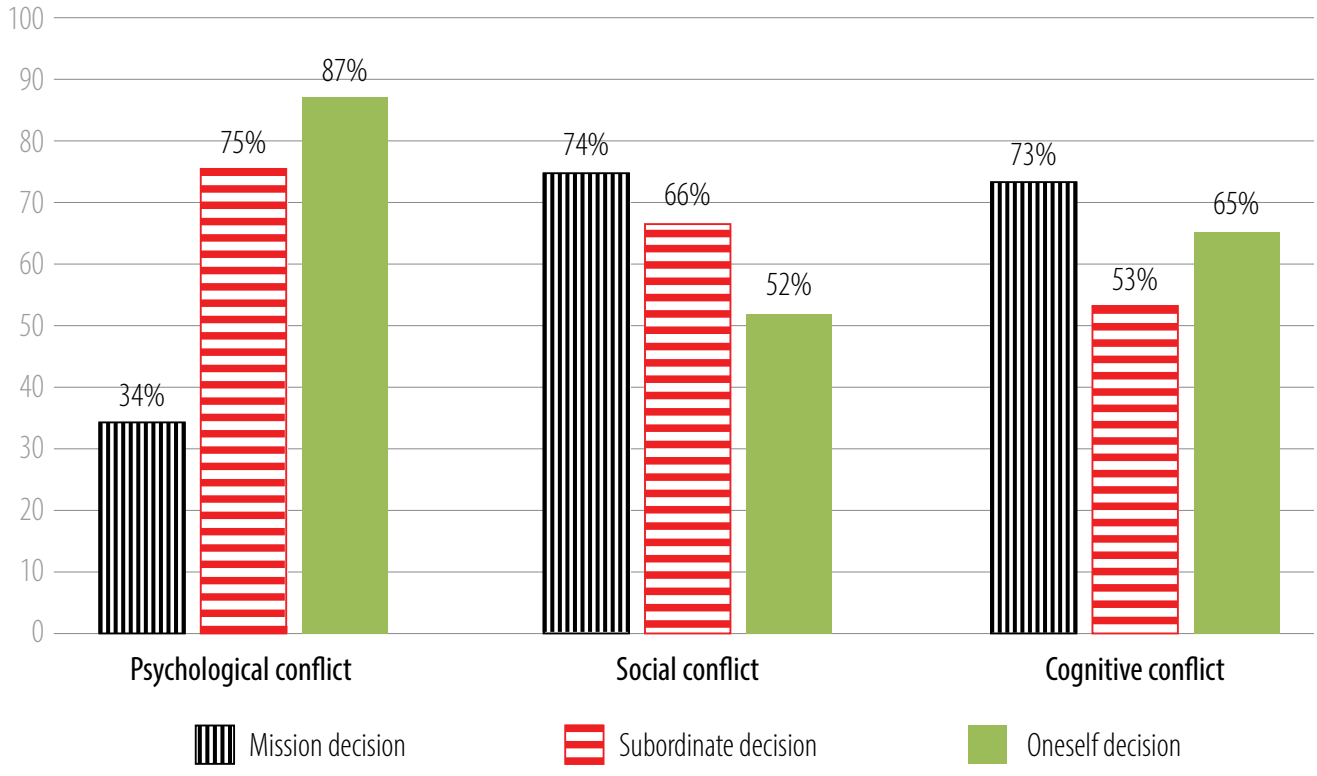
Social conflict. While reading the examples of social conflicts, note the emotional pressure, resistance, and threats from others experienced by the leader.

Oneself: Interaction with a foreign leader

I traveled with a host nation general officer to a remote location secured by U.S. forces. He wanted to walk downhill to engage with local leaders. I decided to walk down with him, **without higher approval or security planning, to show him trust and not to hide behind the rules**. Walking down the hill proved to be risky but absolutely cemented trust early and well beyond what my predecessor achieved in a year. (Active duty O-5)

Subordinate: Subordinate's poor judgment

I received several **complaints of conflict of interest, misappropriation**, and other charges against one of my battalion commanders. My boss wanted me to relieve him. Because my deputy and command sergeant



(Figure by author)

Figure 1. Percent of Conflicts in Decisions

major briefed me on the prior relationship (about the situation), **I went against my boss** and, instead of firing the battalion commander, I suspended him for thirty days. (Active duty O-6)

Mission: Process improvement

I inherited an organization that had been task-organized to achieve operational efficiencies. I directed the brigade and battalions to (make) changes. **There was a lot of pushback**. We worked through hurt feelings from changes in command and supervisory relationships, through tense discussions on operational versus support value and priority in the formation, through resistance to the physical and administrative work required to reorganize iterative staff and command discussions.... **It required overcoming the emotional and organizational resistance.** (Active duty O-6)

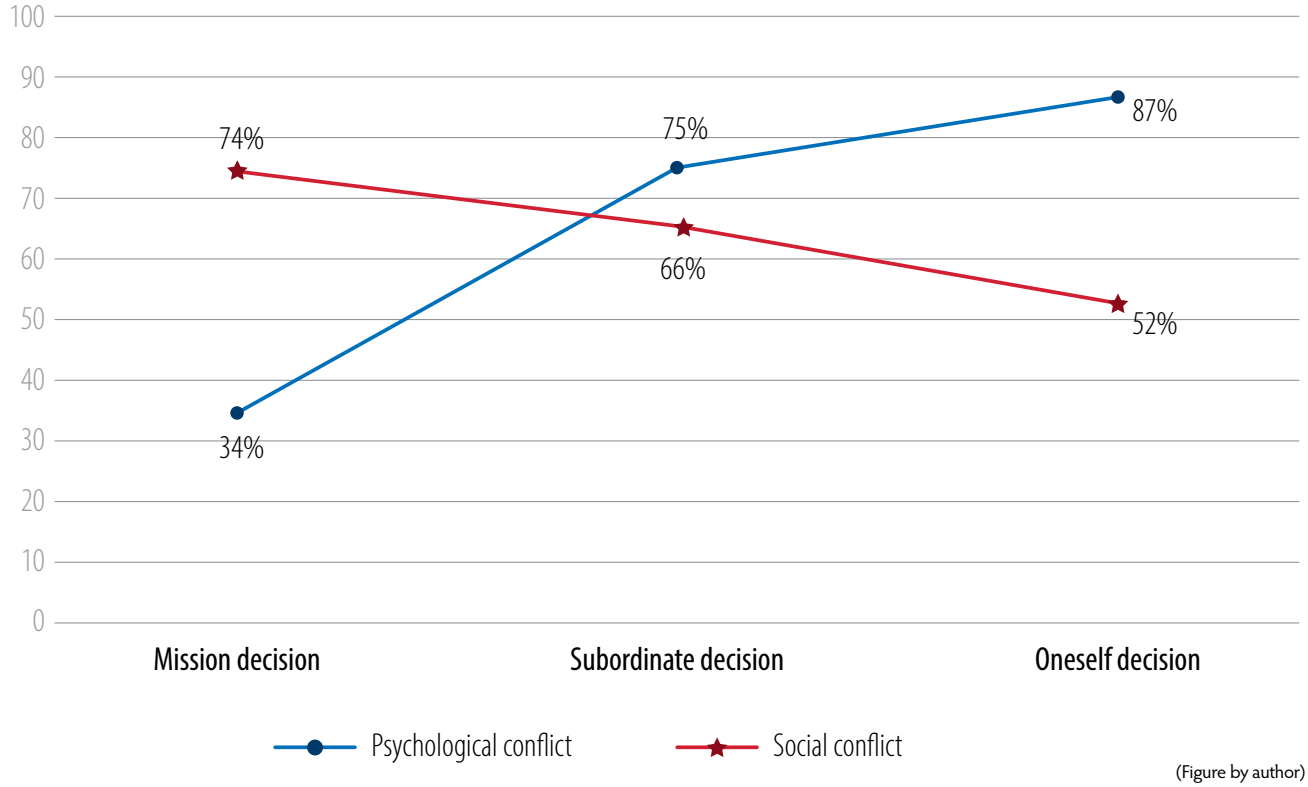
Cognitive conflict. Examples of cognitive conflict are listed below for many of the types of decision contexts. Note the problems with intent, interpretation, and meaning.

Oneself: Interaction with a superior

A general officer was using Reserve component personnel in, what I thought, was a violation of federal law. That general officer was my rater. **I confronted him several times about the issue.** He said he could remedy this issue but never did. After some months, I went over his head. (National Guard O-6)

Subordinate: Subordinate's sexual misconduct

During combat operations, there was something happening to the females during our initial visit of their battle space. I discovered some of the female soldiers were being sexually harassed and abused. **I was surprised that a female soldier was still dedicated to the platoon leader** who was having sex with her. (Active duty O-5)



(Figure by author)

Figure 2. Patterns of Psychological and Social Decision Conflicts

Mission: Resource allocation

I was tasked to develop options on a DOD program, but it did not have congressional support and only limited DOD support. My recommended option was approved by senior leadership. **I endeavored to explain the decision and offer feasible mitigation** measures to the combatant commands; however, **they continued to misinterpret the decision,** and I underestimated the amount and level of communications necessary to achieve shared understanding. (Active duty O-6)

Conflict is widespread in decisions. The three types of conflicts (psychological, social, and cognitive) were present in most of the 193 decisions, to varying degrees, and included multiple types of conflicts. Figure 1 (on page 80) summarizes these results. Note that because the multiple types of conflicts occurred within decision contexts, the percentage totals in figure 1 exceed 100 percent.

Psychological and social conflicts. On the one hand, as figure 1 shows, the extent of psychological conflict increased when it transitioned from *mission* to *subordinates* to *oneself*. On the other hand, social conflict decreased as decision contexts shifted in the same direction. This pattern can be seen by focusing only on the left-hand and center groupings of bar graphs in figure 1, titled "Psychological Conflict" and "Social Conflict."

Thirty-four percent of psychological decision conflicts are *mission* related. This increases to 75 percent for subordinate decisions and 87 percent for *oneself* decisions. Social conflict decisions were 74 percent for *mission* decisions, 66 percent for *subordinate* decisions, and 52 percent for *oneself* decisions. Figure 2 shows the same increasing and decreasing dynamic for only psychological and social conflicts.

By framing the data from figure 2 differently, psychological and social conflict both increase depending on which decision context one starts at. Psychological conflict increases as the leader shifts from *mission* to *subordinate* to *oneself*, while social conflict increases as

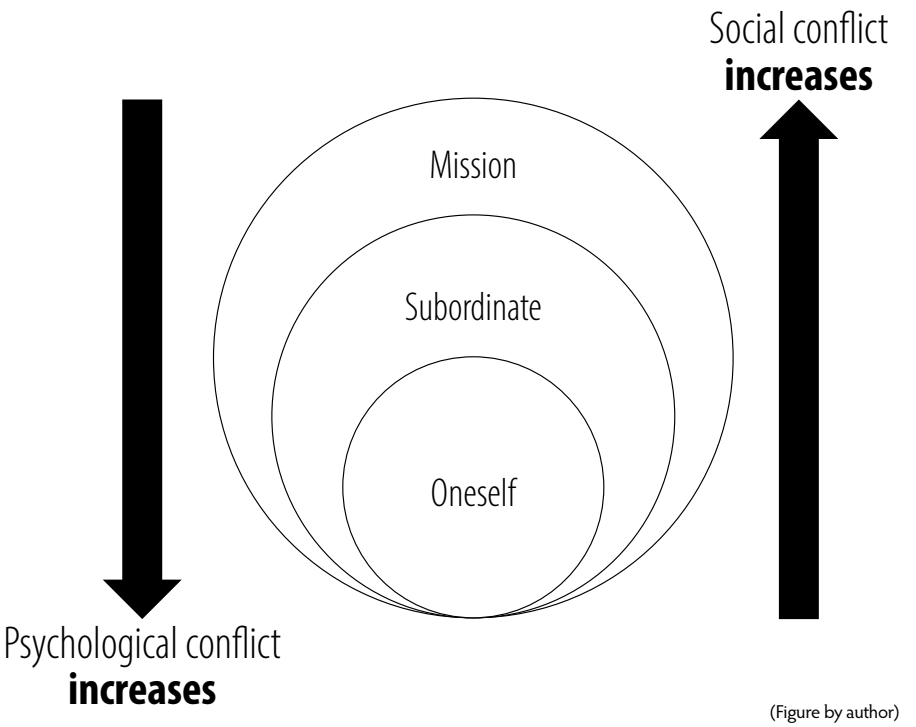
the leader shifts from *oneself* to *subordinate* to *mission*. The leader cannot easily escape these emotional conflicts in decision-making, and figure 3 portrays this increasing presence of emotional-laden psychological and social conflict within the decision contexts.

Recommendation

Because this systematic study is exploratory, it provides an initial glimpse into emotional conflict within military decision-making. Consequently, prescriptive advice is not yet feasible. What the results can do, however, is suggest a learning framework to guide leaders toward a deeper understanding of conflict in their decision-making.

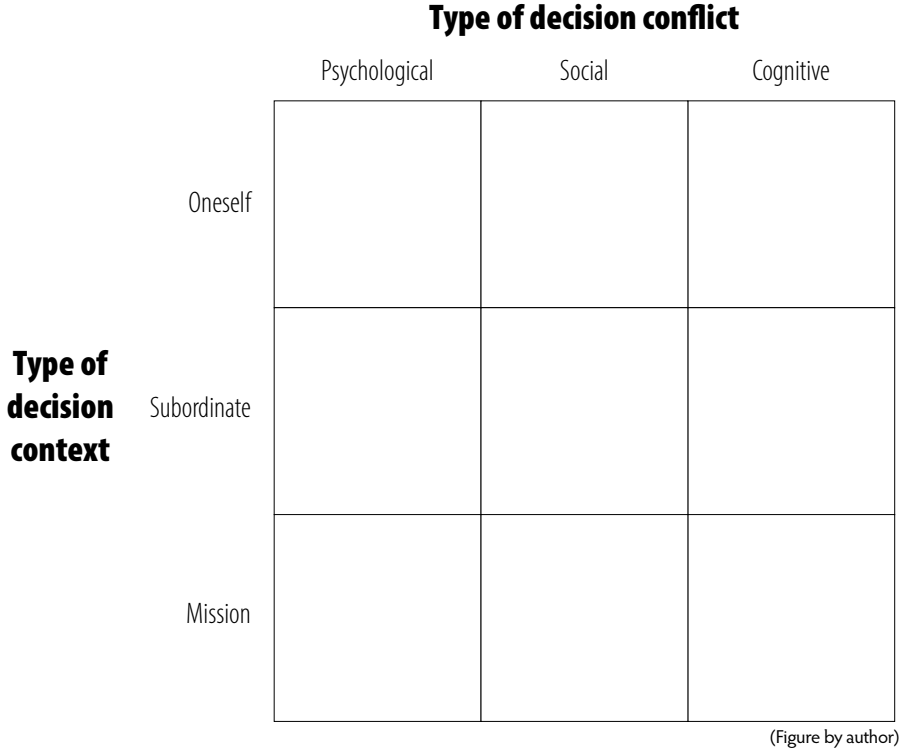
The framework establishes a relationship between decision conflict and decision context. Figure 4 shows the framework in a three-by-three matrix format. On the side of the matrix, the three types of decision contexts are shown: *oneself*, *subordinate*, and *mission*. On the top of the matrix, the three types of decision conflicts are shown: psychological, social, and cognitive. The matrix produces nine possible insights.

The framework can be used retrospectively to analyze a leader's decision. This can be done as an informal or formal case study. A decision can be described verbally or in writing to the fullest extent. The analysis of the decision can be accomplished individually or in a group setting. For



(Figure by author)

Figure 3. Increasing Tendency of Psychological and Social Conflict in Decision-Making



(Figure by author)

Figure 4. Framework for Retrospective Analysis of Decisions

each of the nine relationships in the three-by-three matrix, a qualitative or quantitative value can be assigned. For example, high, medium, or low could be used to characterize the extent of a conflict in one of the context types.

A retrospective analysis could produce a pattern from the nine squares, which could then be compared with other patterns. Comparisons of the same leader's decisions could then lead to a deeper understanding of how conflict manifests itself in a leader's decision-making. In professional military education programs like the mid-career Command and General Staff College or senior-level Army War College courses, the framework could be used as a practice technique for analyzing conflict so leaders can gain proficiency analyzing their personal and subordinates' decisions.

Summary and Future Research

The purpose of this study was to explore whether, and to what degree, conflict exists in leader decision-making. Army colonels experienced three types of conflict (psychological, social, and cognitive) within three decision contexts (oneself, subordinate, and mission). The emotionally laden psychological and social conflicts revealed that as decisions became more personal, psychological conflict increased; and as decisions became less personal, social conflict increased. Cognitive conflict was evident in most decisions.

A learning framework is proposed for the leader to retrospectively analyze their own or other's decisions in order to better understand the character of their decision-making. Once such a characterization is understood, mitigation techniques for improving resiliency in decision-making could then be developed and, with practice, initiated.

Future research with a larger sample of colonels would help to validate this exploratory, systematic study or gain different insights. Future qualitative studies could expand the collection of decisions by Army captains and majors, which would be informative for officer development and senior leader selection. Similarly, in-depth studies to identify the consequences of relationships between conflict and decision, as well as mitigation efforts used against conflict, could add valuable insight to the complexity of Army decision-making. ■

Notes

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Russian Forecasts of Future War

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Strategists worldwide study not only the causes of past conflicts but also how to forecast and prepare for new ones. Forecasting the shape of future wars helps determine what capabilities nations require to thwart potential opponents and what issues to include in budget requests. Examining the future war scenarios of other nations can obviously lead to better domestic planning as well. Russian analysts are no exception to such studies. Its theorists constantly pursue an understanding of how war might evolve and unfold.

Russian future war planners input contemporary trends (scientific discoveries, etc.) into their analysis that lead to specific predictions (forecasts) as to how a future war might unfold and what its contents might be. These forecasts are further shaped by the logic of the situational context at hand, such as geopolitical conditions or resource exploitation potential. New forms (organizations, type of operations) and methods (new weaponry and military art) of fighting future conflicts are then considered and chosen to include a determination of the type of force correlations required to win future war battles.

Forecasting is the key to future war planning because it results in the most likely scenarios future war might take while attempting to avoid the "paths that lead nowhere" and accepting those that "help avoid errors."[1] This requires that Russia update its forecasting predictions on a regular basis to contend with the pace of scientific and other developments. Staying current, for example, helps define ways that cyber or information technology developments—such as the creation of directed energy, precision-guided weapons, and ecological or infrasonic weapons—affect future plans.

Of increasing relevance to forecasting is what Russian officers have long referred to as the initial period of war (IPW). To properly prepare for the evolving IPW environment, operational adjustments are required in peacetime. As noted by one prominent Russian officer, General of the Army Makhmut Gareyev, if conflict is

President Vladimir Putin attends a meeting on commissioning defense industry goods 19 December 2014 in the control and coordination room at the Russian Federation National Defense Control Center in Moscow. In accordance with Russian practice, forecasting the nature of future war is an essential collective civilian and military enterprise that relies heavily on military-oriented educational and research institutions. (Photo courtesy of the Office of the President of Russia)

imminent, previously formulated scenarios and models of combat operations will have to be implemented due to the speed and mobility of contemporary operations.[2] Planning tomorrow for a surprise development today is more than a day late, as the contemporary information environment's impact on the IPW may even result in the conflict's end before it starts, if enough capabilities and resources are destroyed or compromised.

This article focuses on the military's objective and openly expressed approach to future war planning. It first examines forecasting theory and how it assists planners in their future war preparations, to include consideration of how Russia views the shape of the contemporary IPW. It then considers the thoughts of several analysts, including the chief of

> The attainment of information superiority and the use of the mass media will stir up chaos and confusion in an adversary's government and military management and control systems.

the General Staff, as to future war's components and how it might be conducted.

Some Views of Russian Forecasters

Forecasting has been a part of Russian military thought for decades. In a 1975 work on the topic of forecasting, the term was defined in the following way:

> The study of the military-political situation, the pattern of war in the future, the prospects of developing strategy, operational art, and tactics, the qualitative and quantitative composition of the means of armed conflict (one's own and the enemy's), the prospects for the development of the potential of the war economy in the future, and the forecasting of the enemy's strategic and tactical plans.[3]

Contemporary authors have updated the concept but only in minor ways. Maj. Gen. (Res.) V. V. Kruglov, who wrote on forecasting and future war in 1998, 2016, and 2017, noted in 2016 that forecasting prepares the state for the most unexpected vectors of development, predicts global changes for the next twenty to thirty years, and estimates threats to the country thirty to fifty years out. Kruglov noted that President Vladimir Putin has requested work on a new, qualitatively different "smart" system of military analysis and planning. Weapon types, the nature of warfare, and better predictions of developments in the military, political, and strategic situations are required.[4]

Kruglov added that developing an armed struggle matrix for forecasters is difficult. The weapons, forms, and methods of employing formations, the theater's specific characteristics, and other issues change often. As technological and intellectual standards change, so does the nature of wars and future armed struggles.[5] He recommended that forecasts and assessments be made every three to six months.[6]

In 2017, Kruglov and Lt. Col. V. I. Yakupov offered several important points to consider about forecasting's increased importance. They stated,

> The reason is armed struggle is steadily getting more complex, there is synergy between military and nonmilitary confrontation means, and lots of other factors. There are new spheres (continuums) of military confrontation: information-communication, consciental (psychological), and cognitive (area of thinking). Before long, new types of weapons will appear and, therefore, also new spheres of struggle (that are not much in evidence or are only forecasted).[7]

The authors ruled out a large-scale war but noted that forecast-based risks may entice confrontations to occur. However, starting such a conflict without a foregone conclusion of success is dangerous. Surefire forecasts are mandated, requiring a solid knowledge of forecasting theory and methodological skills.[8]

Kruglov and Yakupov explained that an objective difficulty of forecasting is simply the uneven progress of knowledge. With nano and other technologies increasing by some 35 percent a year, it is difficult to forecast which countries will make what discoveries and what their impact will be on their military forces. Further, the active and covert use of nonmilitary means are extremely difficult to "analyze, consider, and formalize, and this makes even more complex the process of forecasting armed struggle and interstate confrontation."[9] Not mentioned by these forecasters are the expected changes to be wrought by quantum computing, artificial intelligence, and other discoveries that may double forecasting difficulties.

Forecasting the use of new weaponry with covert (cyber) or surprise characteristics has forced Russian analysts to focus on the growing importance of the IPW. Those nations that gain the initiative in the IPW due to scenarios that are preplanned will be more likely to attain initial success that could even lead to the quick subjugation of an opponent. Most likely, Russia's IPW focus is a direct result of the Soviet experience in World War II when the nation was not properly prepared to go to war with Germany and experienced early setbacks. Now, in the age of cyber, information superiority has

become crucial to success in the IPW. Russia must begin shaping the information environment (and geopolitical one) to its advantage in peacetime. Efforts can include planting cyber viruses in important systems of an opponent's infrastructure, capturing the electronic warfare frequencies and equipment operating parameters of a potential opponents' equipment, scrambling global positioning system frequencies, or conducting reconnaissance on key underwater cables for espionage or destruction purposes. Diplomatic, economic, and other environments are also potential targets of manipulation to enable victory in the IPW.

Russia's military often discusses the IPW. For example, a 2012 *Military Thought* discussion defined the IPW as operations conducted before the start of war to achieve objectives or to create favorable conditions for committing their main forces.[10] Outer space, information warfare, and new weapon capabilities were said to help create conditions favorable for the IPW. More importantly, "In all likelihood, the aggressor country is to be expected, still in peacetime, to launch a wide-scale targeted information operation and intense reconnaissance activities, including a set of related and closely coordinated actions."[11] Thus, if an opponent is expected to perform in such a manner, Russia must either counter these actions or, more likely, take the initiative themselves to achieve control in the IPW. The IPW, authors S. G. Chekinov and S. A. Bogdanov note, will include the launching of information operations that include technical and psychological attacks, along with electronic operations and fire strikes to disorganize government systems, demoralize populations, and prevent leaders from rallying forces to repel aggression.[12] The attainment of information superiority and the use of the mass media will stir up chaos and confusion in an adversary's government and military management and control systems.[13]

In 2015, P. A. Doulnev and V. I. Orlyansky added their input to the IPW discussion. They wrote that a contemporary military goal is to put an adversary on the verge of defeat at the beginning of hostilities, accomplished by wreaking havoc on its political and economic situation using information technology-generated psychological and other types of warfare; and by disabling the adversaries control of the country and armed forces through attacks on strategic installations and infrastructure. The ability to manipulate public opinion and utilize the benefits of nonlethal weapons is also under study.[14]

Perhaps due to concern for the United States' cybersecurity in the IPW, the Federal Bureau of Investigation (and earlier, the government of Ukraine) decided to no longer allow the sale of the Russian-produced Kaspersky antivirus solutions, a product sold in stores and advertised on prominent radio stations. Such products may have offered the ability to insert a virus or logic bomb into a critical information domain that would ensure Russia would have information superiority in an IPW. A recent *Wall Street Journal* article noted that the Kaspersky antivirus has been on a Defense Department watch list of potential problems since 2004. In 2013, the Defense Intelligence Agency issued a Pentagon-wide threat assessment about the company. U.S. officials noted that the firm's products were used as a tool for spying on systems in the United States.[15]

Contemplating Future War

After considering the trends in military affairs and how an adversary might use force or the manipulation of context in the IPW, theorists then contemplate how future war might unfold. The following summary from 2012 to 2018 of future war thought by several Russian military officers and civilians offers significant insights into a future war's potential conduct.

In 2012, G. A. Naletov, writing in the *Journal of the Academy of Military Science*, examined future war's impact on the development of new forms and methods of warfare.[16] Naletov stated that outwardly, the forms of military operations have changed little and include

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war, armed conflict, operations, strikes, engagements, battles, and combat operations, while their content has changed significantly. Armed struggle is qualitatively different regarding weaponry and methods of their employment. He listed fire strike, electronic strike, robotized, aerospace, air mobile, air assault, information-reconnaissance strike, counterreconnaissance operations, and other actions as some of them.[17]

Naletov observed that combat and noncombat forms of actions are converging; defensive operations will be more dynamic in terms of maneuver as well as retaliatory-meeting or preemptive strikes. Future operations will consist of indirect, noncontact, and actively preemptive effects.[18] He stated that it is time to "broaden the arsenal of resources" for conducting armed struggle, including weapons based on new physical principles (NPP). They will include geophysical, infrasonic, climate, laser, ozone, radiological, accelerator (beam), electromagnetic, directed energy (beam superprecision), nonlethal (against personnel: psychotropic preparations, infrasonic weapons; and against materiel: electromagnetic weapons, resources for radio-electronic suppression and physical effects against computers, and biotechnical and chemical resources that corrupt products), and genetic, ethnic, acoustic, and radio-frequency weapons.[19] The speed of decision-making, tempo, and conflict intensity will increase, while temporal parameters (time to accomplish missions) decrease.[20] Operational speed and intensity will not give an enemy time to organize countermeasures. The space domain will increase in importance, and the nuclear domain will find its burden somewhat decreased. These, Naletov wrote, "are the principal opinions about the development of new forms and methods of conducting future armed struggle."[21]

Authors P. A. Doulnev and V. I. Orlyansky, writing a few years later in the same journal, also noted space's growing importance. Space-based weaponry or military malware used for the first time capitalize on surprise and fully implement other principles of operational art. A critical goal will be to attain space superiority in future wars. The authors stated,

> Therefore, already in the nearest future we can expect the emergence of new forms of military operations in near space—space operations (military actions) aiming to defeat orbital alignments of forces, suppress radio communication systems in space, block orbital alignments of forces and means in specific areas of space, etc.[22]

Russia's *Army Journal* published an article in 2013 that Gen. Maj. Vladimir Slipchenko had apparently written before his death in 2005. It was odd that the article hadn't appeared earlier, as he was one of Russia's most popular military authors in the preceding two decades. Slipchenko wrote that superiority over an opponent was only possible after superiority in information, mobility, and rapidity of reaction were assured. Precise fire and information effects against economic structures and military objectives were required. Slipchenko referred to this as noncontact war. In such war, information confrontations would be continuous and would leave the operational and strategic levels and acquire a planetary scale.[23]

Information confrontation's principal goal is the maintenance of one's own information security and the lowering of a potential enemy's.[24] Recce-strike combat systems will be used extensively to detect and deliver strikes against various target types. This will, from Slipchenko's point of view, radically change the content and nature of warfare, since

> It will not be masses of forces, but rather recce-strike and defensive combat systems that will clash in such noncontact warfare. Their potentials are characterized not by the quantitative and qualitative superiority of one of the sides, but rather by structural and organizational factors, the uniformity and effectiveness of command and control, and the functional quality of communications and guidance systems and other links in the all-round support of military operations.[25]

Other Russian analysts and Slipchenko stress the importance of structure and organization over quantity and quality.

Also in 2013, Gen. Lt. Victor Vinogradov shared his thoughts on how war may unfold in the future. He assumed the IPW would have a distinctive flavor of surprise and would include the use of weapons based on NPP, tilting war quickly toward the use of mass destruction weapons.[26] Offense and defense would share the following distinctions:

- the growing role of the first electronic and fire strike,
- resolve in achieving the goals of an operation,
- a dynamic and maneuverable style of combat,
- a greater role for highly effective strikes,
- tense fighting to seize and hold the initiative,

A *Boyevaya Mashina Podderzhki Tankov* (BMPT) tank support fighting vehicle, also known as the "Terminator," on display 18 August 2018 at the International military-technical forum "ARMY-2018" in Moscow. Some Russian military theorists believe a modern ground force is essential to meet military objectives, but it should only be employed after setting conditions for success in other domains. (Photo courtesy of Vitaly V. Kuzmin, www.vitalykuzmin.net)

- sudden changes in the situation and tactics,
- a broader spread of simultaneous combat operations, and
- the rising role and significance of protection.[27]

Finally, in a nod toward military art, Vinogradov stated that the course and outcome of operations would be affected by a potential adversary's view on the ways that advanced weapons and operations will be used.[28]

In 2015, S. G. Chekinov and S. A. Bogdanov, two of the most popular Russian military authors with wide-ranging expertise (having written on indirect war, asymmetric war, twenty-first-century war, etc.), discussed forecasting and future war in the journal *Military Thought*. Forecasting, they note, reflects how the geostrategic situation is developing, how interstate relations are changing, and how these changes are affecting military art. To achieve its objectives, the military must "abandon decisively" the rigid canons of modern military art.[29] Perhaps this implies the extended use of more indirect and asymmetric responses to threat perceptions.

Long-term forecasting "has assumed the significance of a national task. Nothing will take the place of long-term forecasting trends in the way in which the geostrategic situation is going."[30] Forecasting must take into consideration that war's concept is expanding and includes economic, ideological, psychological, informational, and other areas, not just armaments.[31] Chekinov and Boganov support the contention that all efforts initially will be tied to the attainment of information superiority, noting that "information warfare in the new conditions will be the starting point of every action now called the new-type of warfare (a hybrid war) in which a broad use is made of the mass media and global computer networks."[32] Information weapons will paralyze the computer systems that control troops and weapons, and deprive the enemy of information transmission functions. Computers will turn into a strategic weapon of future wars.[33]

The authors believe that future wars will begin with strategic electronic warfare and aerospace attack,

augmented with cruise missiles, reconnaissance-strike and -fire delivery systems, and unmanned aerial vehicles (UAVs) and robots. The goal is overwhelming superiority everywhere.[34] Speed, synchronization, and concurrency will be decisive factors for military operations, with joint task forces and their strike assets

> Information weapons will paralyze the computer systems that control troops and weapons, and deprive the enemy of information transmission functions. Computers will turn into a strategic weapon of future wars.

controlled in real time relying on computers, telecommunications, and satellite communications.[35]

Chekinov and Boganov then offered a few unconventional thoughts on future war that were also mentioned by Naletov. They stated that unconventional arms might cause earthquakes, typhoons, or heavy downpours leading to the erosion of economies and to the intensification of tension among the population in an adversary country. Further, space-based attack weapons, orbiting battle space stations, automated weapons control, and new weapons of improved destructive power, range, and accuracy will require new forms and methods of warfare.[36] Electromagnetic, information, and infrasonic weapons may be used against forces, economic facilities, government and military control systems, and energy generation centers.[37]

Finally, future wars main distinctions are weapons designed on NPP; a reduction in the significance of nuclear weapons; strategic operations as the principal form of strategic task fulfillment; and a unified system for collecting and processing information through the integration of space, aerial, and ground reconnaissance capabilities for target allocation. The opening period of a future war with a competent enemy force would last at least a month, according to Chekinov and Bodanov, while the closing period has to conclude as soon as possible.[38]

In 2017, V. A. Kiselev, a professor at Russia's Combined Arms Academy, discussed two lines of thought in *Military Thought* that have emerged about how warfare is conducted today and in the future. First, wars are now designed to destroy a country's military and its economic infrastructure without the use of ground troops, just aerospace weapons. Second, wars still can be conducted to seize territory by eventually relying on ground forces to obtain the war's objectives.[39] In both examples, the use of precision weaponry begins the active phase of conflict after being preceded by diplomatic, economic, and financial moves. Kiselev offered a third type of warfare as well, one that relies on illegal armed formations or private military companies. In each of the cases he cites, Kiselev refers to conflicts in which the U.S. military had been involved, failing to mention that all three types were used by Russia in Syria if one interpolates special operations forces as ground forces.[40]

Kiselev focused on developments in future war's nature. He stated that

- outer space and information are two new independent spheres of combat actions,
- major targets and critical facilities will be attacked by precision fire and electronic and information attacks,
- reconnaissance-strike systems and electronic warfare systems should be used jointly,
- the technological constituent of future war will be weapons based on new physical principles, and
- information confrontation (in the form of a set of measures aimed at exerting influence on the will, emotions, behavior, psychology, and morale of the adversary) will play a prominent role.[41]

It is expected that information and cyberwar will merge and provide feed-forward and feedback between what he called psywars and neurowars (no further explanation of either term was offered).[42] Behavioral wars drew his special attention, describing them as not only a new warfare type but also as the weapons of tomorrow:

> At the core of those [behavior wars] is manipulating behavior algorithms, habits, activity stereotypes, etc. that have been installed in us by our social group, and also by our biographies and cultural environment. In short, the instruments for behavioral warfare work by

separating the habit from the previously formed type of activity, the situation that has formed the latter, and using behavior patterns to achieve other objectives.[43]

In closing, Kiselev noted that the theory of a new-type war must be elaborated, and it is "vital to develop the theory of asymmetric and indirect actions in conditions when the adversary acts with coalition groupings" and maintains numerical and technological superiority.[44] Asymmetric actions include secrecy, finding weak points and vulnerable facilities in an adversary, and imposing one's own version of conflict on an adversary.[45]

Gareyev, one of Russia's greatest military theoreticians, stated in 2017 that the greatest enemy for the art of war is a "stereotyped and schematic approach."[46] Regarding future war, Gareyev noted,

> As far as the operations and hostilities of the future are concerned, it may be assumed that they will differ by their increased scale, the participation of heterogeneous forces equipped with complex heterogeneous combat hardware, a high level of dynamism and maneuverability, the absence of coherent fronts, a dramatically and rapidly changing situation, a fierce struggle to seize and retain the initiative, and a strong electronic warfare element. All this will significantly complicate the command and control of troops and naval forces.[47]

A high level of planning will become the main prerequisite for success and previously formulated scenarios, and models of combat operations will have to be implemented due to the speed and mobility of contemporary operations.[48] This appears to be Gareyev's statement that these models and scenarios must be ready for the initial period of war.[49]

At a November 2017 speech to the Defense Ministry Collegium, General Staff Chief V. V. Gerasimov discussed the type of forces Russia should plan to use in case of war. He stated that primary military efforts would continue to be placed on the

development of nuclear and nonnuclear forces, the latter specified as precision-guided missiles and Kalibr and Iskander-M missiles. Other efforts included an emphasis on ensuring an echeloned system of aerospace defense, improving Russia's command and control system, improving the organizational development of general-purpose forces, creating self-sufficient groupings of troops and forces on strategic axes, and reequipping forces with state-of-the-art systems. Gerasimov discussed the need for increased readiness and arming of the military districts. He noted that improvements were made in UAVs, command-and-control capabilities, and electronic warfare systems.[50] Gerasimov's comment about increased arming of military districts implies an adjustment of the correlation of forces in each one.

Finally, in 2018, at the Academy of Military Science, Gerasimov produced what he described as the outlines of a probable future war. Such conflicts will feature the extensive employment of precision weapons and other types of new weaponry, such as robot technology. Priority destruction targets will include economic and state control systems, and the information sphere and space will be dynamically involved. Finally, a special role will be afforded to countering communications, reconnaissance, and navigation systems.[51] Gerasimov noted that UAVs, on the one hand, are witnessing the development of future multipurpose complexes that make both reconnaissance and strike tasks plausible. On the other hand, Russian scientists are developing futuristic systems to counter adversarial use of UAVs with weaponry based on NPP.[52] He foresees the use of precision means, including hypersonic, to shift the "principal portion" of strategic deterrence from the nuclear to the nonnuclear forces. The role of command-and-control organs is increasing in regard to decision-making, and future research must be directed at improving this area.[53] Local war experiences and Syrian operations have given "a new impulse for improving the system of the comprehensive destruction of the enemy."[54] Also of note, Gerasimov used the term "comprehensive destruction" three times in his presentation. In 2013, he noted that nonmilitary means would be used over military ones by a ratio of 4:1. There was scant mention of nonmilitary issues in 2018.

Conclusion

This analysis of Russian future war thinking over the past six years demonstrates that it is an evolving and dynamic process that is continuously being updated. An entire host of various weaponry (NPP, ecological, ultrasonic, etc.) is apparently under development. There were also warnings to Russian analysts to "abandon decisively" the rigid canons of military art and develop new methods for its conduct.

Three issues stood out from the analysis. First is the necessity to completely plan for the IPW now in peacetime; specific scenarios are required. Second is the warning that information technology's use in the IPW could end a war before it begins if, for example, information infrastructure or command-and-control nodes are completely put out of commission. Third, and perhaps most important, is the warning that a contemporary war's destructive nature, due to the growing capabilities of even conventional weapons, could quickly turn decision-makers to the use of weapons of mass destruction. Before long, new spheres of struggle (quantum, etc.), not much in evidence yet, will appear and make forecasting more complicated. These variables will enter the armed struggle matrix, affecting the forms and methods of combat actions, the theater's specific characteristics, and other issues such as nonmilitary trends.

Information warfare was stated to be the start point for all new types of warfare since even the mass media and global computer networks can get involved. The study of asymmetric, indirect actions, and aerospace operations is important. Finally, future war's priority destruction targets were stated to be economic and state control systems. Gerasimov's conviction that "comprehensive destruction" is required was not reassuring. Future war preparations also would involve assigning a special role to countering communications, reconnaissance, and navigation systems.

Russia will continue to evaluate all aspects of its operating environment and look for places where it can gain an operational advantage in the opening phase of any future conflict. One is reminded of the wise words of now deceased Russian Gen. Maj. V. D. Ryabchuk, who noted that "thought is the first to join a battle. Indeed, thought is a weapon."[55] ■

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Brazilian soldiers process migrants 24 April 2018 in Boa Vista, the capital city of the Brazilian state of Roraima. In February 2018, the Brazilian government tasked the army to lead support efforts aimed at mitigating the suffering and adverse regional socioeconomic impact resulting from thousands of migrants crossing the border into Brazil from the economically collapsing state of Venezuela. Migrants who could not be sheltered in the border city of Pacaraima were sent to Boa Vista and to other cities in the state. (Photo courtesy of the Humanitarian Logistics Task Force–Roraima)

Use of the Brazilian Military Component in the Face of Venezuela's Migration Crisis

Maj. George Alberto Garcia de Oliveira, Brazilian Army

Beginning in 2014, Venezuela's social, economic, and political crisis led thousands of Venezuelans to begin migrating to other countries, including Brazil, to seek better living conditions. The ongoing situation continuing from that period has created an unparalleled regional crisis for Latin America.

The majority of Venezuelans entering Brazilian territory arrive through the town of Pacaraima and proceed to Boa Vista, capital of the state of Roraima, or to other cities in the Brazilian Amazon (see figure 1). All of these cities lack adequate public infrastructure to accommodate such a mass influx, and the local job market of each is insufficient to absorb the incoming population. These factors have produced social impacts that are highly apparent in Pacaraima and Boa Vista such as homelessness, invasion of public spaces, an increase in prostitution, overcrowding of hospitals, and isolated cases of xenophobia.

(Image from Google Earth; modified by Michael Serravo, Army University Press)

Figure 1. Town of Pacaraima, Major Entry Point for Venezuelan Migrants into Brazil

As reported by the newspaper *Le Monde*, "at first, the population was moved by their plight and made several donations of clothes and food. But the growing number of migrants eventually outstripped compassion, which was gradually replaced with contempt and xenophobia."[1] Similar examples were reported by other media outlets. On 5 February 2018, a man set fire to a house where thirty-one Venezuelans were sleeping, causing serious burns to a twenty-four-year-old Venezuelan woman.[2] On 8 February 2018, a homemade bomb was thrown inside a house sheltering a Venezuelan family; a three-year-old child and the child's parents sustained burns.[3] On 17 March 2018, Brazilians invaded an improvised shelter in the town of Mucajaí, located about thirty miles away from Boa Vista, threw out the Venezuelans who were sleeping there, and set fire to their belongings.[4]

On 15 February 2018, the Brazilian government officially recognized the "vulnerable situation resulting from the [increased] flow of migrants to the state of Roraima due to the crisis" in Venezuela, and it reacted by creating a Federal Emergency Assistance Committee.[5] Brazil's Ministry of Defense was designated as the committee's executive office, and an army lieutenant general was appointed operational coordinator of the emergency assistance operations.

As a result, Brazilian military troops have been carrying out humanitarian operations in coordination with the United Nations (UN), law enforcement agencies, government agencies, nongovernmental organizations, and religious and philanthropic institutions, receiving Venezuelans entering Brazilian territory to escape the crisis in the Bolivarian Republic of Venezuela.

In conjunction with humanitarian efforts and in view of the increase in the cross-border flow, the Brazilian government has also expanded the presence of troops along the Brazil-Venezuela border for security, especially in the area around the town of Pacaraima. The higher number of Brazilian soldiers in this area has made it possible to increase border inspection operations and effectively fight cross-border crime.

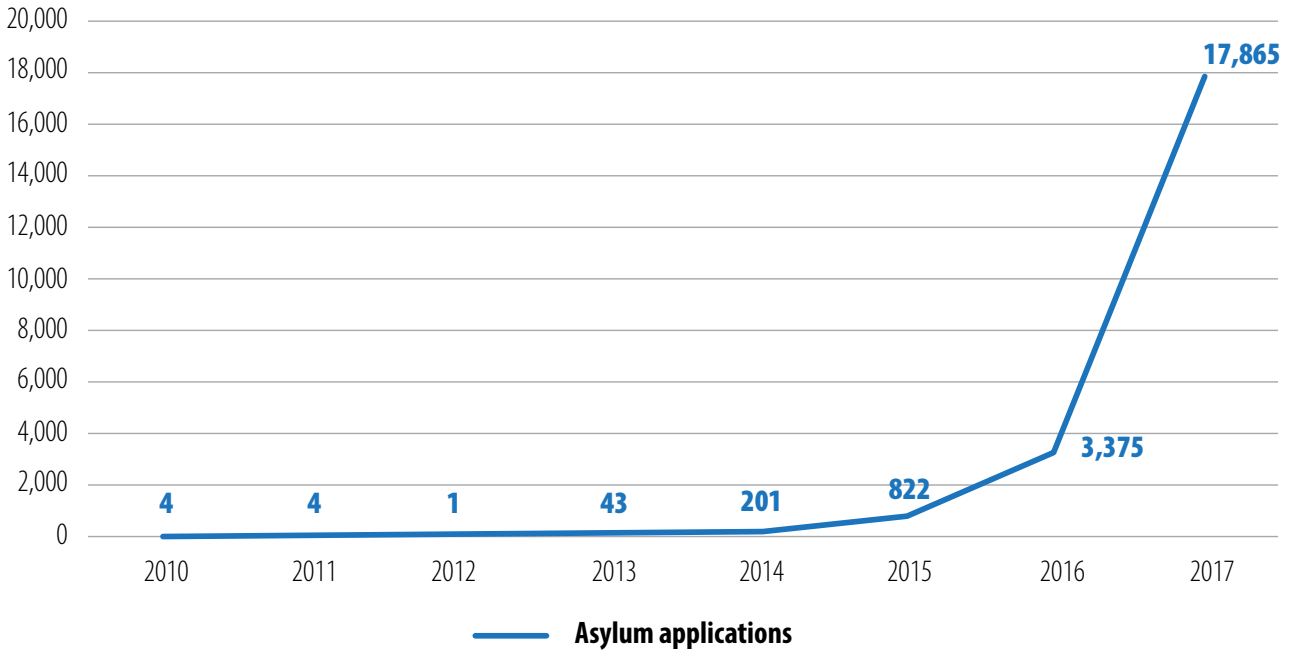
Brazil's current experience provides a vast field of study related to refugee migration. With the aim of sharing lessons, best practices, and opportunities for improvement, this article seeks to provide a brief analysis of the participation of the Brazilian military component in government efforts in response to the Venezuelan migration crisis.

A Global Problem

In an increasingly globalized world, local problems or crises tend to produce regional impacts. For instance,

the civil war in Syria that started in 2011 and continuous conflicts in Africa have resulted in a large migration wave toward the European continent. Between the years 2015 and 2017 alone, about 1.6 million immigrants reached the European Mediterranean coast irregularly.[6]

Typically, when a crisis begins, there is a tendency toward shortages of basic goods, unemployment, and increased levels of violence. This leads many people to seek help in neighboring countries, first by making periodic trips to purchase goods and then by immigrating in search of new job opportunities if the situation becomes too dire. This has been the pattern that the Venezuelan crisis has produced in Latin America.



(Figure from the Casa Civil website, Brazilian Government)

Figure 2. Asylum Applications by Venezuelans in Brazil from 2010 to 2017

This mass displacement of people toward Europe has created challenges for member states of the European Union (EU). In the security realm, the migration crisis led the EU to create, in October 2016, the European Border and Coast Guard "to ensure that Europe can protect its common external borders and face the new migration … challenges together."[7] In the humanitarian realm, the provision of food, water, and shelter has economically burdened several EU countries, especially Greece and Italy, primary destinations for the vast majority of refugees and immigrants.[8]

Migration cycles have always been a part of human history, but the European case is only part of a global scenario that features the highest level of involuntary population displacement in history. According to the Office of the United Nations High Commissioner for Refugees (UNHCR), by the end of 2015 there were about 54.9 million refugees in the world, a number higher than that recorded at the end of World War II.[9]

Causes of Venezuela's Migration Crisis

The international community has followed with apprehension Venezuela's socioeconomic and political crisis, which began during President Hugo Chávez's administration and worsened during the tenure of the current president, Nicolás Maduro.

From an economic standpoint, the figures are disturbing. Projections by the International Monetary Fund concerning Venezuela for the year 2018 indicate that there will be a 15 percent downturn in the gross domestic product and that product prices will increase more than 13,000 percent.[10] Negative economic prospects in the short and medium term tend to aggravate the refugee crisis.

Regarding public security and governance, a study conducted by the InSight Crime Foundation indicates

that Venezuela has serious problems, among which the following stand out:

- existence of state officials linked to organized crime;
- corruption of Venezuelan elites and misappropriation of public funds;
- transfer of state powers to armed civilian or militia groups known as "colectivos" (which establish a parallel justice system in the districts and neighborhoods under their control);
- growth of organized crime;
- high rates of violence by state and nonstate actors, evidenced by the highest murder rate in Latin America (eighty-nine homicides per one hundred thousand inhabitants);
- easy recruitment of young people by organized crime; and
- deaths during protests against the current government, consistently denounced by other countries and by the Office of the United Nations High Commissioner for Human Rights.[11]

In Venezuela's current reality, most people face hunger, unemployment, and shortages of basic goods and medication. Violence, which is a symptom of the process of state failure, has taken over the streets of big cities and small towns alike. Trying to escape this situation, thousands of Venezuelans find themselves forced to leave their country in search of better living conditions.

According to a UNHCR report, between 2014 and 2017, one million Venezuelans migrated to other countries due to the crisis. Main destination countries for these immigrants include Colombia, Chile, Peru, the United States, Ecuador, and Brazil.[12] And according to data from the Brazilian Federal Police, between January 2017 and June 2018, about 127,000 Venezuelans entered Brazil legally through the border checkpoint in Pacaraima. Of this total, about 59,000 remained in Brazilian territory.[13] Another piece of data that demonstrates the significant influx of Venezuelans into Brazil is the number of asylum applications. While in 2010 only four Venezuelans applied for asylum in Brazil, this number reached 17,865 in 2017.[14] The upward trend in the number of asylum applications may be seen in the graph in figure 2 (on page 96).

Impact on Brazilian Border Region

The town of Pacaraima has a population of about twelve thousand inhabitants and is located next to BR-174, the only highway connecting Brazil to Venezuela. In this town, there is a Brazilian army *pelotão especial de fronteira* (special border platoon), along with immigration and customs centers (under the responsibility of the Brazilian Federal Police and Revenue Service, respectively). Pacaraima has always served as a trading post, attracting Venezuelans in search of basic consumer goods and medical care. In addition, Brazilian tourists would often visit the beaches in the Venezuelan Caribbean, especially during the months of January, December, and July. However, in January 2018, after the death of a Brazilian tourist who was a victim of mugging in Margarita Island, the Brazilian Ministry of Foreign Affairs raised the alert level concerning Venezuela, discouraging Brazilians from traveling to that country for tourism.[15]

As the crisis in the Bolivarian Republic worsened, daily life in Pacaraima changed dramatically, especially after 2016. According to statements by the local mayor, the health and security sectors have been the most affected. Before Venezuelan migration intensified, about thirty people received care in one of the town's two health clinics each day. The average in February 2018 was around eighty people per clinic. Also according to the mayor's claims, muggings, thefts, and homicides, which had not been common in the small town, have become frequent events.[16]

The chaos resulting from the increased migration flow from Venezuela is especially apparent in the town's small business district. There are groups of people camped out on the streets and other public spaces, traffic is chaotic, and even clothing stores and pharmacies have been selling rice and other provisions sought by Venezuelans.

Maj. George Alberto Garcia de Oliveira, Brazilian Army, graduated from the Military Academy of Agulhas Negras in 1999 and completed the Advanced Military Studies Course at the Brazilian Command and General Staff College. Among his key assignments, he served as the operations officer for the 25th Airborne Infantry Battalion, commander of the 12th Guard Company, and instructor at the Military Academy of Agulhas Negras and Escola de Aperfeiçoamento de Oficiais (counterpart to the Captains Career Course). He is currently the operations officer for the 1st Jungle Infantry Brigade, headquartered in Boa Vista, state of Roraima.

As part of Operation *Acolhida*, Brazilian soldiers process migrants fleeing from Venezuela 24 April 2018 after busing them to the town of Boa Vista from the Pacaraima border control area in Roraima, a Brazilian state that borders Venezuela. Pacaraima sits astride the easiest land access route into Brazil. (Photo courtesy of the Humanitarian Logistics Task Force–Roraima)

Venezuela's crisis has also resulted in the influx of Warao natives, an indigenous people from northeast Venezuela, into Brazil. While they have moved to many other cities in northern Brazil, such as Manaus, Santarém, and Belém, many of them have remained in Pacaraima and Boa Vista.[17] Begging is a common activity among the Warao, and they were constantly seen asking for money at traffic stops and other spots with a concentration of people before the Brazilian military began their emergency efforts in the state of Roraima.

Daily life in the city of Boa Vista, the capital of Roraima, has also changed with the arrival of Venezuelans. A significant number of immigrants are living homeless on the streets. Public spaces such as Simón Bolívar Plaza, one the main squares in town, have been occupied by homeless families. Rates of violence and prostitution have also gone up. And the public health system has collapsed from the massive presence of Venezuelans in local maternity wards, hospitals, and health clinics.

> The General Hospital of Roraima, which handles 80 percent of adults from the entire state, provided care to 1,815 Venezuelans in 2016, more than triple the number of those served in 2015. In February 2017 … the hospital was treating, on average, 300 Venezuelan patients per month. The number of Venezuelan women seen at the Women's and Children's Hospital Nossa Senhora de Nazareth, which receives patients from the entire state, virtually doubled in 2016, reaching 807.[18]

The shelters set up by the local government prior to the use of the armed forces were insufficient and lacked the structure to absorb the number of Venezuelans arriving daily. The overcrowding of shelters, combined with the lack of access control, allowed these sites to serve as havens for Venezuelans who were committing crimes on the streets of Boa Vista. This situation caused

discontent among the Brazilian residents of Roraima's capital, as well as the emergence of isolated cases of xenophobia. It has brought unprecedentedly rapid economic and social challenges to the state of Roraima.

Brazilian Crisis Response

The deteriorating situation led the Brazilian government to issue Executive Order [*Decreto Presidencial*] No. 9,285 on 15 February 2018, which recognized the vulnerability of migrants caused by the humanitarian crisis in Venezuela, and Executive Order No. 9,286, also on 15 February 2018, which authorized the creation of the Federal Emergency Assistance Committee to receive those migrants into Brazil.[19] The committee would include representatives from various government agencies and ministries, including the Executive Office of the President, the Ministry of Defense, and the Office for Institutional Security.[20]

Pursuant to the executive order, the Ministry of Defense would serve as the executive office for the Federal Emergency Assistance Committee and would provide it with administrative support. In addition, an army lieutenant general was to be appointed as the Federal Emergency Assistance Committee's operational coordinator, responsible for coordinating emergency operations using the military component in cooperation with other institutions, government agencies, and Brazilian and international nongovernmental organizations.

As a result of the executive orders mentioned above, the Ministry of Defense issued Ministerial Directives [*Diretrizes Ministeriais*] No. 03/2018 and No. 04/2018, which established parameters and responsibilities for conducting Operation *Acolhida* (a word that denotes receiving, welcoming, refuge, and shelter, among other meanings) and Operation *Controle* (Control), respectively.[21] While the objective of the former is the humanitarian admission of Venezuelan immigrants into the state of Roraima, the latter is designed to increase security along the Brazil-Venezuela border.

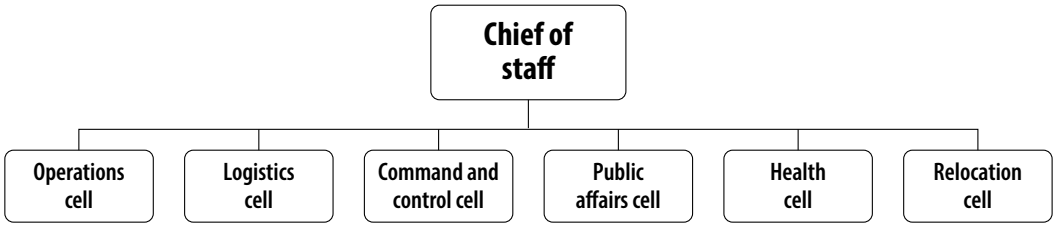
Operation Acolhida

Ministerial Directive No. 03/2018 authorized the initiation of Operation Acolhida for the purpose of providing humanitarian assistance in the state of Roraima. According to Brazilian military doctrine, a humanitarian assistance operation is designed to alleviate human suffering resulting from natural or manmade disasters that pose a serious threat to life or cause extensive damage, as well as to provide civic-social assistance. This type of operation is intended to supplement, with the use of military assets, the disaster response effort by the government and nongovernmental organizations.[22]

To plan and execute Operation Acolhida, Humanitarian Logistics Task Force–Roraima was created and placed under army Lt. Gen. Eduardo Pazuello.[23] This task force is charged with coordinating with the federal, state, and municipal governments regarding emergency assistance measures for receiving immigrants from Venezuela who are in a "vulnerable situation due to the migration flow caused by the humanitarian crisis."[24] In practical terms, this means receiving, identifying, screening, vaccinating, providing shelter, and relocating Venezuelans in need.

Operation Acolhida may be classified as a humanitarian, joint, and interagency operation. It is humanitarian because its primary purpose is to receive Venezuelan immigrants in a vulnerable situation. It is joint because it involves navy, army, and air force personnel. And it is interagency because there is a clear "interaction of the armed forces with other agencies for the purpose of reconciling interests and coordinating efforts" in order to receive Venezuelans in need in an organized, systematic, and efficient manner.[25] It is worth noting here the direct participation of agencies from all three levels of government (federal, state, and local), law enforcement agencies (police forces), international organizations, nongovernmental organizations, and religious and philanthropic institutions.[26]

Planning for Operation Acolhida was based on three pillars: organizing the border, providing shelter, and relocating Venezuelan immigrants. Organizing the border may be understood as organizing the Venezuelan migration flow from the moment of the immigrant's arrival at the border in Pacaraima. Migration control agencies lacked adequate personnel and infrastructure for handling the large number of Venezuelans who started to arrive in Brazil daily, which created the need to set up facilities and a workforce structure capable of addressing the new reality. The second pillar was the provision of shelter, offering decent conditions in lodging, food, and medical assistance to Venezuelans in need who, prior to Operation Acolhida, had started to haphazardly set up camps in public areas of Pacaraima



Cell organization	
Operations cell	Intelligence, operations, future operations, psychological operations, and civil affairs
Logistics cell	Personnel, logistics, and finance
Command and control cell	Command and control
Public affairs cell	Public affairs
Health cell	Health
Relocation cell	Relocation

(Figure by author)

Figure 3. Organization of the Humanitarian Logistics Task Force–Roraima's Joint and Interagency Staff

and Boa Vista. Removing them from the streets and providing them with good-quality shelters became crucial to the success of the operation. The third pillar was relocation, the process of distributing the population of Venezuelan immigrants to other states in Brazil. This process was deemed a critical factor from the beginning of planning, given that there is a limit to the number of vacancies at the shelters in Pacaraima and Boa Vista and that the Venezuelan migration influx into Brazil will not diminish in the short term.

To enable the planning and execution of the operations, a joint and interagency staff was created to advise the task force's operational coordinator and keep him informed of any developments and outcomes (see figure 3).

Humanitarian Logistics Task Force–Roraima

The Humanitarian Logistics Task Force–Roraima has established its command post in the city of Boa Vista and has five hundred navy, army, and air force personnel who work daily receiving Venezuelan immigrants, rotating on a quarterly basis. Because Pacaraima and Boa Vista are the two cities most affected by the increase in the Venezuelan migration flow, the task force has established a base in both (see figure 4, page 101). An overview of the migration flow of Venezuelans entering Brazil may be seen in figure 5 (on page 102).

Immediately after crossing the Brazil-Venezuela border, Venezuelan immigrants go to the Reception and Identification Center, manned by personnel from the Brazilian armed forces and other institutions and agencies, including the Federal Police, the Brazilian National Health Surveillance Agency (ANVISA), the UNHCR, and the International Organization for Migration (IOM). At this center, immigrants must declare to the Federal Police, which is the Brazilian agency responsible for migration control, their reason for entering Brazilian territory—whether for tourism, to request temporary residency, or to apply for asylum as the main options. Regardless of their intent, all immigrants receive guidance from UNHCR teams about the rights of asylum seekers and from the IOM about the rights of immigrants.

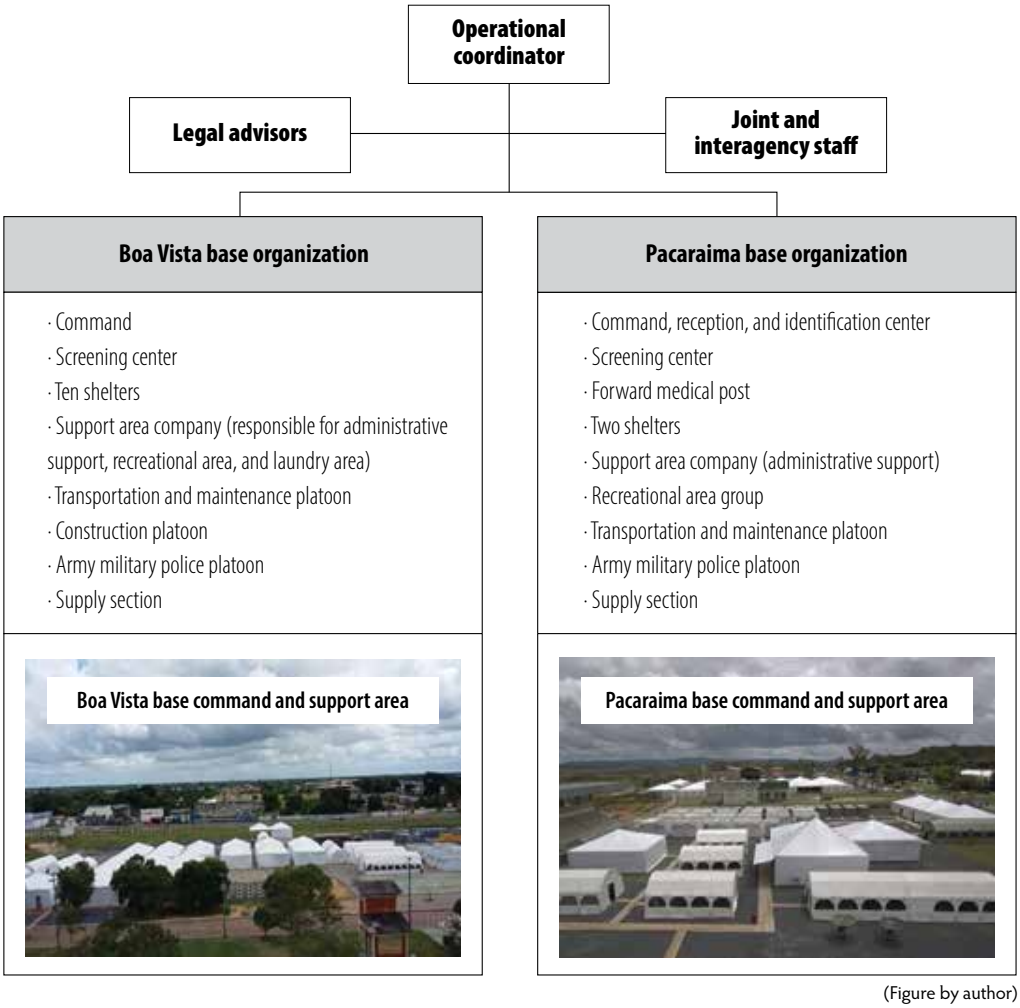
For its part, ANVISA checks each immigrant's immunization status. Immigrants who do not have proof of immunization receive a dose of the MMR vaccine against measles, mumps, and rubella, in addition to immunization against yellow fever. The purpose of this effort is to establish a health barrier to prevent the

entry and propagation of diseases in Brazil. In 2018, before Operation Acolhida began, several cases of measles were reported in Boa Vista hospitals, a disease that had been eradicated from Brazil since 2016.[27] Immigrants are also given a small meal at the Reception and Identification Center; after all, many arrive hungry. Once processing is completed, tourists may proceed with their trip, but those immigrants who wish to apply for asylum or temporary residency are sent to the Screening Center.

At the Screening Center in Pacaraima, Venezuelan immigrants who wish to apply for temporary residency or asylum must register with UNHCR and IOM for identifying the best shelter for them. Their luggage is inspected by customs agents. In addition, they are issued working papers, including the mandatory worker's record book and taxpayer identification number. Another meal is offered as well.

Venezuelan immigrants who are ill are sent to the *Posto de Atendimento Avançado* (Forward Medical Post), a field medical unit that includes doctors, dentists, pharmacists, and military medics. This post has twenty beds for patients with diseases of low to medium complexity. If the post is above capacity, patients are sent to the Hospital of Pacaraima, which also has military doctors. Immigrants with more serious diseases are immediately sent to the General Hospital of Roraima in Boa Vista.

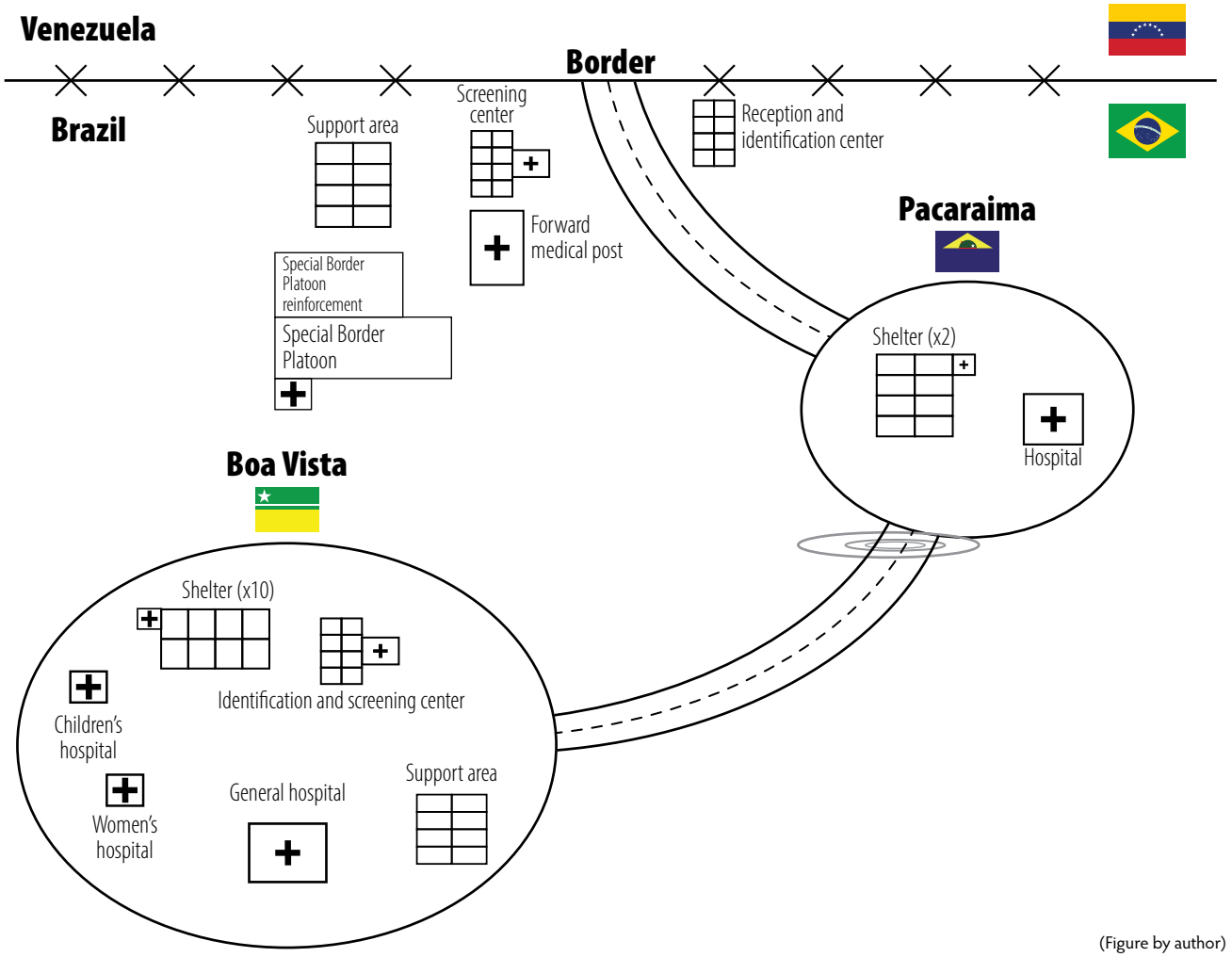
From the Screening Center, indigenous Venezuelan immigrants are sent to Shelter Janakoida in Pacaraima or Shelter Pintolândia in Boa Vista, while nonindigenous Venezuelan immigrants are sent to Shelter BV-8, where they remain until there are openings at the shelters in Boa Vista.



(Figure by author)

Figure 4. Organization of the Humanitarian Logistics Task Force—Roraima

Operation Acolhida has ten shelters in Boa Vista. In total, their shelters house approximately five thousand Venezuelans in Boa Vista and one thousand in Pacaraima. All of them were built or renovated by Humanitarian Logistics Task Force personnel with support from the 6th Engineer Construction Battalion, an army unit headquartered in Boa Vista. All shelters comply with the standards set forth in UNHCR publications, adhering to criteria concerning size, the space



(Figure by author)

Figure 5. Flow of Venezuelan Migrants through the Humanitarian Logistics Task Force–Roraima Base in Pacaraima

between tents, the need to establish communal areas, and the number of bathrooms, among others.

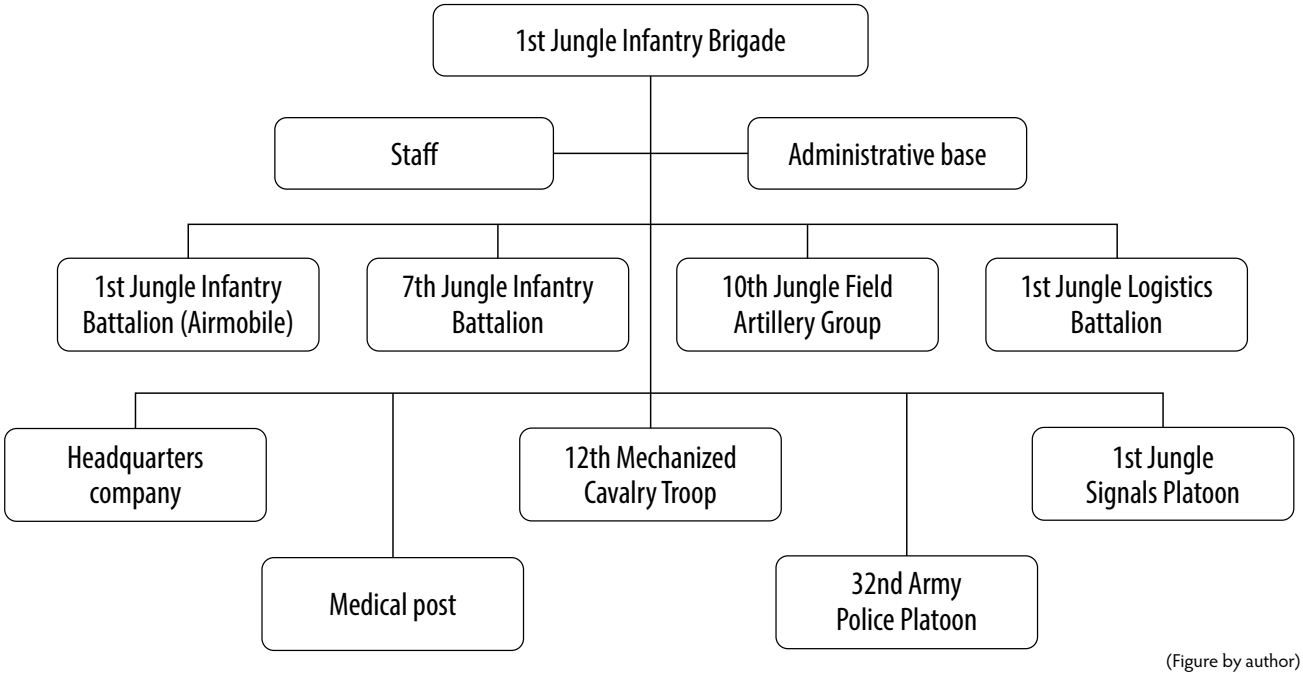
Some shelters are managed by Humanitarian Logistics Task Force personnel, while others are managed by the UNHCR. Nevertheless, it falls to the UNHCR to identify which shelter is the best suited to each Venezuelan immigrant. There are shelters for single men, single women, and families. Operation Acolhida personnel provide all the required logistical support for operating the shelters, including construction and repairs, external and internal security, medical care, and meal provision.

Regarding meal provision, the Humanitarian Logistics Task Force provides hot meals to shelters for nonindigenous immigrants and dry goods to those with indigenous immigrants, consistent with their culinary traditions. From 20 March to 20 August 2018, 1,029,000 hot meals and over 120 metric tons of dry goods were delivered to Operation Acolhida shelters.[28]

The existence of shelters within the urban area of Boa Vista raises several considerations. The UNHCR calculates that 60 percent of refugees and 80 percent of displaced persons in the world live in urban areas. Many avoid camps set up outside urban areas because of the lack of job opportunities.[29]

In the case of the Humanitarian Logistics Task Force, the decision to set up camps within the urban area of Boa Vista was based on the assumption that five hundred Venezuelans would be relocated each month. This number was reported by the 1st Jungle Infantry Brigade, which, in the context of Operation Controle, counted the

number of Venezuelan immigrants arriving and leaving the state of Roraima both by land and by air. Based on the data, it was found that on average, five hundred Venezuelans in need were remaining in the city of Boa Vista each month. However, relocation has not progressed as required. From the beginning of the operation through August 2018—that is, over a six-month period—only 820 Venezuelans were relocated (well below the projected goal of three thousand people). If relocation efforts fail to reach the desired pace and given the lack of areas available for building new shelters in Boa Vista, Venezuelan immigrants will potentially start once again to occupy public areas in Roraima's capital in a few months. Therefore, it is important to consider establishing shelters outside Boa Vista's urban perimeter, which would serve as intermediate centers, relieving pressure on the shelters already located within the city.



(Figure by author)

Figure 6. Organization of 1st Jungle Infantry Brigade

Operation Controle

The Ministry of Defense, though Ministerial Directive No. 04/2018, directed the Brazilian army to initiate Operation Controle, which would have the objectives of fighting cross-border crime and supporting migration control operations under the responsibility of the Federal Police, with the state of Roraima as its area of operations.

From this point, the Brazilian military followed its planning methodology. Because the operation was assigned to the army, it fell to the *Comando de Operações Terrestres* (Land Operations Command) to develop a military operational planning directive, which was sent to the *Comando Militar da Amazônia* (Amazon Military Command), responsible for most states in the Amazon region, including Roraima.

The Amazon Military Command then developed the operational plan for Operation Controle, which directed the 1st Jungle Infantry Brigade to intensify security along Roraima's border as of 20 February 2018 through preventive and enforcement operations, especially in the area of the special border platoons in Pacaraima and Bonfim, and in deep areas along the highways coming from Venezuela and Guyana.[30] To this end, the operations were to be coordinated with the Humanitarian Logistics Task Force, law enforcement, and relevant government agencies. It would also fall to the Amazon Military Command to provide the troops and assets to reinforce the efforts of the 1st Jungle Infantry Brigade, which has a strength of 3,200 troops. It is a large unit

formed by combat, combat support, and combat service support units (see figure 6, on page 103).

Upon analyzing the tasks assigned to the 1st Jungle Infantry Brigade for the purpose of fighting cross-border crime and supporting migration control efforts, several considerations guided this unit's tactical planning. Ten of them are highlighted below:

(Google Earth image; modified by Michael Serravo, Army University Press)

Figure 7. Checkpoints along BR-174 and BR-401 Highways

- BR-174 and BR-401, as the two main highways coming from Venezuela and Guyana, respectively, would need to be controlled through the establishment of roadblocks and checkpoints at the border.
- Because both borders are porous, allowing people to cross on foot away from border checkpoints, it would be imperative to conduct area patrols (on foot and motorized) in the regions around Pacaraima and Bonfim and to include the use of drones for surveillance.
- It would be important to increase troops in the regions around Pacaraima and Bonfim, given that the strength of each special border platoon (about seventy soldiers only) would not allow sustaining daily road control and area patrol operations simultaneously in the medium and long term.
- The deployment of troops, whether those already in Pacaraima and Bonfim or those sent as reinforcements, should channel the movement of immigrants to border checkpoints and, at the same time, discourage the use of illegal routes that provide access into Brazilian territory.
- In addition to establishing roadblocks and checkpoints at the border, additional ones should be established in deep areas, near Boa Vista, to check whether Venezuelans arriving at the capital went through migration control with the Federal Police.
- The success of operations would depend on effective coordination with law enforcement and inspection agencies that operate at the border and on federal highways, especially the Federal Police, Federal Highway Police, Revenue Service, and ANVISA.
- With no prospect of improvement in Venezuela's turbulent situation, the Brazilian government decided that the operation should proceed for a period of twelve months. Therefore, rotations and rest periods had to be stipulated.
- There was a need to reinforce training on cross-border crime and migration control, so the Federal Police and Revenue Service, the main beneficiaries of the increased military presence at the border, would be invited to help train deployed troops.
- The Brazilian population should be informed of all operations conducted by the 1st Jungle Infantry Brigade in the context of Operation Controle so it could support such operations and recognize them as useful and necessary (in this regard, it was observed that psychological operations troops should reinforce border operations).

Table. Task Organization of Task Force–Roraima

Detachment	Constituent troops	Tasks assigned
Border	Troops from the 1st and 7th Jungle Infantry Battalions, 7th Army Military Police Battalion, and 12th Mechanized Cavalry Troop (reconnaissance teams)	Establishment of roadblocks and checkpoints near the border in Pacaraima on BR-174 highway and in Bonfim on BR-401 highway; motorized and foot patrols along the border in the regions of Pacaraima and Bonfim
Roadblock	Troops from the 10th Jungle Field Artillery Group and 12th Mechanized Cavalry Troop	Establishment of deep area roadblocks and checkpoints on BR-174 and BR-401 (highways coming from Venezuela and Guyana)
Command and control	Troops from the 1st Jungle Signals Battalion and 1st Jungle Signals Platoon	Installation, use, and maintenance of communications system in the area of operations
Engineering	Troops from the 6th Engineer Construction Battalion	Building lodging for the troops
Logistics	Troops from the 1st Jungle Logistics Battalion	Logistical support to troops deployed in the regions of Pacaraima and Bonfim
Information	Troops from the 4th Intelligence Company and the 1st Jungle Infantry Brigade Intelligence Operations Group	Intelligence collection and analysis in the area of operations
Dissemination	Elements specialized in Public Affairs	Institutional dissemination of information about Operation Controle
Psychological operations	Detachment from the 1st Psychological Operations Battalion	Execution of psychological operations campaigns, prioritizing three target audiences: our troops, the population of Boa Vista, and Venezuelan immigrants

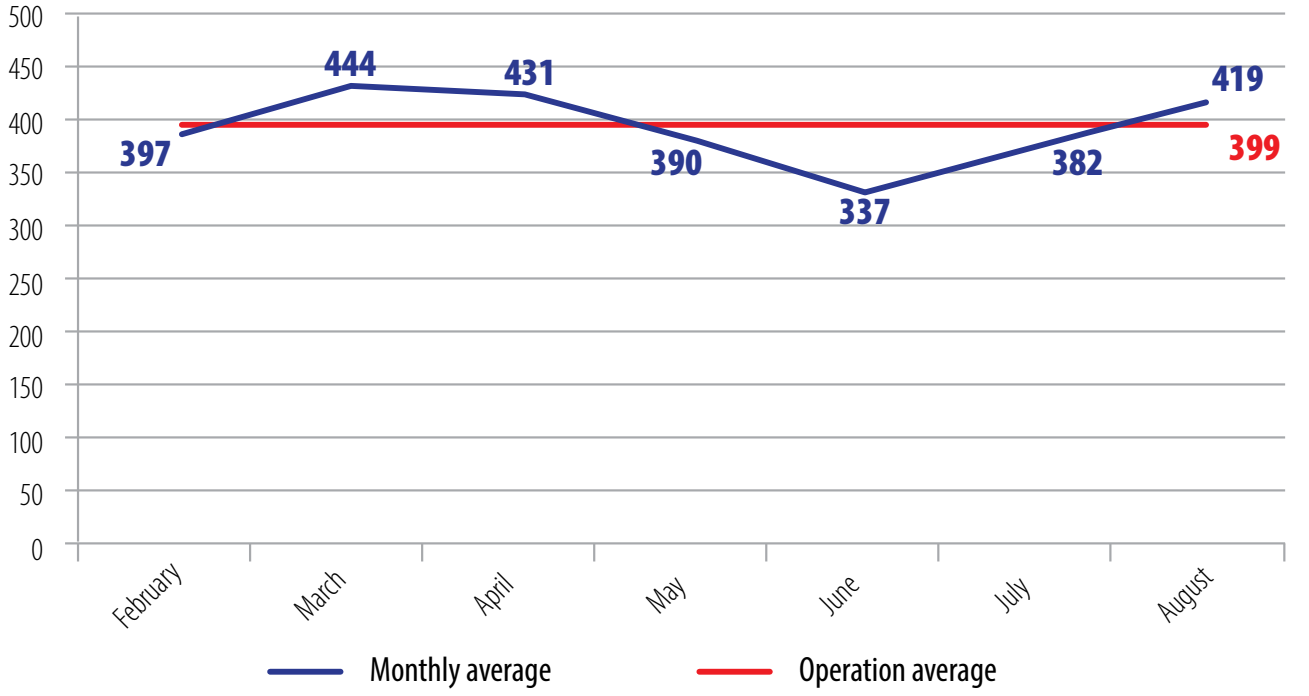
(Table by author)

- The operations conducted should be guided by the principles of visibility and legality. While the former would provide the Brazilian population with a sense of security, the latter would encourage Brazilian service members to treat Venezuelan immigrants with dignity.

To accomplish the mission, the 1st Jungle Infantry Brigade was reinforced with army military police, engineer, signals, psychological operations, and intelligence troops. Task Force–Roraima was designed based on both the brigade and reinforcement troops, and it was, in turn, organized into detachments with specific tasks, as shown in the table.[31]

Figure 7 (on page 104) shows the distribution of roadblocks and checkpoints within the area of operations. At the checkpoints, Task Force–Roraima personnel check immigrants' papers to make sure they have entered Brazil legally. According to standard procedure, people, vehicles, and luggage are inspected in a joint effort with customs agents. Metal detectors and detection dogs have been critical in these inspection efforts.

From the beginning of Operation Controle, the approximately six-mile-long dry and porous border in the region of Pacaraima was acknowledged as a terrain feature that would complicate the operations. Area patrols by reconnaissance teams from the 12th Mechanized Cavalry Troop, combined with the use of drones, resulted in the arrest of thirty-two Venezuelans who were attempting to enter Brazil irregularly. Many were being used as "mules," receiving about four U.S. dollars to enter Brazil illegally and transport smuggled goods.



(Figure by author)

Figure 8. Average Number per Day of Venezuelans Crossing the Checkpoint on BR-174 in Pacaraima toward Boa Vista in 2018

A component of the Task Force–Roraima commander's intent was to begin recording the number of Venezuelans going through the checkpoint on BR-174 in Pacaraima. To this end, they count the number of all Venezuelans crossing the checkpoint, whether they are traveling toward Boa Vista or toward Santa Elena de Uairén (in Venezuela). This tally, combined with numbers from the Humanitarian Logistics Task Force's Reception and Identification Center, makes it possible to track the Venezuelan migration flow.

Between 20 February 2018, when Operation Controle began, and 14 August 2018, 70,217 Venezuelans went through the BR-174 checkpoint in Pacaraima. Therefore, on average, 399 Venezuelans cross that checkpoint daily, traveling toward Boa Vista but not necessarily remaining in Roraima's capital. As may be seen in figure 8, the month of March shows the highest average for the operation (444 Venezuelans/day), while the month of June shows the lowest average (337 Venezuelans/day).[32]

While the daily average number of Venezuelans crossing the BR-174 checkpoint in Pacaraima toward southern Roraima is 399, the average number of those moving in the opposite direction is 116. In other words, according to the data compiled by Task Force–Roraima, for every four Venezuelans traveling toward Boa Vista, only one returns. This calculation is crucial, as it clearly shows the massive number of Venezuelans who have chosen not to return or to delay return to their country of origin.

Final Considerations

Humanitarian operations are complex and represent a challenge for military forces. In the area of logistics, for instance, tremendous efforts are required during humanitarian crises and disasters to provide civilians with much-needed transportation, food, medical care, and lodging, among other services. And the military is the main executor of humanitarian logistics.[33]

The Brazilian armed forces, in coordination with the UN, government agencies, and other civil institutions, have been conducting humanitarian operations, receiving Venezuelans who are entering Brazil to flee the crisis in the Bolivarian Republic. The complexity of the situation has provided lessons for the Brazilian troops, who have sought to adapt their warfare logistics

to meet the requirements of a mass population displacement due to a crisis in a neighboring country. It is worth noting here that the use of military forces in humanitarian operations such as Operation Acolhida is a striking feature of postmodern armies.[34]

In addition, it is critical to understand the problem of migration flow as an event that influences the stability of a country or region. Mass population displacements, especially those resulting from crises, alter border dynamics and cause social impacts on destination countries. Cross-border crime, for instance, tends to increase, while immigration and customs authorities may face constraints in carrying out their duties as defined in the Brazilian constitution.

In this respect, the Brazilian armed forces have also attempted, through Operation Controle, to mitigate the negative effects resulting from the growing influx of immigrants into Brazil from Venezuela. Troops have been repositioned or reinforced along the border, roadblocks and checkpoints have been established on cross-border highways, and border patrolling has been intensified with troops and drones.

Receiving Venezuelan immigrants in Brazil is an unprecedented mission for the Brazilian military, which previously only had contact with refugees and displaced persons abroad during missions under the auspices of the UN. There is certainly much to be done still, but the Brazilian military's quick response, the quality of shelters set up within the urban perimeter, the tailored logistics in food delivery, and the provision of good-quality medical assistance all demonstrate the success of Operation Acolhida and Operation Controle. ■

This article was previously published by Military Review *as an online exclusive in October 2018.*

Notes

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20. Exec. Order No. 9,286.

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30. A unique feature of the 1st Jungle Infantry Brigade is the existence of special border platoons deployed along the Brazil-Venezuela and Brazil-Guyana borders, each border being approximately six hundred miles long.

31. This system of organizing troops to accomplish a particular mission is known as "task organization." Besides the detachments, Task Force–Roraima has a headquarters company for structuring the command post located in Boa Vista and troops from the 32nd Army Military Police Platoon, used to reinforce the Roadblock Detachment's roadblocks and checkpoints and to escort convoys.

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Enabling Leaders to Dominate the Space Domain

Capt. Nicholas Deschenes, U.S. Army

The skillful leader subdues the enemy's troops without any fighting; he captures their cities without laying siege to them; he overthrows their kingdom without lengthy operations in the field.

—Sun Tzu

Sun Tzu's 2,500-year-old quote remains timeless as adversaries exploit the United States by taking advantage of its overwhelming dependence on the capabilities provided from space.[1] Inevitably, the conflict occurring in the contested space domain will descend to Earth, and the United States can only hope its adversaries show restraint.[2] As tactics like rendezvous and proximity operations evolve, and with the ambiguity of current international laws, the gray line of decision-making is blurring to indecisiveness in the minds of U.S. leadership.[3] However, codifying international norms and behaviors regarding the space domain will establish a position of strength for national leaders to operate from, permit delegation of authorities over space assets down to tactical-level subordinates, and allow them to dominate space by executing effective tactics in defense of U.S. space-based assets.

During a CNN Special Report in 2016, Air Force Gen. John E. Hyten, commander of U.S. Forces Strategic Command, reminded the world that history is set to repeat itself as the space domain continues to be contested. During the same CNN presentation, retired Air Force

Gen. William Shelton, Hyten's predecessor at the Air Force Space Command, stated that in the event of such a war, the United States would be unable to defend itself from the technologies being developed by its adversaries.[4] Almost two decades ago, Donald Rumsfeld, leading a space commission, disclosed that the United States is vulnerable to attack via space and is susceptible to a "space Pearl Harbor."[5] It is important to understand the significance of these statements and how incredibly dependent the United States is on space-based assets. An attack on strategic or commercial space assets could cripple the United States' military prowess and its economy, and degrade the global economy along with it.[6] In the chaos of a broken economy and with space assets unable to support military operations, the U.S. becomes vulnerable.[7]

Inadequacy of Current International Law

The most widely adhered-to international agreements associated with space are those within the Outer Space Treaty of 1967.[8] The basic precepts of the treaty are

- all nations are free to scientifically investigate space,
- celestial bodies are only to be used for peaceful purposes,
- weapons of mass destruction are prohibited in space,
- compensation is required for damage to another country's spacecraft, and
- contamination of space is to be avoided.[9]

Since this treaty was established when only a few nations could achieve orbit, this fifty-one-year-old document is most notably scrutinized for its irrelevancy and ambiguity regarding modern practices in the space domain.[10]

The Chinese antisatellite missile demonstration in 2007 provides the best illustration of the inadequacies of the 1967 space treaty. China destroyed one of its aging weather satellites traveling 800 kilometers above the earth with a ground-based kinetic strike missile.[11] It is estimated that the collision formed a debris cloud consisting of an estimated 300,000 fragments at altitudes ranging between 200 and 3,800 kilometers.[12]

The European Space Agency reports that identifying objects less than five centimeters in diameter in low Earth orbit is not feasible at this time.[13] Notwithstanding, simulations of the collision indicate that the majority of the generated debris was below this threshold, thus rendering the particles as "invisible" to ground or spacecraft detectors.[14] For perspective, collisions in low Earth orbit between particles four inches across and spacecraft are equivalent to a semitruck hitting a barrier at seventy miles per hour. Should one of these particles strike another satellite, it would spark a dangerous orbital chain reaction of satellite collisions that could render space useless for everyone.[15] Worsening the situation, the lack of atmospheric drag above an altitude of seven hundred kilometers allows this debris to orbit the earth for thirty years or more.[16]

China's use of a conventional kinetic weapon in space is legal under current international law.[17] A nation victimized by China's irresponsible proliferation of debris must rely on today's space treaties to seek compensation because the laws of armed conflict are irrelevant since China targeted their own satellite.[18] However, should a nation demand compensation for the damage caused by the resulting debris, it must prove, beyond a reasonable doubt, that China's demonstration caused the damage. China's legal representation will likely counter that "contamination" is debatable because it is undefined within current treaties. If the affected nation can correlate damage with Chinese actions, it must demand payment through the bureaucracy of the United Nations and hope China honors their obligation, as a forcing function does not exist. Lawmakers and politicians alike recognize these inadequacies and simply cannot agree on a resolution.

To little avail, numerous revisions to treaties, proposals of transparency, and additional conventions have been attempted to fix the inadequacies of space law.[19] The committee with the most participants, the United Nations' Peaceful Uses of Outer Space Committee, was established in 1959, but military and security operations are not applicable to this organization as its purpose is to promote international cooperation for the research of space.

Additionally, the nonproliferation of weapons in space and the security of space are supposed to be discussed

Previous page: A U.S. satellite uses a robotic arm to capture the Hubble Telescope satellite 2 July 2014 for in-space repair. A commercial satellite tracking agency has monitored a Chinese SHIYAN satellite with a similar robotic arm practicing maneuvers to capture and release other satellites. China could potentially use this capability for military applications against U.S. and other friendly satellites in the event of the outbreak of hostilities. (Photo courtesy of NASA)

U.S. Secretary of State Dean Rusk signs the Treaty of Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and other Celestial Bodies (known as the Outer Space Treaty) 27 January 1967 at a White House ceremony. At the table are (*right to left*) President Lyndon B. Johnson; Ambassador Arthur J. Goldberg, permanent representative of the United States to the United Nations; Sir Patrick Dean, minister of state for foreign affairs and permanent representative of the United Kingdom to the United Nations; and USSR Ambassador to the United States Anatoly F. Dobrynin. Dramatic advances in technology have rendered the treaty obsolete and largely irrelevant. (Photo courtesy of the United Nations)

during Geneva's Conference on Disarmament, but attendees cannot agree on their own agenda, let alone make substantial progress in determining international law. Furthermore, the Committee on the Prevention of an Arms Race in Outer Space at the United Nations has not had a substantial agreement in almost forty years.[20]

Contrary to the popular belief of many U.S. citizens, the Russians and Chinese have submitted the most documentation to the United Nations for solidifying space regulations.[21] In 2008, they codrafted the "Treaty on the Prevention of the Placement of Weapons in Outer Space" and introduced it to the Conference of Disarmament.[22] In 2014, their revised draft was voted on by the General Assembly of the United Nations, yielding a vote of 126 in favor, forty-six abstentions, and four against.[23] The United States was the primary party against the resolution because the treaty did not discuss any process to verify compliance with the treaty's stipulations. In late 2015, the United Nations General Assembly adopted Russia's "No first placement of weapons in outer space" resolution with similar ballot results. The United States, again the primary voice against the resolution, stated that "weapons" in space remains undefined.[24]

At face value, the United States' noncommittal stance may be misconstrued as an unwillingness to enhance prosperity for all in space. In this regard, China and Russia appear politically just in their resolve to foster peace. However, it is important to understand the United States' justification of not committing to formal agreements without a forcing function to ensure all parties are adhering to a clearly defined policy.[25] With the fall of the Soviet Union, space became a relatively benign environment where the United States reigned supreme. However, during this time of complacency, U.S.

adversaries made significant progress in their efforts to control the space domain and exploit the United States' reliance of it. Tactics like rendezvous and proximity operations, utilized by Russia and China near sensitive military satellites, reinforced the United States' political position to "trust but verify" when establishing international space policy.[26] Thus, while China and Russia are proposing supposedly peaceful legislature, their actions speak louder than their words. The United States remains vigilant to politically negate any actions that may threaten its security, but this does not excuse its lack of proposals to solve identified issues and foster sovereignty in a more peaceful manner than building military power.

Inadequate Solution to Evolving Threats

China and Russia are adapting rendezvous and proximity operations currently utilized by spacecraft docking at the International Space Station and turning them into potential offensive capabilities.

A commercial satellite tracking agency, known as Analytic Graphics Incorporated, observed LUCH, a Russian satellite, approach a European communication satellite and at least three sensitive U.S. military communication satellites using these tactics. They have also observed SHIYAN, a Chinese satellite possessing a robotic arm capable of capturing and releasing other satellites, practicing these maneuvers.[27]

Each country states that the purpose of their respective satellite is to exercise servicing operations, but their proximity to sensitive targets alludes to more sinister intentions.[28] SHIYAN could use its robotic arm to maneuver a satellite out of position; rendering it unable to complete its mission. Both SHIYAN and LUCH can

A Chinese rocket launches CHUANGXIN-3, SHIYAN-7, and SHIJIAN-15 satellites into space 20 July 2013 from the Taiyuan Satellite Launch Center in North China's Shanxi Province. The trio of satellites reportedly were to engage in scientific experiments associated with space maintenance technologies. However, observers noted that the SHIYAN-7, a type of satellite equipped with a robotic arm for capturing and releasing other satellites, subsequently demonstrated extraordinary maneuverability, positioning and repositioning itself at different altitudes and appearing to converge to the near proximity of other Chinese satellites, prompting concern that the Chinese were actually testing antisatellite technology. (Photo by Xinhua/Yan Yan)

closely approach satellites by conducting rendezvous and proximity operations, then accelerate into or unleash hidden weapons at their targets before decision-makers are able to react.[29] While the United States has previously refrained from any commitment to China and Russia's proposed legislature, perhaps U.S. leaders can regain a moral high ground on the world stage by generating political solutions to these lingering issues.

On 18 June 2018, the president of the United States announced his intent to secure and dominate the space domain.[30] But the trivial disagreements associated with international space law cause leadership to refrain from delegating authorities over space-based assets because they remain responsible for the consequences. As concisely stated by Michael Hyatt, "Military leaders can delegate authority, but always maintain responsibility for the outcome."[31] There are few willing to risk their careers or civil freedoms because laws cannot be adequately explained or relied on. However, if conflict in space does occur, the actor willing to accept these risks is favored to win, especially if the adversary leader's first thought is to consult a lawyer, which is a fight already lost unless decisions are already made and legally vetted. [32]

Logically, Hyten believes the solution to dominating space is for the United States to treat the global commons of space just as it treats the air and sea.[33] For example, to preserve its perceived right of global commerce, the United States built the strongest navy in the world and only when dominance of the seas was established did the U.S. work with international partners to establish the laws of the sea. The U.S. Air Force was created in much the same way—once the Air Force negated hostilities from the air, regulations and civil aviation laws emerged globally.[34] Simply put, peace grows from strength and dominance. This remains the stance of the United States as it formulates the establishment of a sixth military branch—the "Space Force."[35] However, in both previous cases, a centralized international entity was not solidified to maintain global stabilization. Also, today, the transparency inherent in global cooperation gives governments and the United Nations awareness of activities such as rocket launches even before such events occur.

Todd Harrison's Center for Strategic and International Studies report argues that a military space force within the Department of Defense (DOD) is not an adequate solution. Referencing a 2016 Government Accountability Office study, he elaborates that with over sixty agencies between the DOD and intelligence community responsible for the acquisition of space technology, a space force within the military will not consolidate authorities and streamline the acquisitions process as intended. Rather, he suggests establishing a Department of Space with a secretary of space focally responsible for all space-related activities. He argues that a secretary of space would consolidate authorities and potentially expedite acquisition of space capabilities (thus spanning the entire federal government and addressing the aforementioned issues).[36] However, a space force will not deter the rate that our adversaries increase their space capabilities. History tends to repeat itself, and this Cold War mindset of promoting peace by building military power greater than an equivalent adversary's will most likely increase rates of production instead of curbing them. Hopefully, restraint will prevail now as it did during the Cold War when global leaders were considering the mutual destruction of each another.

The Cold War mentality is a reactive approach that keeps the United States grounded in a defensive posture. Rather, the U.S. needs an offensive mindset focused on dominating space. A space force will not solve a leader's reluctance to delegate authorities because vague international law constricts their understanding when determining proportionality of action. It is difficult for leaders to trust a subordinate's decision when they do not understand the framing of the problem set themselves, let alone determine a solution to navigate the national and strategic consequences. In turn, the concise decision cycle required to effectively defend the nation's space capabilities is elongated by briefings, disagreements, approval boards, and legality debates through bureaucratic chains of command. With over sixty nations already utilizing satellite payloads, adversaries demonstrating

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advanced tactics to control space, and entrepreneurs commercializing the newest global commons, the increasing congestion demands the United States expand its internal policies to proactively establish international regulations.[37]

Dominating Space by Delegating Authorities

The United States' 2018 *National Defense Strategy* defines the purpose of the DOD as allowing civilian leaders to operate from a position of strength. Several specified tasks to accomplish the former Secretary of Defense James Mattis's intent directly apply to space, the priority of which is to defend the United States from attack. Other applicable tasks include deterring adversary aggression, maintaining regional power across the world, ensuring the five physical domains remain free to use, and changing the speed that capabilities are produced. To accomplish these tasks, the outlined strategy suggested offering U.S. adversaries "an outstretched hand" and to remain "open to opportunities for cooperation but from a position of strength based off our national interests." Mattis then discussed the need to modernize the space domain by prioritizing the assurance of the United States' space capabilities. In conclusion, he stated, "We must use creative approaches … to field a Joint Force fit for our time, one that can compete, deter, and win in this increasingly complex security environment."[38]

As previously mentioned, the United States was historically the primary critic to the new and updated space regulations proposed to the United Nations. However, under new direction from the president's cabinet, now is the time for the United States to act by offering solutions to the issues identified in Russia's "No First Place of Weapons in Space" resolution and the joint Chinese and Russian codrafted Prevention of Weapons in Outer Space treaty. Taking the political offensive by proactively proposing solutions to the issues identified will ensure the United States negotiates from a position of strength. Without updated international space laws, authorities will remain held at the highest military echelons. Without delegated authorities, there cannot be rules of engagement. The space domain is the only physical domain without standardized rules of engagement, which is important in differentiating defensive tactics from acts of war.[39]

Consider traffic-control-point procedures utilized to safely admit personnel into a military installation or forward operating base. Obstacles are in place to manipulate traffic, identities are scanned prior to admitting entrance, measures are in place to ensure proportionality of action should an incident occur, the guards are trained and armed in case of an emergency, and in extreme circumstances, quick reaction forces are on standby to assist. More importantly, the service members understand how to react to

likely scenarios. They have exercised every situation to muscle memory, as a team. Without civil laws dictating the consequences of their actions, or how personnel will react to threats, the rules of engagement would be impossible to maintain because every situation would require leadership's analysis and approval. The effective teamwork that defends key infrastructure would cease to exist.

The absence of law at traffic control points is analogous to current operations in space. While there is a "status quo" of how to act in space, decisions become complicated as norms are stressed. The United States' inaction to solve the problems it identifies in space legislature is the same issue that makes strategic leaders hesitate and consult guidance before making critical decisions should a war erupt in space. Simultaneously, rejecting semilogical treaty proposals without offering solutions, establishing a sixth military service to control the domain, and acting without gaining global consensus promotes an arms race in space. Thus, the United States will only be able to dominate space if international law is defined and authorities are delegated to the appropriate levels of leadership from a centralized authority.

Recommendations for Establishing Modern International Space Policy

The first step required to generate international law will be establishing a consensus on the vocabulary defined in the policies.[40] Remarkably, there is no internationally defined altitude separating the air and space domain. This is an issue because the cornerstone of all international space politics is founded on individually perceived concepts of where space begins. Some define the beginning of space as where Earth's atmosphere is no longer traceable–roughly six hundred miles in altitude (almost three times greater than the orbit of the international space station). The U.S. military and NASA award the title of astronaut to all who travel above eighty kilometers in altitude. However, the widely accepted baseline for where space begins is known as the Kármán Line, which is one hundred kilometers above sea level. At this altitude, the atmosphere is too thin to support lift in traditional aeronautics and thus represents reasonable separation of the domains.[41] Defining the separation of the space domain from the air domain begins to address the limitations associated with the rules of engagement for strategic leaders of the United States government.

The thin line of Earth's atmosphere and the blackness of space are featured in this image photographed 8 June 2014 by an Expedition 40 crew member on the International Space Station. The Kármán Line, an imaginary boundary roughly one hundred kilometers above sea level, is widely (but not universally) accepted as the edge of space—an important distinction as different laws govern the domains of air and space. (Photo courtesy of NASA)

Decisions cannot be proposed, vetted, and negotiated in a short amount of time, which is why it is important to address limitations of rules of engagements. Take, for example, the fact that a three hundred kilometer range Scud missile developed by the Soviet Union in the 1960s is capable of intercepting the International Space Station in less than ten minutes, despite it being relatively simple to produce and not a very powerful rocket.[42] In a tactical situation, with bullets, explosions, and chaos on the battlefield, ten minutes is an eternity. However, in a strategic environment, where echelons of bureaucracy need to be navigated, ten minutes is not enough time for effective decision-making.

Therefore, decisions must already be made, understood down to the operator level, and the operators must be certified in the actions required for success. Understanding where space begins identifies which leaders are responsible for solving the problem, which means risk can be mitigated effectively and authorizations can then be delegated to execute specified tasks down to the tactical level. Leaders at this level can then start to develop standard operating procedures aligned with these specified tasks and defend U.S. space assets, beginning the process required to dominate the space domain.

Addressing rendezvous and proximity operations is also important because these tactics have an expanding usefulness in servicing obsolete and aging satellites—as retorted by Russia and China.[43] Rather than banning equipment such as robotic arms or tactics (e.g., rendezvous and proximity operations), thresholds akin to spacecraft approaching the International Space Station and boundaries associated with communication satellites in geostationary orbit can be created.[44] These boundaries can be assigned to all satellites in every orbit. The distance can differ per satellite based on an agreed upon criteria: the national sensitivity of the satellite, the respective orbit, and the nature of the payload mission sets. Recognizing that foreign satellites may not approach within these boundaries, unless granted permission, is critical when formulating rules of engagement.[45]

Spacecraft boundaries allude to a greater acceptance of defensive weapons in space. Understanding a clearly defined defensive posture and the separation between the air and space domains leads to the refinement of nuclear weapons and weapons of mass destruction in space, such as electromagnetic pulses, due to their ability to destroy electronic equipment over vast distances.

To ensure safe conduct of space operations for all, testing of any space weapon that has the potential to propagate debris must be prohibited to limit contamination orbiting Earth. This includes weapons such as ballistic nuclear warheads, which can remain viable for homeland security if they do not contribute debris or electromagnetic pulse effects above the Kármán Line and do not orbit the earth.

Clarifying contamination in space as the intentional or accidental creation of debris generated by or from a spacecraft, no matter the amount or size, is important to securing space for all parties involved. Incidents caused by natural phenomena, such as meteor strikes, should not penalize an offending party. However, the party would be responsible for providing evidence to distinguish natural phenomena from faulty satellite equipment to not pay a penalty.

In today's international society, enforcement of space laws by only the United States can easily be interpreted as an act of war. To enforce these regulations, penalties need to be implemented proactively and globally, not reactively. Sponsoring the establishment of a United Nations' entity to analyze the scope of an incident's contamination and enforce repercussions, if necessary, positions the United States to shape modern international space policies in their image.[46]

Using the debris proliferated by China's antisatellite missile demonstration in 2007 as an example, the United Nations entity will identify all satellite payloads in the affected orbital region. Furthermore, they will determine a monetary compensation the offending party is to pay affected parties. This value can be based on the cost to manufacture each payload or satellite, correlated with its respective age, and the satellite's projected lifespan. To do this, a percentage fee will be required by the United Nations to generate a conventional, nonkinetic, space system used only by the United Nations entity to decommission an offending nation's spacecraft. One percent of a nation's total value of all space assets, both operational and nonoperational (to include all sixty nations owning space assets) should provide enough compensation to fund the United Nations entity and operational asset. While this might be viewed as a drastic measure to ensure

compliance, it resolves long-standing issues of self-regulatory rules and a general lack of enforcement capability from the United Nations.[47] The teams that decommission spacecraft can additionally be used to inspect compliance of China and Russia's proposed updated space treaties prior to launch. This also enhances space situational awareness along with missile warning because unregistered launches will immediately generate the notification of all other associated parties.

Conclusion

The real story is about the destruction that didn't occur because we were so precise. The real story is about the troops on the ground that were not put in harm's way. The real story is also about the collateral damage that did not occur to civilian populations. The bottom line is our space capabilities save lives and minimize destruction.

—Gen. Lance W. Lord, U.S. Air Force, retired[48]

Long before the federal government contemplated establishing a sixth military branch dedicated to space operations, retired Air Force Gen. Lance Lord eloquently addressed the importance of why the United States must operate freely in the space domain. Dominating space preserves U.S. military dominance across the globe because its space capabilities protect the world's most cherished asset: human life.

As U.S. adversaries make threatening advancements in space operations and technologies, the United States has a unique opportunity to regain the moral high ground through offering solutions by establishing new international space policies. The United Nations entity addresses the United States' issue regarding the lack of forcing functions associated with Russia and China's proposed international space policies. The United States will be positively received on a global scale by proposing such transparency in launch payloads. By sponsoring the United Nation's entity, U.S. strategic leaders can influence the consequences for a lack of compliance to proposed space policies without being viewed as an aggressor by other world powers. This tactic will deescalate Cold War-like tensions between the United States and its adversaries while allowing U.S. strategists to preemptively formulate favorable rules of engagement.

This position of political strength and establishment of international space policy will allow U.S. strategic leaders to delegate authorities, with clear rules of engagement, to tactical leaders who will generate standard operating procedures from specified tasks and effectively dominate the battlefield when the first shots are fired in the ultimate high ground. ■

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The Gradual Shift to an Operational Reserve

Reserve Component Mobilizations in the 1990s

Capt. Miranda Summers Lowe, U.S. Army National Guard

Sgt. Blair Smolar (*left*) adjusts the pack of fellow Virginia National Guard soldier Sgt. Ovidio Perez 29 December 1997 in Bosanki Brod, Bosnia and Herzegovina. The solders were assigned to guard the Slavonski Brod bridge over the Sava River, which runs along the Croatian–Bosnia and Herzegovina border. "It's ironic that I'm here now in this capacity," said Smolar, explaining that he grew up amid Serbians, Croatians, and Bosnians in East Chicago, Indiana, and had gone to Bosnia on his own twice in 1995 for humanitarian reasons. (Photo by Ron Alvey / ©1997, 2019 *Stars and Stripes*, All Rights Reserved)

The transition of the Army's reserve component from a strategic to an operational reserve is often heralded as one of the greatest changes to the Army at large in the twenty-first century. A pervasive attitude across the force is that this was a sudden shift that happened after 11 September 2001. Surely, the reserve component mission set and attitude was reoriented that day around the newly defined Global War on Terrorism (GWOT). However, the consistent, rotational use of the National Guard and Army Reserve was a gradual evolution formed around decades-old changes in force structure, not a sudden shift made in reaction to the acts of terrorists. Continued adherence to this narrative is not only playing fast and loose with data, it hinders our ability as military practitioners to properly understand the current condition of the force or properly learn from the lessons of the past to plan for a post-GWOT future.

Long before 11 September 2001, the Army began using National Guard and Army Reserve units for operations short of total mobilization, even becoming dependent upon the reserve component just to maintain everyday operations. Consistent use of the Guard and Reserve created a sense of comfort that reserve component mobilizations would meet the needs of the Army without reimplementing the draft, reducing worldwide commitments, or forward basing additional active component troops.

To step back a bit, let's examine what the reserve component units were already doing on the morning of 11 September 2001. The most critical Army commitment abroad was Operation Joint Forge, the peacekeeping mission to Bosnia-Herzegovina. The rotation underway in 2001 was notable because it was the first time that a reserve component unit—in this case, the 49th Armored Division of the Texas National Guard—served as an operational headquarters for active component units. Within that year, National Guard infantry brigades from North Carolina, Georgia, and Oklahoma served in that mission.[1] National Guard rotational deployments in Europe totaled 12,777 personnel that year. Outside of Europe, rotations of National Guard units provided force protection for the Patriot missile batteries in Kuwait and Saudi Arabia as well as for two aviation task forces consisting of attack helicopters, assault helicopters, and air traffic controllers in Kuwait. A rear area operations center provided support for the 1st Infantry Division at Camp Able Sentry in Macedonia. In Southern Command, 12,600 Army National Guard soldiers from forty-one states were mobilized to Central America, largely for extended hurricane relief operations.[2] These totals were large enough to demonstrate worldwide presence for peacetime citizen-soldiers, levels of command, deployments at battalion and brigade levels, and a composition of one-third of all Army overseas operations—before GWOT began.

Examining how the reserve components were so postured during peacetime would require our discussion to step back another two decades. To keep it brief, the reserve component restructuring that emerged in 1970, known as the "Abrams Doctrine" in Army circles in honor of the Army chief of staff who shepherded it or formally as the Total Force Policy, created space for a fundamentally different Guard and Reserve. However, the initial decision to restructure the reserve component was in direct response to U.S. involvement in another lengthy expedition: the war in Vietnam.[3]

The decision not to mobilize the National Guard until late in the Vietnam War was made with a direct eye toward avoiding a difficult public response to an unpopular war. President Lyndon B. Johnson, against the advice of his secretary of defense and Joint Chiefs of Staff, believed that a full mobilization of the reserve components would signal an escalation of the war to the Chinese and Russians, as well as betray his campaign promise to not "send American boys nine or ten thousand miles away from home to do what Asian boys ought to be doing themselves."[4] As Johnson's secretary of defense, Melvin Laird, described it, "As unpopular as the draft was, it was still an easier sell for Johnson than deploying the whole National Guard and Reserve from communities in middle America."[5] By the end of the war, the National Guard in particular had been so cannibalized by previous calls for augmentee forces and equipment that it made whole-unit deployments nearly impossible. All told, only three thousand Guard and Reserve soldiers were involuntarily mobilized for Vietnam.[6] This reinforced the reputation of the reserve component as a place to avoid the draft. Total Force planners outlined a plan attempting to alleviate the potential for this to happen again by structuring crucial theater-opening and civil affairs functions solely within the Guard and Reserve force structure. Though the policy is nicknamed "The Abrams Doctrine," an Air National Guardsman from Alabama and deputy assistant secretary of the Air Force for reserve affairs,

Theodore C. Marrs, was the "architect of the Total Force."[7] The Total Force was now reliant on the reserve component to wage war. A second-order effect of Guard and Reserve mobilization for a major conflict would be that the burden of service would be more connected to communities and more evenly distributed across geographic, socioeconomic, and racial lines. Public support would be a control measure as units mobilized.[8]

As the Total Force moved from plan to policy, several principles remained untested. Would the Guard and Reserve be capable of providing enough trained and ready forces to compensate for the overall reduction in the size of the Army? What would be a large enough war to justify using the Guard and Reserve? How would the public react to seeing the first large-scale, whole-unit deployments since World War II? *The Army Mobilization Operations Planning and Execution System (AMOPEs)* and Forces Command (FORSCOM) Regulation 500-3-3, *FORSCOM Mobilization and Deployment Planning System (FORMDEPS),* publications reveal that the Army force planners assumed that any large-scale use of Guard and Reserve forces would be for a major regional conflict.[9] Rotational use of forces, though common in the Air Force, was not part of how the Army envisioned the use of reserve components.

The first test of the Total Force Policy was the Gulf War. On 10 August 1990, Gen. Edwin H. Burba, commander of FORSCOM, ordered the deployment of the 1st Cavalry Division and the 24th Infantry Division. Both of these units were structured with National Guard "roundout" brigades. Burba chose not to activate the associated National Guard combat arms units and instead tapped active component units. In the words of a different Army leader of the same era, who spoke a common sentiment, "It is patently absurd to take relatively untrained troops when you have trained and ready troops available." However, congressional and public support ran counter to the FORSCOM commander's decision. In response, President George H. W. Bush directly mobilized the two roundout brigades on 22 August 1990.[10]

Contrary to Johnson's expectation, public sentiment for reserve component mobilizations in 1990 was overwhelmingly supportive. In fact, the Gulf War mobilizations did much to counter the Vietnam-era reputation.[11] Units were welcomed home to yellow ribbons and parades, like the 719th Transportation Company who marched home through New York City's "Canyon of Heroes."[12] The political intervention *to* mobilize the National Guard at battalion and above levels for a military engagement so short and focused surprised Army planners. Indeed, in the planning of the Total Force, planners believed it would be politicians who would refrain from mobilizing the reserve component, but in the Abrams Doctrine's first test, it was the military leadership that hesitated.[13] Though these activations were shorter and in direct response to a foreign power's aggression, the shift in public opinion signified that the Pentagon would not get the same kind of erosion of public support over reserve mobilizations as it had for the draft. With a precedent that the reserve components had been used for a small, quick war, Desert Shield/Desert Storm was the demarcation of a new understanding of how reserve forces could, and should, be used.[14]

Any difference in preparation between active component and reserve troops in Desert Storm was not stark enough to limit future mobilizations or trigger significant increases in funding or training.[15] The delays in mobilizing National Guard combat arms units for Desert Storm prompted congressional investigation, yet many of the recommendations outlined in the Government Accountability Office reports—such as increased peacetime training, interoperable personnel systems, standardized equipment between the active and reserve components, and consistent mobilization scheduling—were not instituted.[16] New training programs such as Bold Shift focused on early deploying units. The

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trouble was, as consistent rotational mobilizations became the norm in the 1990s, there were no early deploying units but, rather, a batting order.[17]

Public perception may have been a roadblock to a force structure built out of financial necessity. The "Peace Dividend" force cuts were based on an understanding that with the quick victory in Desert Storm and the end of the Cold War, the United States would not need to continue funding the military at current levels. Fundamental to that was a belief that new technology would remove the need for many personnel. Computers, in particular, represented a compelling new argument for the reduction in support forces. In combat arms, laser-guided munitions had performed spectacularly in Desert Storm, which increased confidence in this plan.[18]

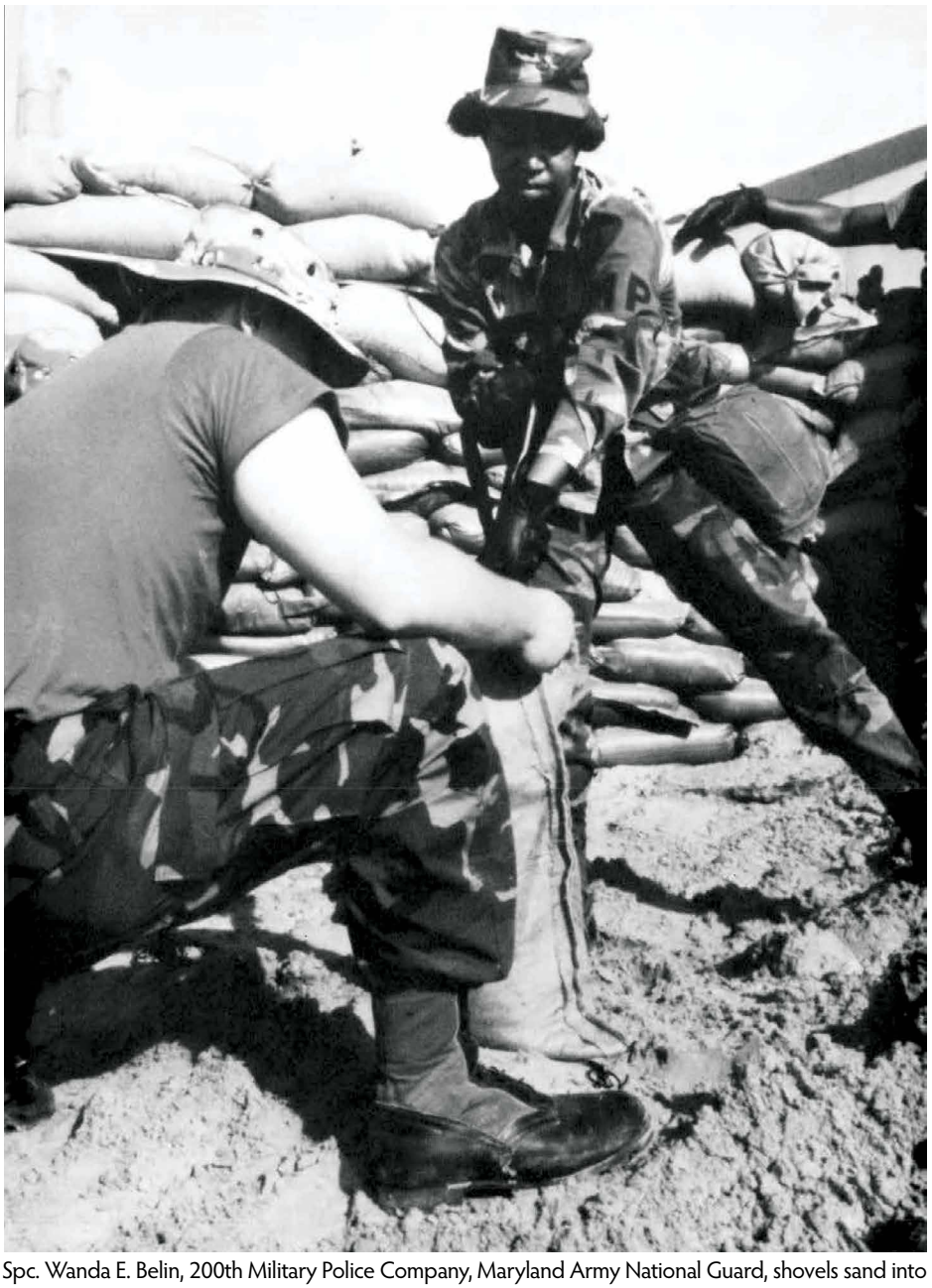
The missions the Army was tasked with, however, refused to cooperate with the new strategy of technologically based overwhelming force. From Desert Storm to 9/11, the Army was not presented with quick, regional wars with clear termination criteria. Requirements in Sinai, Kosovo, and South America were not negotiated in terms of the capabilities but in terms of supplying a specified troop contribution, which did not make allowances for efficiency.[19]

Some National Guard rotations were linked with the realities of ending the draft. As the all-volunteer force evolved, the Army could no longer plan on new draftees and had to reconsider boosting retention. Pay and quality of life became vital factors in attracting and retaining troops. The Army moved away from forward-basing units in locations like Germany and Korea, much due in part to family and quality of life concerns, and moved toward forward-deploying forces. Guard and Reserve soldiers could be deployed without their families at considerable savings. In 1995, Secretary of Defense William Perry established a Defense Science Board task force—called the Marsh Task Force—to consider "ways and means to improve Service quality of life," which found personnel tempo (PERSTEMPO), or the rate of personnel rotated into missions, was gaining traction not only as a quality of life factor but a readiness factor. The Army was learning the difficulty in using forces for a current mission while preparing for future wars or learning how to best use the new technology that rapid, decisive operations depended upon. The focus in reducing PERSTEMPO at the time was on the Air Force, which had seen their rates of units deployed away from home increase fivefold after Desert Storm. In a statement that now seems prescient, the task force stated, "[T]here was no universally accepted definition of PERSTEMPO," and that the "profile of the active force and its operating environment have changed dramatically over the past decade." There was no universally accepted definition of how often reserve component troops could be mobilized, or for how long.[20]

During the 1990s, the phrase "low density, high demand," became common around the Pentagon to describe mission sets and occupational specialties that were not represented in sufficient numbers in the force to support a reasonable PERSTEMPO. Military police, psychological operations, civil affairs, and intelligence units, just to name a few, had consistently higher PERSTEMPO rates. Reserve component units were being used to alleviate strain on active component units, and many argued that those specialized units should remain structured in the reserve forces. Even when mobilizing those reserve component units to meet part of the demand, the 1995 Marsh Task Force determined there were too few of these units. The Army was reluctant, however, to increase manning in these areas that were perceived as not contributing to a warfighting mission.[21] A 1995 Congressional Research Service paper concluded

> Post-Cold War defense drawdown and the expanding demands of manpower intensive peacekeeping and humanitarian operations … are placing at risk the decisive military edge the nation enjoys at the end of the Cold War. Many suggested fewer overseas commitments, but neither Democratic nor Republication administrations could stem demands on U.S. forces. Technological advances made transforming U.S. forces even more combat effective against conventional forces, but could not yet substitute for all the manpower needs in the nonconventional and asymmetric environments … In contrast, some have charged that the army, in particular, was resisting such "constabulary" operations and therefore managed its operations inefficiently.

As many of these units remained exclusively or primarily structured within the Guard and Reserve, the resulting increase in PERSTEMPO would be spread across the components.[22] Reserve component combat arms units were also heavily drawn



Spc. Wanda E. Belin, 200th Military Police Company, Maryland Army National Guard, shovels sand into a bag to fortify the base camp in Eastern Saudi Arabia in 1990 during Operation Desert Shield. (Photo by 1st Lt. John Goheen, U.S. Army)

upon. Increasing commitments in Bosnia forced the Army to reconsider how the Multinational Force Observer-Sinai mission in Egypt was manned and led. One experiment involved creating an 80 percent reservist battalion of the 505th Parachute Infantry Regiment for the Sinai mission. Not only manning, but command of MFO-Sinai shifted to reserve command in 1995, and Joint Forge in Bosnia followed the same pattern in 1997.[23]

The "Peace Dividend" Army was not structured to support rotational deployments overseas and simultaneously train for larger wars. Even in peacetime, the Guard and Reserve were required to maintain daily operations. By 1997, fifteen thousand Army reservists were deployed in over one hundred countries.[24] As these activations shaped up a few hundred or thousand soldiers at a time, it also became clear that the all-volunteer force had changed the contract between soldiers and communities.

Largely, communities did not protest when their Guard units were sent on peacekeeping missions.[25] Mobilizing a Guard or Reserve unit had not panned out to be a dramatic event that pulled communities in closer, contrary to what President Johnson had anticipated. An array of intersecting factors may have contributed to this. The Desert Shield/Desert Storm mobilizations set a precedent that units would deploy and return together, and the reasoning followed that this would connect Guard and Reserve units more closely with the communities where they served. Concurrently, however, American demographics continued to shift away from rural areas to cities and suburbs. Exacerbated by the Base Realignment and Closure process, new readiness centers were rare, and old facilities grew physically separated from where reservists lived and worked.[26] By 2014, one in four National Guard armories were considered geographically misaligned, and the median travel time for soldiers to drilling locations had grown to two hours. These shifts

indicate that as units were deploying and redeploying, they were physically detached from the communities that would politically support or resist their use.[27]

In addition to the geographic misalignment of readiness centers and armories, another concurrent trend was the slow decline of local news that would focus on stories such as local unit mobilizations. The 1990s saw the rise of cable news and the twenty-four-hour national news cycle, which in many areas triggered the start of a decline in local television news. Newspapers fared no better, as internet access grew and print newspapers declined. Coverage of reserve component mobilizations, and military mobilizations in general, declined. As a result, communities were less likely to hear about a reserve mobilization through local media.[28]

Perhaps the perceived safety of these 1990s peacekeeping missions changed the dynamic. Perhaps, with the increase in military pay and quality of life benefits since the advent of the all-volunteer force, the public conversation had changed to one where military service was not perceived as a duty of every man of a certain age, but rather that soldiers, even in reserve components, knew what they were signing up for. The rise of comment sections on news websites offers some insight on shifting public perception.[29] For instance, when the public radio show *Here and Now* ran the story "10 Years Into Afghan War, National Guard Sees Bigger Role," one strident listener commented,

> You join the Guard, or the Reserves, or the regular military, you get paid and then whine about going to war. Here's the deal you entered into a contract, live up to your obligations and quit complaining.

These 1990s deployments are shocking in how *un*-shocking they were. The Desert Storm/Desert Shield mobilizations could be compared to a pot of boiling water. After the mobilizations, the pot was turned to a simmer. Across the 1990s, the pot was slowly turned up from a simmer to a boil.[30]

The base force outlined in the Peace Dividend was too small for the kind of worldwide commitments U.S. foreign policy dictated, and judicious use of the Guard and Reserve was able to smooth out the kinks without asking for major end-strength increases.[31] Although readiness questions persisted, as the reserve component took over more rotational peacekeeping missions, it was clear that the Guard and Reserve could get the job done and allow the active component to focus on the transformation to modularity and preparation for a simmering conflict in the Middle East.[32] In recognition of their necessity, the Army National Guard was spared from most of the force cuts until 1997. The Army began to add combat training center rotations and shorten notification and mobilization timelines for reservists.[33]

Reserve component mobilizations were now business as usual.[34] However, Melvin Laird, the secretary of defense who introduced the Total Force Policy, spoke up in 2007 to state that he did not intend the reserve components to be used the way they had been in recent decades, and true political and public support must come with increases in equipment and manning.[35]

In the aftermath of September 11, some force planners were surprised as they pulled out dusty, numbered plans that listed their assigned reserve component units from the "roundout" or "wartrace" programs as unavailable because they were already deployed or recently returned.[36] A good example of this involved the shifting priorities of the MFO-Sinai mission and Afghanistan. Units of the 10th Mountain Division and 101st Airborne Division originally slated for deployment to the Sinai were quickly moved off of their scheduled rotations and mobilized for Afghanistan in 2002. They were replaced with Arkansas National Guard troops, who mobilized in half the normal time to cover the shortfall. Barely a year after their return, that same Arkansas National Guard brigade was mobilizing for Iraq, looking for replacements to cover the 856 soldiers who had just deployed.[37]

It's important to remember that the reserve component we have today is, structurally, the reserve component we had during Desert Storm. The all-volunteer force produced a concurrent trend that the average length of service increased, and more service members stayed to establish a military career.[38] Today's thirty-year veterans cut their teeth on 1990s mobilizations. In examining total operational stress to the force and equipment, it would be fair not to start the clock at 11 September 2001 but a decade earlier. The United States' relationship with Guard and Reserve mobilizations had changed from uncommon to routine, and deployments were no longer covered by national media. Due to changing demographics and aging infrastructure, reservists increasingly lived hours away from where they drilled, producing a second order effect that mobilizing a unit was not felt as strongly in each community. Meanwhile, the percentage of the population who served in the

military continued to dwindle, and military service became a less common precursor to political office.[39] The most polemical now refer to "the backdoor draft" of the Guard and Reserve, though many more will point out how the reserve components have been on a steady track of increased experience, training, and equipment since Desert Storm.[40] The initial mobilization order for reservists after 11 September authorized 50,000 service members, which, considering the 12,700 reservists already mobilized that year, was a significant increase but not a change in order of magnitude and far less than the 84,000 mobilized for Desert Storm.[41] Looking at the mobilization patterns that formed after Desert Storm, one cannot help but see that the instinct to mobilize the Guard and Reserve was not a knee-jerk reaction but a practiced muscle movement. In structuring the total force balance for the future, looking beyond the idea that everything changed on 9/11 will give planners a richer, more complex view of the operational use of the National Guard and Army Reserve. ■

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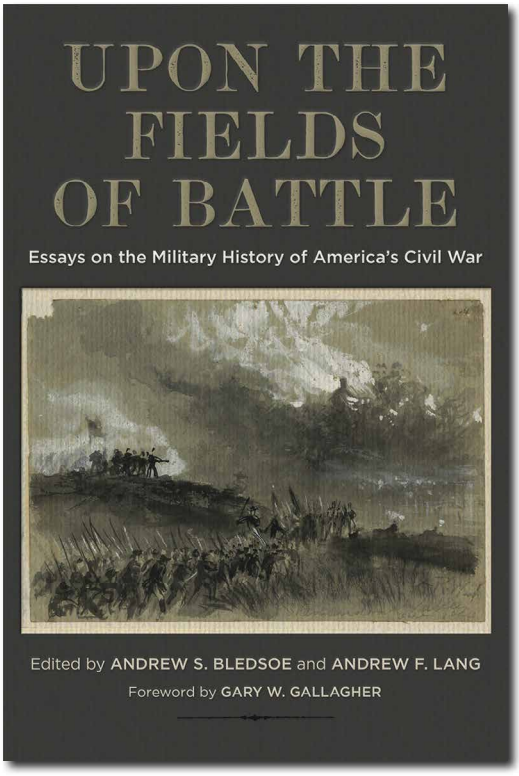
REVIEW ESSAY

Upon the Fields of Battle

Essays on the Military History of America's Civil War



Edited by Andrew S. Bledsoe and Andrew F. Lang
Louisiana State University Press, Baton Rouge, Louisiana, 2018, 320 pages

Christopher M. Rein, PhD

Military history occupies an increasingly difficult position, caught between academic historians who see little value for the field, (as evidenced by declining numbers of tenure-track positions for faculty with training and expertise in military history coupled with the near-ubiquitous outsourcing of courses in U.S. military history that used to be taught by highly experienced faculty in history departments but are now left to less-qualified cadres in ROTC detachments), and military professionals concerned by the diminishing stature of operational, or "traditional" military history in a field that now considers any topic with a military focus to be military history. Attempting to thread this needle are Civil War historians Andrew Bledsoe and Andrew Lang, who have assembled a fine book that appears well-positioned to bridge this divide. A foreword by Gary Gallagher, a staunch defender of the war's military history who reminds readers that "the Civil War was preeminently a military event," and a brilliant essay by Earl Hess who argues for the continuing importance and relevance of operational history, is worth the purchase price.[1]

But this book is actually aimed at demonstrating the incredible richness and diversity of the "new" military history for fellow academics who might not appreciate the field's value and to also "encourage our colleagues to don the uniform of a military historian."[2] Altogether, it makes a fair sally upon the entrenched resistance to military history within the academy but, like many assaults during the war itself, it may be more of a "forlorn hope" in terms of rehabilitating the field in the eyes of

those who continue to dismiss its relevance. Apparently frustrated with the field's dilution and diminishing stature within the academy, professional military colleges are already establishing their own doctoral programs, likely to the detriment of both academic and professional institutions and the larger society they both serve. Thus, works such as *Upon the Fields of Battle* that attempt to bridge this gap and "save" military history within the academy have a much greater significance than might otherwise be apparent.

After Gallagher's framing analysis, built upon his and coauthor Kathryn Shively Meier's 2014 essay, "Coming to Terms with Civil War Military History," the book is divided into three sections.[3] Starting with "Considerations," it includes the editors' introduction and Hess's call to "reintegrate traditional military history in its rightful professional place," especially the observation that, despite the passage of 150 years, we still haven't resolved all of the important questions about the war itself, as his recent work on the impact of the rifled musket attests.[4] The clearest parallel to Hess's significant revision of our understanding of the war comes at the beginning of the next section, aptly titled, "The Contested Battlefield." In his essay, drawn from his larger forthcoming work on the impact of weather on the war, Ken Noe offers a reappraisal of George McClellan's performance during the Peninsula Campaign, arguing that unprecedented and unconquerable wet weather was as responsible for the general's "slowness" as any inherent personal character traits. If Noe's well-supported analysis is accepted, then McClellan may be the next general to have his professional reputation reevaluated, as has happened with Ulysses S. Grant, Robert E. Lee, and, most recently, Braxton Bragg.[5] Noe observes that "integrating environmental history into the sectional conflict demands interdisciplinary and intradisciplinary conversations with meteorologists, soil engineers, and other scientists, as well as other historians. Yet the effort will be worthwhile if it helps us better understand what really happened on those bloody—and often muddy—hallowed grounds."[6]

The next essay in the section demonstrates that Noe's talents extend from researching and writing to mentoring and training graduate students. Jennifer Murray, his former advisee and now professor at Oklahoma State University, offers an assessment of a Civil War battle that never was, when George Meade failed to interdict Lee's retreat from Gettysburg at Williamsport, Maryland, drawing from her work on a forthcoming biography of Meade. Murray argues that Meade's tardy pursuit fits neatly with other examples of Civil War commanders failing to achieve a decisive victory on the battlefield, but the discussion omits consideration of the armies' medical establishments that were still overwhelmed with treating the unprecedented carnage inflicted over three days at Gettysburg and were therefore unable to respond immediately to another clash, which must have weighed on the minds of both the soldiers and their commanders. Coeditor Bledsoe retains the focus on battlefield events and interpretations with an analysis of Bragg's inability to decisively parry William Rosecrans's thrusts before the Battle of Chickamauga; and how such episodes provide clear learning opportunities for those studying and practicing for the responsibilities of command, especially the vital task of issuing clear and concise orders, including the "five-paragraph order," which is still taught in the professional military colleges.[7] John Hennessy's account of the incredible destruction in the town of Fredericksburg during the battle in December 1862 presaged a shift in strategy identified with Mark Grimsley's description of "hard war" that increasingly affected the Confederate home front; and Brian McKnight continues this expanding definition of "battlefield" by demonstrating that the massive guerrilla warfare unleashed by the opening of formal hostilities brought the war into communities across the country, where animosities lingered long afterward, and continues work by Dan Sutherland and others on the guerrilla war's significance for understanding the larger Civil War.[8]

The third section of the book, "The Soldiers' War," moves off the battlefield and places the soldiers who actually fought the war at the center of the analysis, building on important work done by social historians in the past half-century. Coeditor Lang begins with a chapter building upon his prize-winning work *In the Wake of War,* focusing on military occupation and emancipation, or the "Phase IV" aspects of the conflict often missing from accounts of the Civil War. Lang demonstrates clearly that efforts to remake southern society collided with entrenched ideas about race that made lasting social change difficult, limiting an

inadequately resourced Army's ability to permanently influence events.[9] Lang helpfully points out that Gen. Winfield Scott believed it would take three hundred thousand soldiers to garrison the south, a prediction that calls to mind Gen. Eric Shinseki's ignored predictions about the force necessary to stabilize Iraq.[10] Kevin Levin highlights the high frequency of executions within Confederate military formations, undercutting the "Lost Cause" myth of massive and sustained support for the insurrectionist government and revealing an unacknowledged acceptance of increasing state power on the part of allegedly independent-minded Confederates.

Keith Altavilla extends the analysis of dissent in the ranks with an examination of soldiers' support for George McClellan's 1864 presidential campaign, highlighting episodes of suppression of antiwar sentiment but also demonstrating that these had little impact on Abraham Lincoln's eventual electoral landslide. This highlights that the 1864 election was really a referendum between McClellan and Andrew Johnson, as Lincoln fulfilled barely a month of his second term before his assassination, and one wonders if McClellan would have been better able to administer the postwar period across the South, assuming that his election would not have caused the war effort to collapse altogether.[11] Continuing with counterfactuals, Robert Glaze explores how Confederates used the premature death of Gen. Albert Sidney Johnston at Shiloh to explain their eventual defeat, arguing that, had the general lived, he somehow could have overcome the immense logistical and personnel difficulties that plagued the western theater during the war, making him an icon of postwar memory and commemoration.

Keeping the focus on the war's after effects, Brian Matthew Jordan's essay on the 107th Ohio, which suffered tremendous losses at both Chancellorsville and Gettysburg, carries forward Lesley Gordon's path-breaking analysis on "broken regiments," highlighting the immense physical costs of the war and the long history of the Nation's failure to adequately care for its wounded veterans.[12] It also gives support to the alleged "dark turn" in Civil War historiography that privileges accounts of the war's incredible destruction rather than a valorous contest for the Union and liberty, though it does indicate a resurgence in unit history that has never fallen out of favor with official historians.[13] Accounts such as Jordan's have great value, not just for highlighting the incredible futility and destructiveness of warfare but for reminding those who would embark on this course of the dire consequences of their actions.

Bledsoe and Lang remind the reader that, "War was not an arbitrary vacuum that consumed its participants in unrestrained violence, yielding worthless results and pointless armistices."[14] Had secessionists fully understood the implications of their actions in the winter of 1860–1861, it is possible that cooler heads would have prevailed and spared the Nation the bloodletting of the next four years, but it is worth recalling that, as horrific as the mangled bodies of the soldiers of the 107th were, allowing disunionists, slaveholders, and terrorists to chart the Nation's course would have been a fate far worse.

Thus, military historians still have much to offer the discipline and the broader society it serves, not least the ability to remind jingoists and interventionists of the incredible price of their actions and hopefully prevent future conflicts. Given the appearance of at least one major war during the average lifespan of every U.S. citizen, this appears to be a mission with no termination date. And, while the incredibly informative work on the war's social aspects are important for understanding societies at war, it should be remembered that such analyses are most useful when they illuminate questions central to the field of military history and, as the editors point out, "the importance of military affairs in charting the course of history," especially why nations and societies wage wars and how such conflicts are won and lost.[15]

A minor quibble is the absence of any maps in the book, which would help clarify confusing geographical references. For example, McLemore's Cove is identified as "between Lookout Mountain on

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the east and Pigeon Mountain on the west," which seems at odds with the actual geography, unless the author meant to the east of Lookout Mountain and to the west of Pigeon Mountain.[16] If publishers are to reinvigorate traditional military history, they simply must allow, encourage, and support the inclusion of adequate maps to convey the action.

Overall, the book serves as a welcome resource for those who wish to better inform themselves on various aspects of the Civil War itself, as well as those seeking to define the current state of Civil War military history. The coeditors, as well as the series editor and production staff at Louisiana State University Press, should be commended for bringing it to publication to highlight the enduring relevance of military history to the study of the period, to demonstrate the current state of Civil War military history, and to further illuminate areas of inquiry—Hess, for example, suggests a focus on the roles of artillery and cavalry, military effectiveness, occupation duties, humanitarian relief, guerrilla conflict, and the environment.[17] The twelve excellent essays from leading scholars in the field highlight current trends and offer sneak previews of eagerly anticipated forthcoming works, demonstrating that the topic of Civil War military history remains robust in the wake of the recent sesquicentennial commemoration. We still have much to learn about the most destructive war in the Nation's history, and, if this book is any indication, there is an excellent community of scholars hard at work at that task. ■

Notes

1. Gary Gallagher, foreword to *Upon the Fields of Battle: Essays on the Military History of America's Civil War*, ed. Andrew S. Bledsoe and Andrew F. Lang (Baton Rouge, LA: Louisiana State University [LSU] Press, 2018), ix; Earl Hess, "Revitalizing Traditional Military History in the Current Age of Civil War Studies," in Bledsoe and Lang, *Upon the Fields of Battle*. In his essay, Hess explains that the "social and cultural turn" in the field led to "a redefinition of military history as any study that looked at society during wartime, even if it paid no attention to soldiers" (ibid., 21). He also laments that "relatively few historians in academia turn their hand to traditional military studies," and "the increasing marginalization of military history in general," but argues that the "study of tactics, strategy, weapons, and generalship still remains vital to any full understanding of warfare" (ibid., 22 and 29).

2. Gary W. Gallagher and Kathryn Shively Meier, "Coming to Terms with Civil War Military History," *Journal of the Civil War Era* 4, no. 4 (December 2014): 487–508; Bledsoe and Lang, "Military History and the American Civil War," in Bledsoe and Lang, *Upon the Fields of Battle*, 6 and 15.

3. Gallagher and Shively Meier, "Coming to Terms with Civil War Military History."

4. Earl Hess, *Civil War Infantry Tactics: Training, Combat, and Small-Unit Effectiveness* (Baton Rouge, LA: LSU Press, 2015), winner of the 2016 Tom Watson Brown Award.

5. See Ethan Rafuse, "Still a Mystery? General Grant and the Historians, 1981-2006," *Journal of Military History* 71, no. 3 (July 2007): 849–74; Alan T. Nolan, *Lee Considered: General Robert E. Lee and Civil War History* (Chapel Hill, NC: University of North Carolina [UNC] Press, 1991); Earl Hess, *Braxton Bragg: The Most Hated Man of the Confederacy* (Chapel Hill, NC: UNC Press, 2016).

6. Kenneth W. Noe, "'I Am Completely Checked by the Weather': George B. McClellan, Weather, and the Peninsula Campaign," in Bledsoe and Lang, *Upon the Fields of Battle*, 63.

7. Andrew S. Bledsoe, "'The Farce was Complete': Braxton Bragg, Field Orders, and the Language of Command at McLemore's Cove," in Bledsoe and Lang, *Upon the Fields of Battle*, 92 and 96.

8. Mark Grimsley, *The Hard Hand of War: Union Military Policy Toward Southern Civilians, 1861-1865* (Cambridge, UK: Cambridge University Press, 1995); Dan Sutherland, *A Savage Conflict: The Decisive Role of Guerrillas in the American Civil War* (Chapel Hill, NC: UNC Press, 2009).

9. Andrew F. Lang, "Military Occupation, Emancipation, and the Preservation of Union," in Bledsoe and Lang, *Upon the Fields of Battle*, 193.

10. Ibid., 199.

11. Keith Altavilla, "McLellan's Men: Union Army Democrats in 1864," in Bledsoe and Lang, *Upon the Fields of Battle*, 246.

12. Lesley Gordon, *A Broken Regiment: The 16th Connecticut's Civil War* (Baton Rouge, LA: LSU Press, 2014); Brian Matthew Jordan, "The Hour that Lasted Fifty Years: The 107th Ohio and the Human Longitude of Gettysburg," in Bledsoe and Lang, *Upon the Fields of Battle*, 260.

13. See also Susannah Ural, *Hood's Texas Brigade: The Soldiers and Families of the Confederacy's Most Celebrated Unit* (Baton Rouge, LA: LSU Press, 2017).

14. Bledsoe and Lang, "Military History and the American Civil War," in Bledsoe and Lang, *Upon the Fields of Battle*, 4.

15. Ibid., 3.

16. Bledsoe, "The Farce was Complete," 101.

17. Hess, "Revitalizing Traditional Military History," 36–37.

Next page: A CH-47 Chinook helicopter assigned to Bravo Company, 3rd Battalion, 126th Aviation Regiment, New York Army National Guard, prepares to land 10 March 2018 and insert soldiers of Charlie Troop, 2nd Battalion, 101st Cavalry Regiment, New York Army National Guard, into their landing zone at Java Center, New York. (Photo by Staff Sgt. Ryan Campbell, U.S. Air National Guard)

Suggested Themes and Topics

- What nations consider themselves to be at war or in conflict with the United States? Nonstate actors? How are they conducting war, and what does this mean for the Army?
- What operational and logistical challenges are foreseen due to infrastructure limitations in potential foreign areas of operation and how can we mitigate them?
- What is the role of the military in protecting natural resources?
- What lessons have we learned from U.S. counterinsurgent military assistance in Africa?
- What are the security threats, concerns, and events resulting from mass refugee immigration into Europe?
- Saudi Arabia and Iran: How are cultural changes in both societies affecting the operational environment and potential for conflict between them?
- Case study: How does Japan's effort to establish the "Greater East Asia Co-Prosperity Sphere" compare with current Chinese efforts to expand control over the South China Sea?
- Are changes demanded to the professional development models of the officer and NCO structure in the face of large-scale combat operations and increased readiness requirements?
- What is the correlation between multi-domain operations and large-scale combat operations? How should this impact the Army's training, readiness, and doctrine?
- What material solutions are required to fulfill the Army's unified land operations obligations in large-scale combat operations?
- What is needlessly duplicated in the Army (e.g., what should be done away with, how should the Army adjust, and how would it benefit)?
- What must be done to adjust junior leader development to a modern operational environment?
- What must we do to develop a more effective means of developing and maintaining institutional memory in order to deal with emerging challenges?
- What is the role for the Army in homeland security operations? What must the Army be prepared for?
- Case studies: How do we properly integrate emerging technology?
- What are the potential adverse impacts on military standards due to factors associated with poor integration of new cultures, ethnicities, or racial considerations and how can those impacts be mitigated?
- Case study: How is gender integration changing the Army and how it operates?
- Case study: How does tactical-level military governance during occupation following World War II and Operation Iraqi Freedom compare?
- After eighteen years of institutional/operational experience largely focused on counterinsurgency, how do we return to preparing for large-scale combat operations?
  - See/understand/seize fleeting opportunities?
  - Develop the situation in contact and chaos?
  - Offset "one-off" dependencies and contested domains?
  - Rapidly exploit positions of advantage?
  - Continuously present multiple dilemmas to the enemy?
  - Decide and act at speed?
  - Fully realize mission command?

Staff Sergeant Travis W. Atkins

MEDAL OF HONOR

OPERATION IRAQI FREEDOM

Staff Sgt. Travis W. Atkins was posthumously awarded the Medal of Honor 27 March 2019 at the White House in Washington, D.C. Atkins's son, Trevor Oliver, accepted the award from President Donald Trump on his father's behalf.

Atkins received the award for his actions on 1 June 2007, while assigned to 10th Mountain Division in Abu Samak, Iraq. During a route security mission, Atkins's squad stopped two suspected insurgents. Atkins and his platoon medic dismounted to search the pair, who were acting suspiciously, and one of the insurgents began resisting the search. As Atkins wrestled with the man, he realized the insurgent was wearing an explosive vest. The insurgent reached for the detonator, and Atkins, recognizing the danger, threw him to the ground and covered the man with his own body to shield his fellow soldiers from the impending blast. Atkins lost his life when the vest exploded.

In his remarks, Trump lauded Atkins for his bravery: "In his final moments on Earth, Travis did not run. He didn't know what it was to run. He did not hesitate. He rose to the highest calling. He laid down his life to save the lives of his fellow warriors."

"Your father's courage and sacrifice will live for all time," Trump continued, speaking directly to Oliver. "And every time we see our stars and stripes waving in the sky, we will thank our great Travis and we will think of every American hero who gave their last breath to defend our liberty, and our homeland, and our people, and our great American flag."

Atkins was inducted into the Pentagon's Hall of Heroes the following day. He was also honored during a 2013 ceremony at Fort Drum, New York, during which the installation renamed its state-of-the-art fitness facility the Atkins Functional Fitness Facility in recognition of his heroism.

You can read more about this brave American soldier on the Army's Medal of Honor website at https://www.army.mil/medalofhonor/atkins/?utm_source=st&utm_medium=email&utm_campaign=mohshurer.

Graphic courtesy of the U.S. Army.

Above: Staff Sgt. Travis Atkins stands next to his vehicle after it was damaged by an improvised explosive device in 2007 in Iraq. (Photo courtesy of the U.S. Army)

Below: Staff Sgt. Travis Atkins's son, Trevor Oliver (*left*), and Atkins's parents, Jack and Elaine Atkins, reflect on the plaque commemorating Atkins's posthumous induction into the Pentagon's Hall of Heroes 28 March 2019 during a ceremony at the Pentagon in Washington, D.C. (Photo by Sgt. Amber Smith, U.S. Army)