Military Review

THE PROFESSIONAL JOURNAL OF THE U.S. ARMY

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Cover photo: U.S. Army and Air Force service members combined with British, Estonian, Finnish, and French soldiers conduct a tactical demonstration 10 June 2017 during Saber Strike 17 in Tapa, Estonia. The Saber Strike program facilitates cooperation and improves joint operational capability in a variety of missions and prepare the participating nations and units for future operations while enhancing the NATO alliance. (Photo by Spc. Matthew J. DeVirgilio, U.S. Army)

Next page: U.S. soldiers from 1st Battalion, 37th Armored Regiment, 1st Battalion, 6th Infantry Regiment, and soldiers from the 11th Omani Brigade, Royal Army of Oman, pull security over a makeshift village while others continue clearing buildings 18 January 2018 during Inferno Creek near Rabkoot, Oman. Inferno Creek is a theater security cooperation exercise that builds partner nation interoperability by focusing on combined arms training and dismounted lane training from team to platoon-sized elements. (Photo by Staff Sgt. Jennifer Milnes, U.S. Army)
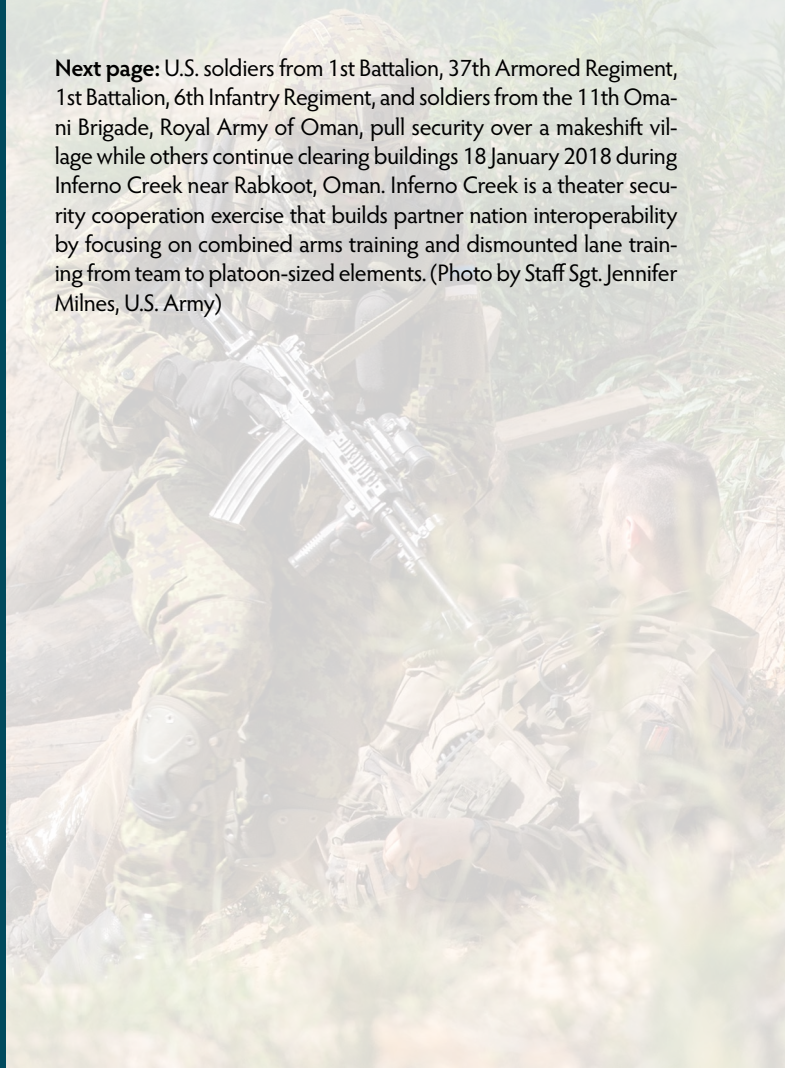
2018 General William E. DePuy

Special Topics Writing Competition

This year's theme: "World Hot Spots: Which of the world's hot spots is the Army least prepared for? Should resources be diverted to prepare for them? What is the most efficient way to become ready for conflict in this region?"

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 16 July 2018

1st Place	$1,000 and publication in *Military Review*
2nd Place	$750 and consideration for publication in *Military Review*
3rd Place	$500 and consideration for publication in *Military Review*

For information on how to submit an entry, please visit
http://www.armyupress.army.mil/DePuy-Writing-Competition/.

Suggested Themes and Topics

Institutional

- After eighteen years of institutional/operational experience largely focused on counterinsurgency, how do we return to preparing for large-scale combat operations (LSCO)?
  - See/understand/seize fleeting opportunities?
  - Develop the situation in contact and chaos?
  - Offset "one-off" dependencies and contested domains?
  - Rapidly exploit positions of advantage?
  - Survive in hyperlethal engagements?
  - Continuously present multiple dilemmas to the enemy?
  - Decide and act at speed?
  - Fully realize mission command?
- What are the greatest threats the Army faces (either externally or internally)? How should the Army deal with them?

- 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 is gender integration changing the Army and how it operates?

Global Security

- What nations consider themselves to be at war or in conflict with the United States? How are they conducting war, and what does this mean for the Army?
- Pakistan: friend or foe?
- What operational and logistical challenges are foreseen due to infrastructure limitations in potential foreign areas of operation and how can we mitigate them?
- What lessons did we learn during recent hurricane relief operations?
- What lessons have we learned from U.S. counterinsurgent military assistance in Africa?
- What was the military role in the recent coup in Zimbabwe, Africa? Evaluation of whether such military involvement is ethical or appropriate?
- What are the security threats, concerns, and events resulting from illegal 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 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?

Members of the Indonesian Special Forces hold a demonstration in honor of U.S. Defense Secretary James N. Mattis 24 January 2018 before Mattis met with Indonesia's Chief of Defense Marshal Hadi Tjahjanto in Jakarta, Indonesia. (Photo by Sgt. Amber I. Smith, U.S. Army)

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Saber Strike is a United States Army Europe (USAREUR) joint/combined exercise focused in the Baltic region of Europe. The annual exercise looks to improve interoperability among NATO allies and partner nations through a series of tactical exercises in Estonia, Latvia, Lithuania, and Poland. For Saber Strike 2017, a single tactical action was used to exercise related aspects of all levels of war (i.e., strategic, operational, and tactical) in a demonstration of the Alliance's commitment to maintaining the independence of the Baltic States through deterrence.

Among the many component situational and field training exercises that entailed Saber Strike 2017, the decisive operation for the exercise was a multinational air assault (AASLT), attack on an objective, and a forward passage of lines (FPOL) in southern Lithuania. The mission demonstrated the ability of the combined force to execute a decisive tactical action, sequenced in time, space, and purpose in conjunction with other tactical actions in Saber Strike to support an operational plan aimed at creating a theater strategic effect. The focus of this paper is on the operations conducted in the Suwalki Gap in southern Lithuania (see figure 1, page 8).

Exercise Objectives and Preparation

USAREUR identified three specific training objectives for Saber Strike 2017. The training objectives emerged from a strategic desire to deter outside actors seeking to undermine the cohesion of the Alliance by demonstrating the ability of USAREUR and NATO to speedily assemble, decide, and act in a contested environment.

The first, and most challenging, objective was improving interoperability between the forces of the United States, NATO allies, and partner nations.
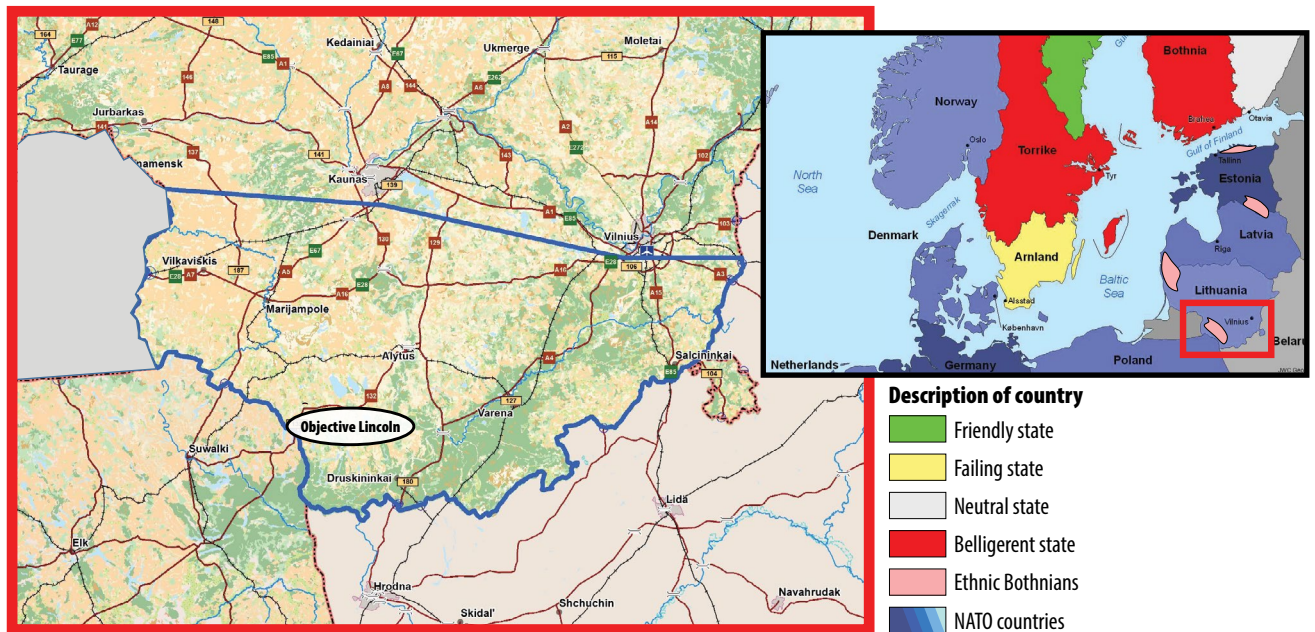
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Figure 1. Exercise Saber Strike 2017 Operations Conducted in the Suwalki Gap in Southern Lithuania

Interoperability is more than just the ability to communicate via radio or other electronic means. The fundamental component is the ability to operate tactically as a task force. This requires making dissimilar national doctrine, equipment, and procedures compatible with one another while also coping with complications stemming from the legacy of different security experiences among the forces as well as the use of different languages.

The second objective was to conduct a multinational AASLT into the Suwalki Gap using U.S. Army aviation assets brought to eastern Europe under Operation Atlantic Resolve. The third objective was to conduct a FPOL of enhanced Forward Presence (eFP) Battle Group Poland to eFP Battle Group Lithuania.[1]

Previous page: Soldiers from Bravo Company, 2nd Combined Arms Battalion, 136th Infantry Regiment (Minnesota Army National Guard), exit a CH-47 on 17 June 2017 during an air assault into the Suwalki Gap in southern Lithuania. Bravo Company provided an infantry platoon to X-Ray Company, 45 Commando British Royal Marines, for the exercise. (Photo courtesy of the 1st Armored Brigade Combat Team, 34th Infantry Division, Minnesota Army National Guard Public Affairs)

The Suwalki Gap is a sixty-mile-wide piece of strategically important land connecting Poland and Lithuania. The Gap offers a corridor for NATO to pass ground troops into the Baltic region during combat operations, or for Russia as the closest land route to push troops to Kalingrad. The Suwalki Gap is clearly vital ground. The AASLT into, and FPOL through, the Suwalki Gap was meant to demonstrate the combat power and interoperability of the NATO alliance while simultaneously identifying continued compatibility challenges.

Training area. No military installation exists in the Lithuanian portion of the Suwalki Gap. However, the Lithuanian National Defense Volunteer Force (NDVF) conducting their annual Strong Shield exercise within the Suwalki Gap allowed for a linking of exercises. Strong Shield encompassed an area covering approximately forty kilometers by forty kilometers, offering substantial training space for the AASLT and attack of an objective. The training area itself was civilian-owned land, coordinated by the Lithuanian military for use by the AASLT Task Force. Although all helicopter landing zones required coordination and certification prior to landing, because of the Lithuanian coordination with local landowners the ground force had freedom of movement
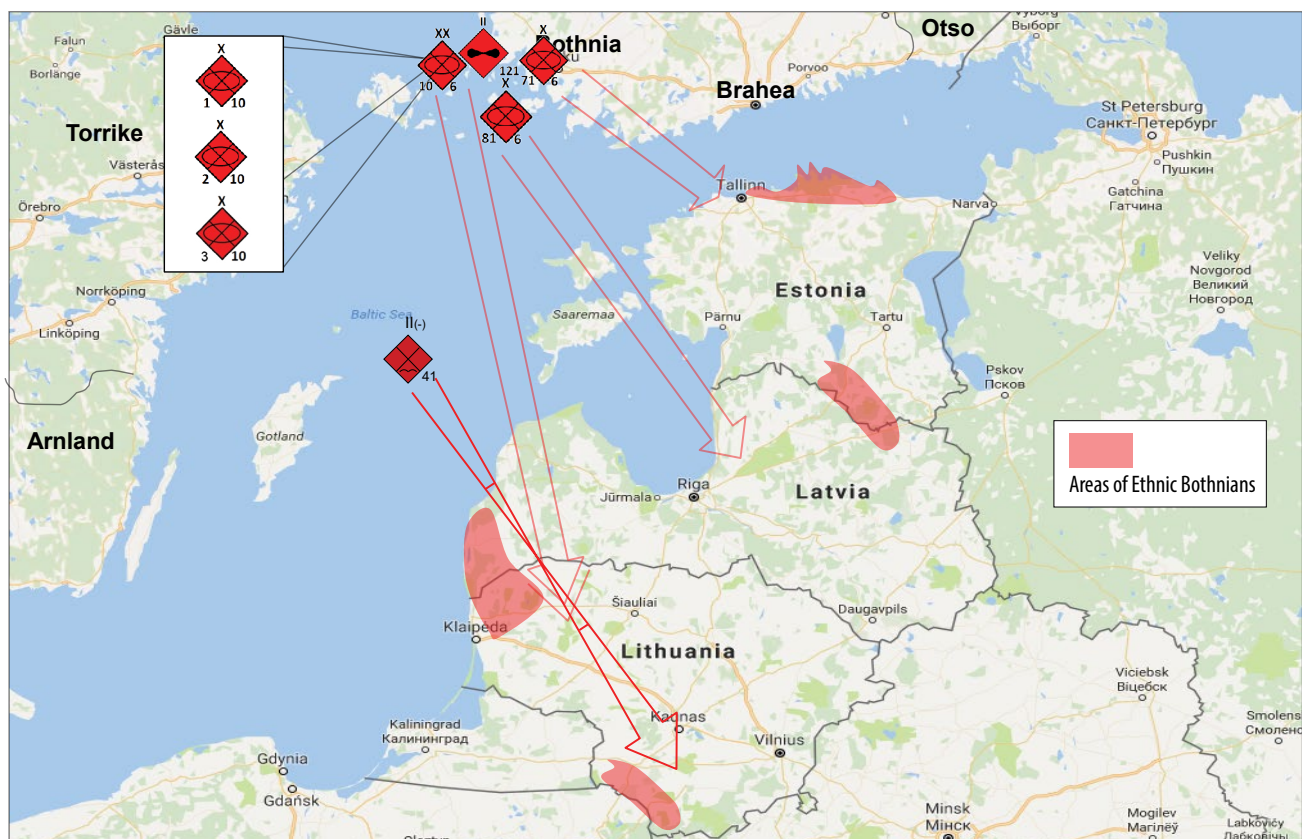
(Photo courtesy of the 1st Armored Brigade Combat Team, 34th Infantry Division, Minnesota Army National Guard Public Affairs)

Figure 2. Phase II of Exercise Saber Strike 2017—a Notional Enemy Airborne Battalion Jumps into the Suwalki Gap to Seize Key Terrain

on their patrol routes to the objective. On the training objective, the opposing force established themselves to allow for the continued flow of civilian traffic while simultaneously preparing a deliberate defense.

Scenario design. In order to provide a shared understanding of the operational picture driving Saber Strike 2017, and specifically the AASLT, attack, and FPOL, USAREUR used the Skolkan scenario as the architecture for the opposing force. The Skolkan scenario supports a NATO Article 5 response, focused on "preserving the territorial integrity of NATO members."[2] The final opposing force scheme of maneuver was a multibrigade attack into the Baltics, with Lithuania itself having a single enemy division attacking to isolate the capital and seize key terrain in the Suwalki Gap. Additionally, a notional enemy airborne battalion jumped into the Suwalki Gap to seize the two roads that run north and south through the gap and connect Poland and Lithuania (see figure 2).

In the initial stages of the training scenario, the notional enemy airborne battalion deployed a reinforced company-sized element that established positions on the identified objective for the exercise. Spanning approximately twelve kilometers along Highway 132, Objective Lincoln was the objective for the AASLT task force to seize. Objective Lincoln was further divided into three smaller objectives: Adams, Bush, Carter, all key intersections on Highway 132.

As a common language, doctrine enables combined arms operations. In this exercise, the AASLT planning occurred using the U.S. Army 101st Airborne Division's Air Assault *Gold Book*, the standard in the U.S. XVIII Airborne Corps, and Field Manual 3-99, *Airborne and Air Assault Operations*.

Force structure. For this component of Saber Strike, the seizing of Objective Lincoln via an AASLT and subsequent FPOL, identifying a coordinating headquarters, a ground task force, and an aviation task force were the
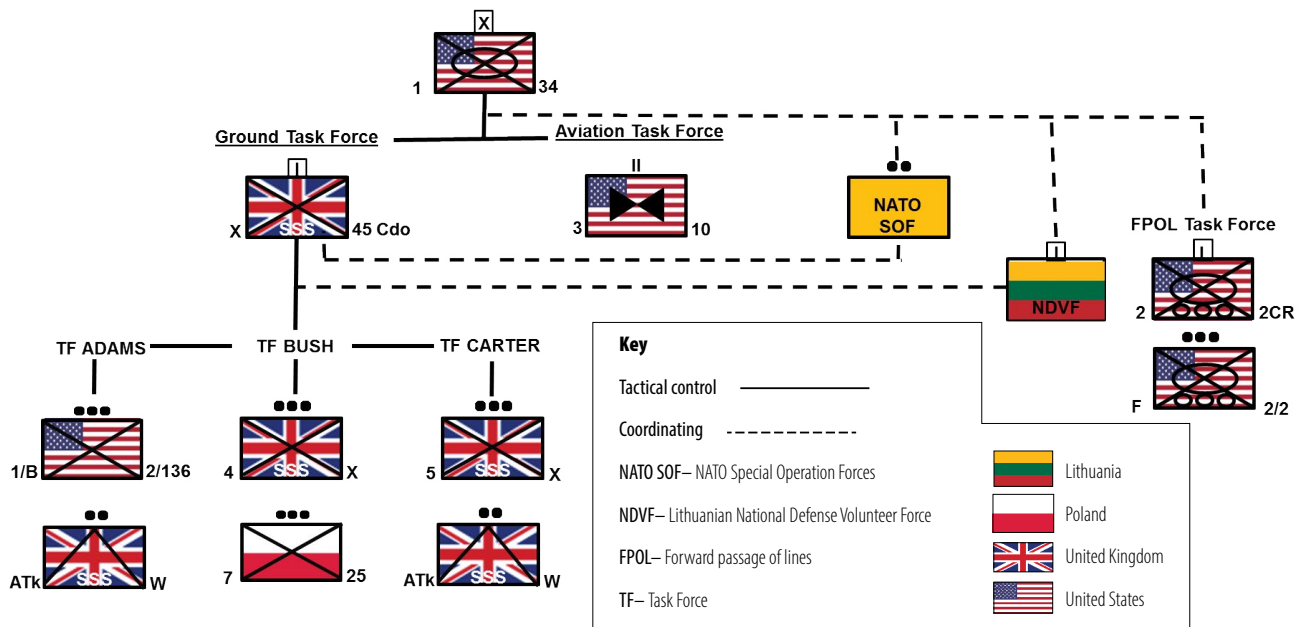
Figure 3. Task Force Red Bull Task Organization

critical first steps to building the force structure. The task of developing the force structure for the mission fell to the USAREUR Saber Strike planners; looking to have a brigade-level lead proved challenging as all brigades participating in Saber Strike 2017 were decisively engaged in their specific part of the exercise. The exception was 1st Armored Brigade Combat Team, 34th Infantry Division, Minnesota Army National Guard (1/34 ABCT), which formed the foundation of the U.S. contingent of the Saber Strike Exercise Control Group. 1/34 ABCT became the air assault headquarters, gained responsibility as the coordinating headquarters for all parties involved, and became Task Force Red Bull (see figure 3). Col. Charles Kemper commanded 1/34 ABCT and subsequently became the commander of Task Force Red Bull with the task force staff

Col. Charles Kemper, Minnesota Army National Guard, is the commander of the 1st Armored Brigade Combat Team, 34th Infantry Division (1/34 ABCT), and director of Post Market Quality at Boston Scientific. He is a graduate of the Army War College and has an MBA from the University of Illinois. He most recently served as the division operations officer, 34th Infantry Division.

Maj. Jacob Helgestad, Minnesota Army National Guard, is the operations officer of 1/34 ABCT. He is a graduate of the School of Advance Military Studies and has a master's degree in strategic leadership from American Military University. He most recently served as the deputy chief of plans and chief of future operations for 34th Infantry Division.

Maj. Nathan Colvin, U.S. Army, is the operations officer of 3rd General Support Aviation Battalion, 10th Aviation Regiment, 10th Combat Aviation Brigade, Fort Drum, New York. He is a graduate of the School of Advance Military Studies and holds master's degrees from Embry-Riddle Aeronautical University and Central Michigan University. He recently completed the Strategic Broadening Seminar at the Intermediate Command and Staff Course (Land) at Joint Command and Staff College, Shrivenham, United Kingdom.

Maj. Simon Cox, British Royal Marines, is the company commander, X-Ray Company, 45 Commando Royal Marines. He has completed the Advanced Amphibious Warfare Course and Intermediate Command and Staff Course (Land) at Joint Command and Staff College, Shrivenham, United Kingdom. He most recently served as amphibious planner at Striking and Support Forces NATO, Lisbon, Portugal.

Maj. Simon Cox, commander of X-Ray Company, 45 Commando Royal Marines, talks with soldiers from 7th Air Cavalry Battalion, 25th Air Cavalry Brigade, Polish army, 15 June 2017 near the pick-up zone in Kuzla Ruda, Lithuania. The 7th Air Cavalry Battalion provided a platoon to the Royal Marines for their air assault into the Suwalki Gap. (Photo by 1st Armored Brigade Combat Team, 34th Infantry Division, Minnesota Army National Guard Public Affairs)

comprised of members of the 1/34 staff. Eventually, Task Force Red Bull received staff augmentation from the Croatian Air Force, the Lithuanian Air Force, and the Lithuanian National Defense Force.

Finding elements for the ground tactical force proved no less challenging. All infantry units in Lithuania were already engaged in other events. USAREUR expanded its search to Latvia and Poland eventually securing X-Ray Company, 45 Commando British Royal Marines (X-Ray, 45 Commando) as the foundation for the ground tactical force. Additional ground forces came from Bravo Company, 2nd Combined Arms Battalion, 136th Infantry, Minnesota Army National Guard, and 7th Air Cavalry Battalion, 25th Air Cavalry Brigade from the Polish Army. Taken all together, these forces came to form the ground task force. Finally, for the air component USAREUR benefited from the 10th Combat Aviation Brigade's deployment to Europe as a rotational force with 3rd General Support Aviation Battalion, 10th Aviation Regiment (3-10 AVN REGT) identified as the aviation task force.

The FPOL required its own force structure in addition to the one needed for the AASLT. The focus of the FPOL was the eFP Battle Group Poland and Lithuania. Specifically, Fox Troop 2nd Squadron, 2nd Cavalry Regiment (F/2/2 CR), with forces from Romania and United Kingdom, forming Task Force Cougar conducting the FPOL. The intent was a FPOL that passed an element of the Polish Battle Group, Task Force Cougar, through the Suwalki Gap to reinforce the German-led battle group in Rukla, Lithuania.

Finally, NDVF provided opposing forces for both the aviation and ground elements. During subsequent conferences, coordination, and planning sessions elements of Special Operations and U.S. Air Force joined the Task Force Red Bull as enablers and multipliers.

Staging area. Since there was no designated training area in the Suwalki Gap, there was also no area in

The 1st Armored Brigade Combat Team, 34th Infantry Division (1/34 ABCT), Minnesota Army National Guard tactical command post is camouflaged 17 June 2017 in the Suwalki Gap, Lithuania, as elements of 3/10 General Support Aviation Battalion fly on the horizon. 1/34 ABCT provided mission command of a multinational air assault and forward passage of lines in the Suwalki Gap during Exercise Saber Strike 2017. (Photo courtesy of the 1/34 ABCT Public Affairs)

the region large enough for Task Force Red Bull, the ground tactical force, and aviation task force, to stage prior to execution. The Lithuanians offered Kuzla Ruda Airbase as an option to stage the Air Assault Task Force. As an abandoned airfield, Kuzla Ruda had the bed-down space for all the helicopter airframes. Additionally, it provided barracks for X-Ray, 45 Commando coming from Latvia and the Polish soldiers coming from Poland. Finally, the space around the airfield offered ample room for 1/34 ABCT tactical command post (TAC), 3-10 AVN REGT command post, and all respective company command posts.

Of the task force elements identified for execution, only 1/34 ABCT and the NDVF staged in Lithuania for the duration of the exercise. Throughout the Baltic region and Poland, 3-10 AVN REGT had elements supporting all operations only converging on Kuzla Ruda at the ninety-six hours prior to the AASLT execution. When 3-10 AVN REGT moved from Latvia they flew X-Ray, 45 Commando to Kuzla Ruda, one of the many logistical coordination pieces resolved during the planning process.

Logistical network. The development of a logistical network to support the AASLT task force at both Kuzla Ruda and in the Suwalki Gap proved the most difficult obstacle to overcome. However, one can argue it was also the most important. As strategically important as the Suwalki Gap is, it is "logistics [that] brings the troops to this point."[3] It not only required coordination amongst the participating units but also between Lithuania and the parent nations of the participating units. In its role as exercise sponsor, the G-4 (Logistics) USAREUR proved invaluable as the organization to receive and coordinate all statements of requirement. The statements of requirement are a contracting agreement between nations that clearly identify the classes and funding of supply required by each respective nation.

Operation Lake Superior: The Suwalki Gap

Operation Lake Superior—the name given to this operation—was a five-phased operation to seize Objective Lincoln (key terrain), open ground lines of communication, and conduct a FPOL in the Suwalki Gap. A multinational AASLT task force (Task Force Red Bull), comprised of an aviation task force and ground tactical force, became the foundation to execute Operation Lake Superior. The execution of the

air assault was the most complex phase of the operation. It required a shared understanding and sequencing of events in time and space from army, marine, and air force units represented from six nations, all of which had never previously worked together.

Air Assault Task Force Headquarters (Task Force Red Bull: 1/34 ABCT). As an armored brigade combat team, acting as the tactical headquarters for an air assault is a unique mission set. For this exercise, 1/34 ABCT had three training objectives: conduct an attack, conduct an air assault, and conduct expeditionary deployment operations. For execution, 1/34 ABCT deployed its TAC to Lithuania, capitalizing on an excellent training opportunity and expanding upon lessons learned at 1/34 ABCT National Training Center rotation 16-07.

Upon USAREUR publishing the operations order for Operation Lake Superior, the staff of 1/34 ABCT initiated the military decision-making process during its monthly drill assemblies. Even though the exercise coordination dictated items like the landing zones and objectives, there remained enough of a requirement for planning and development of planning products that the staff received invaluable training. The staff focused on sequencing the operation in time and space, developing the timeline using the ninety-six-hour planning window described in the *Gold Book*. The sequencing enabled synchronization across Task Force Red Bull, ensuring unity of effort toward a common goal of the AASLT, attack on Objective Lincoln, and FPOL.

Execution sequencing occurred through the publication of a clear commander's intent and allocation of key tasks. These two items enabled a shared understanding among all forces operating in the task force. The ground commander's understanding of the intent and key tasks allowed him to exercise disciplined initiative when communications failed. Overall, phasing of the operation by Task Force Red Bull enabled the principles of mission command and clear sequencing of the operation in time and space.

With a newly formed task force, which had never worked together, the decision to make each phase a clear, concise step supported interoperability and sequencing. These phases consisted of the following:

- Phase One: Planning and assembly of the task force
- Phase Two: Air assault
- Phase Three: Attack

- Phase Four: Consolidation and reorganize
- Phase Five: Forward passage of lines

Sequenced to enable synchronization in time and space, the articulation of each phase's end state supported a shared understanding, reinforced during rehearsals.

Although the *Gold Book* prescribes a ninety-six-hour planning window, this assumes all forces are collocated.[4] 1/34 published its operation order three months prior to execution due to the operational tempo of all units in the task force. This allowed the aviation and ground elements to staff the order prior to execution. Prior to the entire task force forming, an opportunity presented itself in early June to execute the air mission coordination meeting. This meeting paid huge dividends as it presented the first opportunity for all elements of the task force to meet and initiate dialogue.

The focus for 1/34 ABCT while at Kuzla Ruda, the staging area, was execution of the air mission brief and the task force combined arms rehearsal (CAR). Both events synchronized Task Force Red Bull in time and space and built a shared understanding for the aviation and ground elements. Of significant importance at the CAR were the addition of special operations forces (SOF) and the Lithuanian joint tactical air controller (JTAC) responsible for all air space control within the restricted air space created for the exercise and representatives from F/2/2 CR. Having SOF brief during the CAR ensured a shared understanding amongst all elements of Task Force Red Bull on how they planned to infiltrate into the area of operations to conduct suppression of enemy air defense (SEAD). This synchronized the JTAC controlling fixed wing assets dedicated to conducting SEAD with Task Force Red Bull. Furthermore, this validated 1/34 ABCT's decision support matrix and launch criteria for the AASLT with 3-10 AVN REGT flying the mission and X-Ray, 45 Commando receiving intelligence from SOF once on the ground. The participation of F/2/2 CR ensured good coordination of the conduct of the FPOL, specifically the link-up procedures, the designated checkpoints in the passage lane, and the battle handover line.

One of the greatest challenges during execution was the tyranny of distance and its impact on communications. Kuzla Ruda and Objective Lincoln are approximately seventy-three kilometers apart. This required the 1/34 ABCT TAC to deploy forward from Kuzla Ruda approximately three hours prior to *fixed-wing-on station* to conduct SEAD. With

their Lithuanian JTAC collocated in the TAC, this allowed 1/34 ABCT to apply mission command to the air space as well as communicate with SOF on the ground. The use of a Joint Capabilities Release (JCR), a friendly force tracking system, allowed communication between 1/34 TAC and 3-10 AVN REGT back at Kuzla Ruda as well as between 1/34 ABCT Main in Riga, Latvia and F/2/2 CR in Poland.

Once established, the 1/34 TAC tracked the battle through both analog and digital means. An objective for the 1/34 TAC was continuation of camouflage techniques developed at the National Training Center to ensure survivability in a decisive action environment. Augmenting the TAC staff were two Croatian Air Force officers who provided additional staffing focused on the aviation aspect of execution.

Ground tactical force (British Royal Marines). The ground task force was led by X-Ray Company from 45 Commando Royal Marines, part of the United Kingdom's 3 Commando Brigade. Operation Lake Superior presented to them and the overall force a number of unique opportunities that led to the generation of two overarching training objectives: conduct combined, joint and multinational planning; and execute combined, joint and multinational offensive operations.

The construct of Task Force Red Bull had a company-sized group working directly in support of a brigade staff. This enabled the rapid and effective planning of a relatively complex operation. Given the locations of Objectives Adams, Bush, and Carter, and only two workable landing zones, the crux of the plan was coordinating the delivery of sufficient combat power to seize and hold each objective in order to enable the FPOL. Insufficient lift capacity to move the ground task force in a single wave shaped the final plan. Competition for seats on the aircraft between the ground task force and other participants was resolved by 1/34 ABCT taking the lead for coordinating and prioritizing space on each aircraft ensuring execution of the ground task force commander's plan.

The air mission brief and CAR were key to ensuring that the ground plan was both supportable and supported by the other elements of Task Force Red Bull. The timing of the air mission brief allowed the ground task force commander to subsequently deliver orders to his subordinates and receive a back brief on their plans. He was then able to bring this information to the

A marine from X-Ray Company, 45 Commando British Royal Marines leads a patrol 17 June 2017 from a landing zone in the Suwalki Gap in southern Lithuania. The Royal Marines formed the core of the ground assault force tasked to seize three objectives in the Suwalki Gap and subsequently established a passage lane for elements of 2nd Squadron, 2nd Cavalry Regiment. (Photo courtesy of the 1st Armored Brigade Combat Team, 34th Infantry Division, Minnesota Army National Guard Public Affairs)

CAR—ensuring synchronization from the lowest level up to the brigade combat team staff.

At the lower tactical level, the ground task force was faced with the challenge of integrating force elements from three different nations despite only being co-located for seventy-two hours prior to the operation. It is testament to the professionalism of members of the Alliance that swift resolution of issues surrounding language, equipment, and location provided sufficient time for detailed planning and delivery of orders at troop and platoon level. This was to pay dividends during execution.

The task force was subsequently organized in to three sub-task forces, one for each objective. Each sub-task force had its own battle space and clear mission set, with the headquarters there to ensure synchronization and deconfliction of activity.

The ground task force headquarter's role during Operation Lake Superior was to shield the subordinate commanders from the complexities of brigade-level operations in order to allow them to focus on their own mission, in this case to close with and kill the enemy.

Aviation Task Force (3/10 AVN REGT). The goals of the Aviation Task Force during Operation Lake Superior mirrored those of their mission essential tasks; conduct air assault, conduct air movement, casualty/medical evacuation, provide air traffic services, and expeditionary operations. Because of how the unit was task organized within Task Force Red Bull, the team intended to conduct platoon-level reconnaissance, screens, and hasty and deliberate attacks.

Leveraging the USAREUR five pillars, the team also looked to focus on interoperability in a distributed environment. With the strategic goal of maintaining viable lines of communication to enable the cohesion

and existence of the NATO alliance in the Baltics, the use of the Skolkan scenario enabled the development of a robust enemy situation.

Initially deployed throughout the Baltics for Saber Strike, the Aviation Task Force eventually converged in Lithuania. Prior to the execution of the AASLT, the aviation task force dealt with extended lines of communication, mission command relationships changing often, and units constantly supporting new multinational partners. In other words, it was an operational example of Gen. Mark A. Milley's concept of "miserable, disobedient, and victorious" in the future operating environment.[5]

The Aviation Task Force experienced what we should expect when fighting in a short notice multinational Article 5 scenario, with units constantly on the move, fighting backward and forward with little time between missions for deliberate planning, and certainly not massed in any way previously anticipated with the structure of proscribed modified tables of organization and equipment.

Once crews repositioned from Latvia to Lithuania, awaiting them was an exceptional phenomenon—a fully functional field site, complete with forward arming and refueling point, air traffic services, camouflaged living areas, an aviation battalion command

A marine from X-Ray Company, 45 Commando British Royal Marines, and a soldier from 1st Armored Brigade Combat Team, 34th Infantry Division (1/34 ABCT), Minnesota Army National Guard, participate in a planning session 14 June 2017 during Exercise Saber Strike in southern Lithuania. 1/34 ABCT formed the air assault task force headquarters and X-Ray Company the ground task force for an air assault into the Suwalki Gap. (Photo courtesy of the 1/34 ABCT Public Affairs)

post, and a co-located brigade command post, fully resourced with the people, equipment, and resources for deliberate AASLT mission planning.

These tactical enablers were only possible because of the strategic movement by air and sea of 1/34 ABCT from Minnesota to Lithuania and the operational success of 3-10 AVN REGT 1400 km convoy, overland shipment, and air deployment from Germany. The sequencing of both movements in time and purpose anticipated the decisive point in the operation against a highly mobile adversary.

Task force enablers. The identification of the task force enablers mentioned above occurred at the planning conferences as staffs identified missing, needed components for successful execution of Operation Lake Superior. Examples included JTACs to control airspace as well as special operations forces (SOF) to conduct SEAD. Such planning not only increased the lethality of Task Force Red Bull but also greatly enhanced the training for all parties. The integration of SOF from both Lithuania and the United States and their fixed-wing close air support were paramount to successful mission execution.

The Lithuanian and U.S. SOF operated in four roles. First, they conducted SEAD behind enemy lines. Once they found the enemy air defense artillery assets, they

used B-1B strategic bombers to destroy the targets. Second, they conducted reconnaissance of Objective Lincoln, attempting to confirm or deny the intelligence picture on the ground. Third, as many of the pilots had previously never operated in this area, the operators conducted pathfinder operations on the landing zones. Finally, once the ground force exited the aircraft and established a defensive perimeter, SOF conducted an intelligence debrief to the ground forces.

The U.S. and Lithuanian Air Forces both provided fixed-wing aircraft to conduct SEAD and close air support. To conduct SEAD, the U.S. Air Force provided both B-1B strategic bombers and F-16s. Operating alongside SOF, Lithuanian JTACs guided the aircraft to their targets. During the attack on Objective Lincoln, B-1B bombers and Lithuanian L-39 fighters provided close air support directed by X-Ray, 45 Commando's NATO certified JTAC.

Operation Lake Superior Execution and Successes

The aviation move went as planned despite inclement weather with the entire ground task force delivered on time to the correct location. One real life contingency presented itself as thunderstorms began to develop in the local area. Despite connectivity difficulties, the U.S. Air Force weather forecaster was able to pass weather information over secure communications. This enabled the company commander, acting as the air mission commander, to make appropriate risk assessments and route alterations to continue the mission without incident.

The separate ground elements all conducted their assaults on the three subobjectives on Objective Lincoln within ninety seconds of each other. This occurred after night movements between five to ten kilometers. During the movement to the objectives tactical communications were very difficult, both up to 1/34 ABCT TAC and down to the sub-task forces. For a significant period, there was a complete loss of communication. Despite this, the three sub-task forces were able to conduct synchronized assaults onto their respective objectives over a twelve kilometer stretch of highway. However, because of coordination achieved at the CAR, the problem of intermittent radio communications had zero impact on the operation because of the application of disciplined initiative by junior leaders.

During the ground attack on Objective Lincoln, 1/34 ABCT maintained contact, via JCR, with F/2/2 CR. This allowed tracking of the passing force as they moved north to the link-up point. Through communication via JCR with F/2/2 CR, 1/34 ABCT radioed continuous updates to X-Ray, 45 Commando, aiding their visualization of the common operating picture of all friendly forces operating in the area. Upon the seizure of Objective Lincoln, 1/34 ABCT TAC jumped to a centralized location for the passage of lines. The passage of F/2/2 CR went smoothly, again aided by the face-to-face coordination that had taken place at the CAR forty-eight hours prior.

Another first, for such a large-scale mission, was that all participants including SOF, aviation, and the multinational ground force were able to conduct the operations with secure NATO communications. A task-force-wide communication exercise prior to execution ensured the ability for all parties to communicate via radio. However, despite the success, the exercise did highlight the need for a more robust communication security and signal operation instruction distribution system inside of NATO to ensure ground forces are truly interoperable at all times.

Upon seizure of Objective Lincoln, the FPOL occurred along the same stretch of Highway 132. As previously stated, this was a force-on-force exercise with the Lithuanian NDVF acting as the opposing force. The Lithuanians mirrored the Skolkan exercise design, providing a company-size element, with an infantry platoon occupying each objective with air defense artillery assets. During SEAD, SOF targeted these assets. However, during the AASLT, the same air defense artillery assets used the AASLT as a training opportunity. This presented a unique training opportunity for the Lithuanians as well as 3-10 AVN REGT.

Other Lessons Learned

From an aviation perspective, there were many advantages to the situation in Kuzla Ruda. First, and most important, the commander of 1/34 ABCT set out a clear vision to his staff that included a stipulation that the execution of all briefs and rehearsals follow the "*Gold Book* Standard." Despite the ground force's relative inexperience with AASLTs, this provided a unique perspective for 3-10 AVN REGT to see "what right looked like" when a unit sets itself to a full planning process. In addition to bringing their

A Lithuanian joint terminal attack controller (JTAC) patrols with British Royal Marines 17 June 2017 during Exercise Saber Strike in southern Lithuania. During the ground assault, the Lithuanians provide NATO-certified JTACs to the Royal Marines. The Lithuanian JTACs guided U.S. Air Force B-1B bombers onto the objectives for close air support, enhancing the combat power of the Royal Marines. (Photo courtesy of the 1st Armored Brigade Combat Team, 34th Infantry Division, Minnesota Army National Guard Public Affairs)

great focus and positive attitude, the members of the 1/34 ABCT came armed with large-sized walkable terrain maps that enabled detailed briefings and rehearsals. The second advantage the unit experienced was support from the professional and experienced team of Royal Marines. Within the first day, they deftly created a tactical plan expertly communicated to the ABCT and 3-10 AVN REGT commanders' planning teams.

It is also important to note that the sequenced approach to building Task Force Red Bull combat power was only possible because of the resources provided by other allied forces. For example, at Kuzla Ruda, Lithuanian forces provided the outer cordon security of the base with a mostly conscript force together with water purification capability for food and sanitation—true force multipliers. Foresight by USAREUR planners, resulted in augmentation of Lithuanian forces by attaching Tennessee Air National Guard security force personnel to guard aircraft and flight line.

Summary

The Suwalki Gap mission was a success. Overall, this mission proved to be an invaluable experience, difficult to replicate inside the United States. After

years of fighting primarily ideological campaigns in Afghanistan and Iraq, the opportunity to conduct a mostly terrain-focused campaign exercise against a notional invasion by conventional forces helped restore atrophied conventional capabilities.

As the U.S. Army focuses on decisive action scenarios in the future, there are greater opportunities to train in this way, even if it is in a more distributed environment. The campaign developed by USAREUR and subordinate units is a great step toward large scale, interoperability-focused exercises. The Suwalki Gap operation is an example of single tactical event achieving strategic goals. These strategic goals included

- Utilizing strategic mobility to deploy from the continental United States to Europe.
- Increasing interoperability and identifying areas for improvement.
- Demonstrating the ability to seize and hold key terrain with strategic consequences.

Achieving these strategic goals required the development of an operational approach that enabled success by all elements of Task Force Red Bull.

At the tactical level, there was overwhelming success from a training perspective. First, efforts allowed a multinational task-organized team to work successfully together. The work conducted among the elements of Task Force Red Bull, X-Ray, 45 Commando, and 3-10th AVN REGT, was productive and smooth. The Task Force Red Bull commander kept the team disciplined, hitting all the major components of the air assault planning process in accordance with the 101st Airborne *Gold Book*. This provided for the standardization of input and product making necessary to stabilize and harmonize detailed planning and execution among the diverse elements of the force.

Additionally, the distributed forces and unfamiliar procedures that the exercise had to deal with were reflective of real-life operations in any newly formed task force. As a result, because there was often not time for detailed rehearsals, issues with planning contingencies that had a potentially adverse impact were mitigated by developing good personnel relationships and an overall can-do attitude among the allied forces. These two factors were as valuable as promoting standardized tactics, techniques, and procedures because they encouraged disciplined initiative and flexibility in dealing with the changes wrought by the types of emerging circumstances that allied forces will have to face in the event of a real world contingency against an invading adversary. ■

Notes

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President Donald Trump leads a strategic assessment discussion with senior military leaders 5 October 2017 at the White House in Washington, D.C. (Photo by Yuri Gripas, Reuters)

Are We There Yet?
Implementing Best Practices in Assessments

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T he purpose of a strategic assessment is to determine if an organization is achieving its strategic objectives. This is often a difficult process to implement, given normal staff aversion to introspective processes and a lack of doctrine specific to assessments. The purpose of this article is to discuss best practices and

common pitfalls in military assessments while outlining steps needed to continue to improve assessments across the Department of Defense (DOD). First, we outline the doctrine and literature guiding the DOD. Second, we provide a review of common assessment methods used across the military. Next, we present the four best practices proven successful in the joint staff, strategic commands, and recent conflicts. Last, we provide recommendations on how to improve the state of assessments in the DOD.

Doctrine

Joint Publication (JP) 5-0, *Joint Operation Planning,* and JP 3-0, *Joint Operations,* provide doctrine to the joint force on the staff processes and methods from receipt of mission through developing and implementing a vision and strategy.[1] For implementation of assessments, JP 5-0 and Joint Doctrine Note 1-15, *Operation Assessment,* provide general frameworks for implementing an assessment process within a joint staff.[2] While joint doctrine reserves comment on methods and techniques, multiservice doctrine compensates for this shortfall, outlining existing methods, assisted by a number of journal articles describing successful methods used in Iraq and Afghanistan.[3] The process for gap assessment run by the joint staff to collect data from the combatant commands (CCMDs), outlined in various policies and instructions, is conducted through the Annual Joint Assessment (AJA, formerly known as the Comprehensive Joint Assessment, CJA) and tasked in the Guidance for Employment of the Force.[4] The joint staff recently added additional policy providing common joint terminology for risk in its publication of the Chairman of the Joint Chiefs of Staff Manual (CJCSM) 3105.01, *Joint Risk Analysis,* which allows clear communication of the results of an assessment from one echelon to another.[5]

The consistent themes across doctrine include descriptions of common staffing processes such as boards, bureaus, and working groups; discussion of data calls and data collection during the assessment process; and emphasis on commander involvement, while continuing to adhere to legacy terms from effects-based assessment. Literature, mostly from federally funded research and development centers, provides current methods in assessments, while

doctrine only partially assists the joint force in informing assessment methods, as we outline later in this article. While doctrine provides an overview of how to implement a process and a few of the main techniques, neither doctrine nor other supporting military publications provide clear guidance on best practices. This lack of guidance contributes to a joint environment where

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Objective 1: Failure   Objective 1: Success

Last period
This period

(Figure by authors)

Figure 1. Example of an Unstandardized Thermograph

there is no authoritative delineation between good and bad practices, and display techniques for condensing and conveying assessments of data.

Inadequate but Common Assessment Methods and Display Techniques

To understand best practices, leaders should recognize inadequate assessment methods in use across the DOD and their corresponding narratives in data displays. Three characteristics prevail among these techniques: lack of standards, subjective data displays, and inadequate source material. These methods and techniques, using monikers defined by their display, include thermographs, standardless stoplights, color averages, simple arrows, indices, one-hundred-point scales, and effects-based assessment. With little literature and no joint doctrine to provide assessment teams the foundation to cite the faults of these methods, it is difficult for commands to leave these techniques behind.[6] This article provides knowledge to inform leadership and empower assessment teams to build their credibility with other staff sections by building their expertise in assessment methods. The paragraphs below describe these inadequate methods and explain why each is a poor assessment technique.

Thermographs contain a continuum of rainbow colors, normally red on one side, green on the other, and yellow between them, with the current status marked with a triangle or tick mark to indicate the current rating (see figure 1). This technique often fails to provide an empirical standard to determine how far to move the progress indicator, leading a staff to move progress indicators subjectively in increments as measures of performance achieved, not as objective measures of verifiable effects achieved. Although they appear to have technical sophistication, "thermographs create the illusion of science," as there is seldom any quantitative backing for the assessment.[7]

The standardless stoplight, consisting of a red-amber-green scale, is the most common form of assessment and is essentially a simplified thermograph (see figure 2). A common practice is to use these colors to create a subjective display, or an evaluation of progress without parameters, absolving the briefing agency of accountability for evaluating progress against a verifiable standard in their assessment. Every stoplight chart should have, at a minimum, a legend providing the short version of what the colors mean on the chart and a written narrative fully detailing the standards-based bins in reserve.

Color math, or color averaging, involves identifying a color for a single indicator, assigning it a number value, using it as part of an index with other indicators, and then translating the index back into a color (see figure 3, page 23). This process treats ordinal variables as continuous variables; the average of ordinal responses is

Objective 2 rated amber

Limited to no improvement

Moderate improvement

Success or near completion
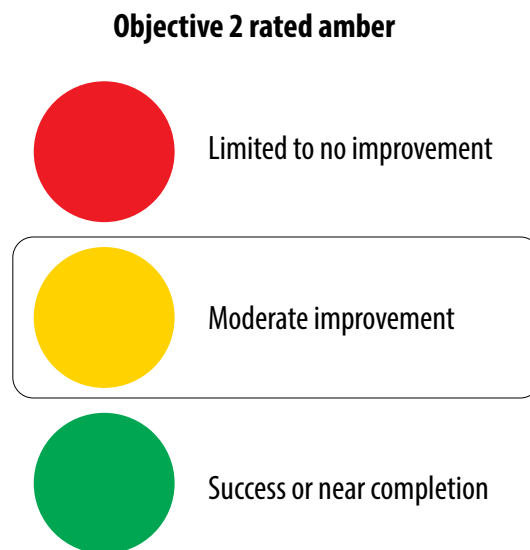
(Figure by authors)

Figure 2. Example of a Subjective Stoplight

meaningless and in some cases misleading. Consider, for instance, a situation where five of ten provinces are successful and the other five are failures. If one averages the responses, the assessment would be "amber," or "marginal success." This provides a clear example of a faulty assessment; it is far more insightful to assess half of the provinces as failures and half as successes.

Arrows—up, down, and sideways—provide a single indicator noting only the change from the last report (see figure 4, page 24). Arrows show short-term advances for the sake of demonstrating progress but ignore more im-

Making transparency even more difficult, assessors often leverage proxies for many indicators when substantial data does not exist, thereby degrading the legitimacy of insights analysis may provide.

One-hundred-point scales source data through a survey, with multiple subordinate commands and/or directorates voting on the status of an objective using a scale of 1 to 100 with the overall score being the average of the votes. While there are general rules on the scoring for these surveys, our ability to measure the difference between natural states is not refined enough for the assessor
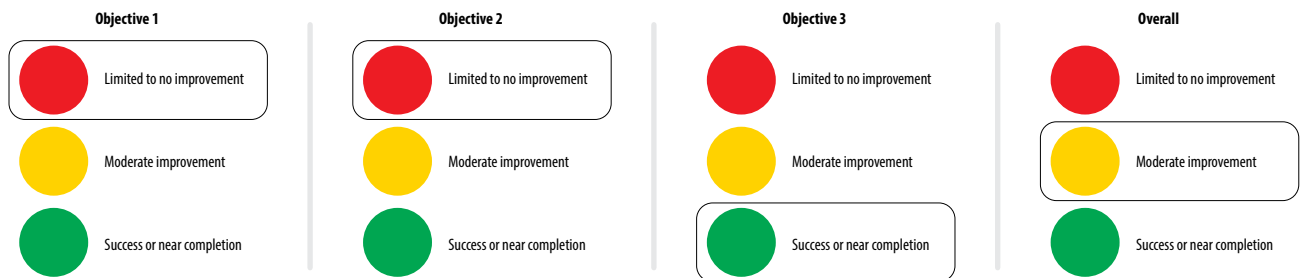
(Figure by authors)

Figure 3. Example of Faulty Color Averaging

portant long-term trends based on mission accomplishment. The end result of these assessments are uncannily predictable, with approximately one-third to one-half of the objectives assessed with up arrows to demonstrate some success, regardless of the actual scale or progress towards mission accomplishment.

Indices comprise a weighted average of normalized data. The purpose of an index is to have a single indicator summarizing an aspect of a problem (see figure 5, page 24). Indices are useful when experts agree on the weights applied to the input data, and the data is used to compare like items, such as state fragility indices. (They combine scores measuring two essential qualities of state performance: effectiveness and legitimacy; these two quality indices combine scores on distinct measures of the key performance dimensions of security, governance, economics, and social development.) Most indices for assessments are not transparent enough to provide value, such as when multiple indicators contribute to the increase or decrease of an index, hiding the key indicators. Further, weighted averages assume a consistent linear relationship and quality data collection, rarely found in the complex problems the military attempts to measure.

to discern the difference between, for instance, 67 and 68, rendering measurement to this fidelity, and the corresponding assessment conclusions, meaningless.

Effects-based assessment. Despite being purged from joint professional military education, effects-based operations and the associated assessment process persist throughout doctrine and application in the joint force.[8] There are two distinct problems with effects-based assessment. First, it assumes a deconstructionist mentality, that is, effects "roll up" into intermediate military objectives (IMO). Multiple authors, military and civilian, warn against such a mindset.[9] Second, the structure of lines of effort (LOEs), IMOs, and multiple contributing effects tend to bloat staff requirements for data collection without corresponding benefit to the staff.[10] Because of the prominence of effects-based assessment, assessment sections are expected to collect vast amounts of quantitative data; efficient assessment sections use a streamlined assessment framework to process only the essential data required to measure the progress of their IMOs.

So we might ask ourselves why we continue to use these methods? Quite simply, assessment team members are very often assigned without sufficient education,

training, or prior experience in assessments. Even if assessments personnel have experience, there is little documentation for them to use as references for their methods when meeting organizational resistance within their own staff. The next section provides alternative, proven methods that are manageable in their implementation.

Better Means for Strategic Assessments

Effective assessment practices clearly articulate progress, gaps, and the risk associated in accomplishing the unit's mission. Gap assessment, strategic questions, standards-based assessments, and written products best provide the tools required to assist operational and strategic commands.

Gap assessment. One outcome of an assessment process is to determine progress against a mission. When it becomes apparent we will not accomplish an objective by the target date, it raises the question of what to do next. A structured method to align assessments to answer this question is gap assessment, which defines the gaps in the critical path to obtain a given objective along a timeline. These gaps generally fall into the categories of capacity (insufficient forces allocated or assigned to the command, lack of authorities and/or permissions granted by the U.S. government); capability (shortfalls in any of the doctrine, organization, training, materiel, leadership and education, personnel, or facilities); or shortcomings in the willingness, capability, or capacity of partner nations. Identifying these gaps and attempting to close them provide the staff with a method to take action leading to the accomplishment of their strategic objectives. In the joint staff, the gap assessment is initiated by CCMDs in the AJA and summarized in the Chairman's Risk Assessment through the Capability Gap Assessment.[11] Similar, less formal structures exist in a few of the CCMDs, while other commands focus on recommendations.

Figure 4. Example of Unpredictable Arrows

(Figure by authors)

Mission accomplishment index (1-10)		
	Score	Weight
Objective 1	3	0.4
Objective 2	5	0.3
Objective 3	10	0.2
Objective 4	5	0.1
Overall	5.2	-

(Figure by authors)

Figure 5. Example of an Oversimplified Index

Strategic questions. In determining progress and gaps for a given LOE or IMO, several common questions arise. Recording these questions is a practice in many assessment programs because it allows those responsible for the assessment a method to record, in detail, the assumptions and the logical lines followed by working groups to determine why they believe they are progressing or retrogressing. In reviewing these questions on a periodic basis, the working groups revisit their assumptions and their progress, considering changes in the operational environment. While strategic questions are sometimes informed by indicators, indicators are not required if the question is qualitative in nature. Some example questions are shown in figure 6 (on page 25).[12]

Standards-based assessments. The method providing the most accurate and successful summation of progress through operational and strategic commands is standards-based assessments. There are four reasons why we advocate for the use of standards-based assessments. First, it is important to display data at the resolution we can effectively measure. For a military objective, this

means dividing the possible states of the operational environment into mutually exclusive bins—that is, described in sufficient detail so it is clear the progress of the objective resides in only one bin. Second, standards-based assessments relate only to the military objective's progress.

Often assessment processes confuse rating scales between progress, resource allocation, and risk.

Third, standards-based binning facilitates gap analysis. By listing the current state and the desired state, working groups can determine future operations or activities required to move between bins and associated capability, capacity, and authority gaps bridging between the two states. Last, binning provides a method to hold subordinate commands and staff accountable for their evaluation; the evaluator must provide evidence that an IMO is in a bin. The process results in a method of clearly rating the progress toward an objective. An example of a standards-based scale, or binning, is shown on the left side of figure 7 (on page 26).

In implementing a standard-based bin, a working group may employ the following steps:

1. Determine the goal. The military objective, normally an IMO end state, is defined as the goal condition. If the end state is not clear at any point in the process, it is revised by adding more detail. This becomes the top bin, or goal state of the objective.

2. Determine the worst case. We define worst case as the worst possible state of progress, including states the IMO could retrogress to in the future.

3. Determine the additional bins. Determine the main indicators of what you want to discern between additional levels, and define the terms you wish to use to make this determination. Break the possible states of nature into natural breaks based on these terms, normally three to seven bins for a single objective.

If there is a history of the state of the objective, take each year of the prior observations for the conflict, as well as all possible future states of the objective, and a short description of each year, and place them on a continuum between the best and worst cases. This provides

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Stability Operations
· Do perpetrators of political violence find sanctuary and support in neighboring states?
· Do political leaders or elites accept and support the peace settlement?

Peace Operations
· Are external actors aiding combatants?
· Have the disputing parties resolved their major disagreements?

Counterinsurgency Operations
· To what extent have military operations deterred the actions of terrorist groups?
· To what extent have group members been effectively removed by counter-network actions?

Note: Appropriate follow-on questions are required for questions requiring only a "yes" or "no."

(Figure by authors. Questions are taken from multiple sources; see endnote 12 for sources)

Figure 6. Example Strategic Questions

a pool of prior and future states the working group can then compile into similar bins.

4. Refine the bins. Given the grouping of prior observations, each bin is described in at least a paragraph using the evaluation terms described in step three. Each bin is described in sufficient detail so there is no question as to which bin a given scenario belongs. Bins are collectively exhaustive (every observation fits somewhere in the bins) and may possess mutual exclusivity (each observation can only fit in one bin) or build upon each other (each observation fits into a bin and all the bins below or above it).

5. Additional means. If the division of natural states proves problematic, additional observations are used by taking a similar historic situation and placing the observations by year on a continuum between the best and worst cases, then compiling these into similar bins. Using historical examples is helpful because people relate better to conflicts they have experienced, as long as the working group ensures the historic example is relevant to the current objective.

6. Plan to achieve the end state. Using the developed bins, plot a course from the present state until the stated date of the objective, similar to a critical-path

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Bin	Description
End state	Insurgent groups are defeated; governance of local governments is not contested.
D	Host nation (HN) governs effectively with disruption by insurgent groups; no territory held by insurgents
C	Some territory held by insurgent groups; local government rule contested
B	Insurgent groups have restricted freedom of movement
A	Insurgents control territory and govern effectively

Legend: **Accomplished** **Anticipated** **Gap**

Current state

Successful combined operations reduce insurgent freedom of movement

Insufficient forces or assistance to allow HN to govern effectively

Forces receiving security cooperation assistance are trained and provide effective security, reducing but not eliminating insurgent enclaves

Quarters: 1Q18 2Q18 3Q18 4Q18 1Q19 2Q19 3Q19 4Q19 1Q20 2Q20 3Q20 4Q20

(Figure by authors)

Figure 7. Abbreviated Standards-based Binning Example, with Projected Progress and Gaps for Three Years

method. Then, using planned activities and operations, determine remaining gaps. This is best executed with the synchronization matrix developed from a wargame while planning the campaign. A graphical tracking representation is presented in figure 7.

On a recurring basis (generally quarterly), the gaps across the IMOs are collected and prioritized, validated, and acted on by other staff processes. While any working group structure may implement this method, two important disruptions frequently occur. First, working groups must design bins so they are mutually exclusive. Just as standards for training must be "trained" or "untrained," IMO ratings cannot have a "2 plus" or "low 3," analogous to an "almost trained" rating. Using amplifications to ratings defeats the purpose of binning, gives constructive credit for task accomplishment rather than effect accomplishment, and does not hold the working group accountable for identifying gaps.[13] Second, accountability for rating the IMO must remain with the working group and the IMO/LOE working group lead, not the assessment team collecting and checking the ratings. This separation of evaluator—responsible for the rating—and assessor—responsible for the process and written document—keeps the working group focused on accomplishing the end state; otherwise, narratives diverge into listing activities accomplished rather than effects. Implementing this requires IMO/LOE lead presence at all senior leader assessment briefings to keep accountability and responsibility affixed to the IMO/LOE leads.

Written documents. Possessing a written document detailing the command's assessment is important for several reasons. First, the level of thought, staff coordination, and detail required to articulate the rating of an assessment in words and sentences is far greater than what is required to fill out a chart template. Many assessment processes suffer from lack of detail without a corresponding written document to further explain the nuances of the assessment. This explanation is vitally important because charts without background information are susceptible to a special form of groupthink.[14] These problems are so pervasive that some leaders and analysts recommend exclusive use of written assessments collated from subordinate assessments.[15]

Written risk assessments. A written assessment is often the only way to articulate risk in a meaningful manner. CJCSM 3105.01 provides comprehensive definitions of military and strategic levels of risk. A written document can provide the reason for the evaluation of risk, an audit trail based on a gap relating the failure to meet an IMO, LOE, and theater-campaign-plan end state, determined in the standards-based assessment and amplifying facts and data to shore up the argument for the assessment of risk. An example of a written risk assessment begins with a statement of the objective or end state, describes the current level of progress determined from the standards-based bins, evaluates the risk of meeting strategic and military objectives, and identifies the gaps.

Table. Application of Best Practices in Context of a Gap Assessment

Best Practice	Input	Output	Advantages	Disadvantages
Strategic Questions	Q&A seeking to draw out issues for discussion	Gaps, validated assumptions	· Scopes the problem · Clarifies and revalidates assumptions · Assists in identifying gaps · Provides and input for higher headquarters to add to the assessment	Quality of responses can vary
Standards-based Assessment	Intermediate military objectives (IMOs)	Gaps in the plan with an audit trail of IMO, line of effort and endstate whose accomplishment is at risk	· Measures progress · Determines present and future gaps · Provides an audit trail for the gap · Validates gaps are traceable to the mission	IMOs cannot change quickly
Written Risk Assessment	Gaps in the plan	Risk of the gaps impacting the ability to accomplish the mission	· States the evaluation of progress · States strategic and military risk · Explains the audit trail to the mission · Lists gaps for higher headquarters · Consolidates various requirements into one document	Analyzes gaps, does not produce them

(Table by authors)

Other best practices. This article focuses on the implementation of a gap assessment given a set of objectives. Other best practices exist in closely related literature, such as logic models, also known as theories of change, or shared diagnosis models, which ensure objectives and measures result from a logical process derived from causal assumptions.[16] While preferred, these methods are difficult to gain consensus to implement, often competing with center of gravity analysis when applied. Additional best practices include using objective development criteria, such as the acronym SMART (specific, measurable, achievable, relevant, and time bound) and the similar initialism RMRR (relevant, measurable, responsive, and resourced).[17] Best practices related to staff organization and functions include assigning senior leaders as line of effort leads and gaining championship by the commander.[18]

Integrating Best Practices into Assessment

The best practices by themselves do not make a complete assessment; linking them together provides value to the command in the form of insights, gaps, recommendations, and risk. The combination of strategic questions, standards-based assessments, and written assessments—particularly risk assessments—complement each other in the types of input they accept and the type of output they produce as they relate to the gaps they identify. Successful assessments attempt to leverage all the best practices to best detail progress, identify gaps, make recommendations, and articulate residual risk. An outline of the application of each of the methods in the context of gap assessment is shown in the table.

One example of a successful assessment is the process at NATO's International Security Assistance Force from 2010 to 2013, which leveraged strategic questions, standards-based binning, and written assessments to conduct internal assessments as directed by the National Defense Authorization Act. This shift marked the recent advancement in assessment methodology.[19] The continuing evolution of the joint staff-directed AJA (and former CJA) illustrates the difficulty of moving assessment practitioners and staff to processes that result in a truly useful and informative product. The most recent CJA process for gap assessment used strategic questions; it directs structured written assessments of gaps but struggles with implementation of a consistent standard across the CCMDs for their standards-based assessment. It employs a sliding scale conflating achievement and progress, which confuses commanders and ultimately does not provide the information needed to drive decisions. As

we move to the AJA, this practice should be abandoned. This is especially critical, as in the absence of clear joint doctrine, subordinate commands are replicating this type of conflated scaling or abandoning otherwise solid assessment processes due the resulting confusion in portrayal.

In the evolution of assessments in the CCMDs, the use of the best practices proves useful for other reasons as well. First, CCMDs are required to provide assessments across multiple operations and plans. With limited staff resources, answering the requests for information for all required assessments individually consumes limited staff resources. Developing a well-managed periodic process based on the joint staff approved AJA assessment can help alleviate the burden of multiple assessments from the staff. Changes from each of the assessments must align in the operations and planning cycle; otherwise, recommendations may be outdated before they can be implemented.

To deal with multiple assessments in the joint environment, CCMDs and the joint staff have seen success in using the language of strategic questions, gaps, and risk as an efficient method. In this process, each level of command (joint staff, coordinating authority, CCMD, service component, and joint task force) produces their own assessment answering strategic questions and articulating gaps with associated risk. Higher headquarters provide strategic questions to lower headquarters that, when answered, inform all levels of assessment. Lower headquarters forward their gaps, along with military and strategic risk as outlined in CJCSM 3105.01. This provides simple methods for incorporating higher and lower assessment processes, which rarely align enough to truly nest. It also avoids multiple different assessments and methodologies converging from both higher and lower headquarters, which leads to confusion, apathy, and unhelpful recommendations.

Recommendations, Summary, and Conclusion

To promulgate the best practices in assessments, the DOD requires vast improvements in doctrine, education, and training for assessments, and continues to work to solve these challenges through a community of interest, staffed across the joint force. The latest Military Operations Research Society special meeting on assessments in February 2018 brought together many of the assessment practitioners in the community of interest from the DOD and international partners. The meeting focused on doctrine, education, and training for assessments.[20] We have briefly demonstrated above how shortfalls in these areas impede the adoption of best practices in our collective processes and believe we are at a sufficient stage to endorse the best practices and reject worst practices, as presented in this article. The further improvement of assessments in the DOD can be achieved by paying special attention to doctrine, formal education, and training. We have begun this process by advocating for and obtaining a special emphasis on assessment in joint professional military education, and we will continue to pursue a broader adoption of assessment improvements.

In this article, we have outlined a basic method of implementing strategic assessment techniques, explained why many widely used practices are inadequate, and detailed current best practices, providing references for both. We have offered ideas for proven implementation methods and outlined how the joint force can indoctrinate the best practices to better measure progress against strategic objectives and articulate gaps. We recommend the joint staff better incorporate best practices into doctrine, education, and training. Without improving, the joint force will continue to rely on assessment teams to conduct assessments with varying degrees of quality and utility. Inadequate assessments lead to the command having a lack of clear understanding of their progress against objectives and an inability to clearly articulate refined and tested gaps, which ultimately impacts programming of limited and valuable resources to provide capability to our fighting forces. ∎

Notes

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20. The Assessments Community of Interest maintains a web presence on milbook at https://www.milsuite.mil/wiki/Operation_Assessment.

General of the Army Valery Gerasimov (*front*), chief of the General Staff of the Russian Armed Forces and Russia's first deputy defense minister, and Nikolai Pankov (*left*), Russia's deputy defense minister, attend a reception 9 May 2015 marking the seventieth anniversary of the victory over Nazi Germany in the Great Patriotic War of 1941–1945 at the Kremlin in Moscow. (Photo by Alexei Nikolsky, Russian presidential press service/TASS/Alamy Live News)

Russia's Forms and Methods of Military Operations

The Implementers of Concepts

Lt. Col. Timothy Thomas, U.S. Army, Retired

W hen conducting military operations or employing troops, Russia's military relies on what it calls the *forms* and *methods* of warfare. The same terminology has been used for over forty years and is constantly updated to keep up with advances in military science and technology. For example, the chief of the Russian General Staff's Main Directorate for Operations, Colonel General Sergey Rudskoy, recently stated, "Approaches to the organization and conduct of military operations are changing, and new forms and methods of creating, deploying, and using troops are emerging."[1]

Even though the terms have been around for decades and hold a prominent place in Russian military thought, they have been overlooked by Western analysts. Perhaps they are often ignored in the West because they appear almost neutral or vanilla in character, as if no explanation is needed.

The following analysis will attempt to change that perception through the following method: a demonstration of Chief of the Russian General Staff Valery Gerasimov's interest in the topic; a description of how Russia's forms and methods have been defined as well as the terms' historical pedigrees; evidence of the concepts' repeated use today involving a host of operations; and how they relate to tactics. The word "attempt" was inserted on purpose since, even after examining numerous Russian articles on forms and methods, it is apparent the real essence of the terms remains elusive and evolving. With regard to the latter, artificial intelligence and quantum computing advances will introduce new forms and methods. Continued research and observation thus remain necessary. The intent of the article is simply to shed light on a very important topic for the reader's consideration.

The terms are extremely important, since they are the conceptual implementers of operations. Understanding forms and methods will help analysts better visualize how Russia intends to employ its forces. It is also important to know the meaning of forms and methods so that when Russian and NATO commanders gather to talk and trade concepts, they can better understand one another. This is a better approach for understanding Russian intentions than applying U.S. templates or concepts (e.g., multi-domain battle, hybrid war, gray area issues) to Russian force employments and thinking that one side "gets" the other.

Russian General Staff Chief Gerasimov on Forms and Methods

The chief of the Russian General Staff is a strong proponent of the concept of forms and methods, further underscoring its importance. In a 2013 speech at the Academy of the General Staff titled "Principal Trends in the Development of the Forms and Methods of Employing Armed Forces and Current Tasks of Military Science Regarding Their Improvement" (and not "The Value of Foresight," as many think), Gerasimov noted that there are asymmetric forms and methods of operations.[2] Asymmetric actions, he stated, make it possible to level an enemy's superiority in an armed struggle, and have been widely proliferated. Special operations forces and internal opposition are among the forces conducting asymmetric actions, which create a constantly moving front of struggle on the entire territory of the opposing state. The forms and methods of information effects are constantly being improved as well.

The Russian General Staff is working on forms and methods for the use of aerospace forces, and Gerasimov invited the academy to actively participate in this work.[3]

A year later at the same venue, Gerasimov outlined the structure of the future military-scientific complex of Russia's armed forces.[4] Forms and methods of armed struggle were being studied at the General Staff's Center for Military and Strategic Studies, he stated, while science and research organizations examined new forms and methods of warfare to fit specific specialties. For example, land forces researched how to field the development of forms and methods of employing conventional

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> **It is necessary to focus special attention on determining preventive measures to counter the unleashing of 'hybrid warfare' against Russia and its allies.**

ground forces, weapons, and military equipment in the interests of ground and airborne forces via three central science and research institutions. The air force research in the field of developing forms and methods included how to employ air and aerospace complexes, weapons, and military equipment at the Science and Research Institution of the Air Force. Finally, the navy was conducting research in the field of developing forms and methods of employing naval military systems, and creating and developing weapons and military equipment in the interests of the navy at its Military Training and Research Center.[5]

In a 2015 speech at the academy, Gerasimov did not mention forms and methods. However, in 2016 and 2017, at the same site, he did. In the 2016 presentation, he stated that today, in an age of globalization, weak state borders, and new information communications, the change of forms of resolving interstate conflicts has become a most important factor and provides an impulse to the development of methods of military operations. In contemporary conflicts, the methods of conflict being used are changing toward the all-inclusive employment of political, economic, information, and other nonmilitary measures implemented with the support of military force. Gerasimov added that when discussing the introduction of new forms and methods of armed struggle, we should not forget the fatherland's experience in the Great Patriotic War, the struggle against the mujahedeen in Afghanistan, peacekeeping activities, and the fight against piracy. Additionally, the Crimean and Syrian experiences should be of particular interest.[6]

Finally, in 2017, Gerasimov stated that military conflicts today differ from those of the past with respect to the composition of participants, weapons employed, and forms and methods of troop activities. He added,

> I would like to linger on the priority tasks of the Academy of Military Sciences and of military science on the whole. First and foremost is the study of new forms of interstate confrontation

and the development of effective methods for countering them. It is necessary to focus special attention on determining preventive measures to counter the unleashing of "hybrid warfare" against Russia and its allies. It is necessary to effectively study the features of contemporary military conflicts and, on the basis of this, develop effective forms and methods of troop and force operations under various conditions.[7]

Definitions

According to the 1983 Russian *Military Encyclopedic Dictionary*, forms of military operations are employed in conformity with the scope or scale of combat. They include operations, engagements, combat, and strikes. They also include combat arms capabilities, the objectives of military operations, and the nature of assigned missions.[8] A *Military Thought* journal article twenty-five years later demonstrated the further development of the concept. In 2008, authors O. V. Korol and N. L. Romas stated that the meaning of the term "form" describes the organization of the substance of the modes of combat actions. It represents the goal-oriented, organizational (to include command-and-control aspects), spatial, temporal, and quantitative constraints of the armed forces' employment. It is the organizational side of troop actions.[9] Electronic warfare units fit these criteria, as do combat units of all sorts, to include joint and cross-service organizations. (I thus understand forms to be the organization of operations, engagements, combat, and strikes.)

Methods, the 1983 *Encyclopedic Dictionary* states, include the aggregate of forms, modern techniques, and procedures employed in a specific logical sequence to achieve effective solutions to problems of military science. This is an applied area of the methodology of military theory and practice. It can be general and thus used for research of any type, or it can be more specific, such as determining the procedure of solving a specific problem.[10] Nearly twenty-seven years later, this concept was also

updated. A 2010 *Military Thought* article described a 1997 *Military Thought* definition of methods (ways) as a sequence and technique for employing forces and means to fulfill tasks in an operation. Authors M. G. Valeyev and N. L. Romas, not totally pleased with this definition, defined a method of warfare as a specific way that troops accomplish their mission by employing actions characteristic of a method's essence, combination of processes, techniques, and rules of their use.[11] For example, a technique might be to take an opponent by surprise. Their analysis suggested that troop armaments (i.e., weaponry's development) and the principles of military art (which could be simultaneous or consecutive actions involving strategy, operational art, or tactics) have the greatest impact on methods.[12]

Thus, to me, *forms appear to be organizations, while methods refer to weapons and military art*. Western analysts should continue to follow these two terms and watch for updates or clarifications. That is to say, there remains some skepticism as to the exact meaning of the terms, although their continued use is without question.

Historical Pedigree

As noted above, there is a long chain of evidence of Russia's use of forms and methods. For example, in 1971, General Major Aleksandr A. Strokov wrote in the book *Military History*, "Changes in the Methods and Form of Conducting Military Operations." He wrote that war's fierce character will predetermine its goals and the methods and forms of waging it.[13] In 1984, from an article in *Military Thought*, author N. N. Kuznetsov noted that "the laws of armed struggle include the dependence of the course and outcome of an armed struggle on the correlation of combat power of the forces of the opposing sides … the dependence of forms and methods of operations on weapons, equipment, and personnel, and the interdependence of the forms and methods of operations being conducted at different levels."[14] In 1991, Colonel General I. N. Rodionov wrote that the successful conduct of strategic operations is "impossible without a knowledge of the objective laws of warfare, correct foresight of the development of operations, and choice of the most effective forms and methods of military operations."[15] In 1997, S. A. Komov composed "On the Methods and Forms for the Conduct of Information War." He stated that the forms and methods of attaining information superiority over an enemy are key elements of the information warfare discipline.[16] In 2002, Colonel General V. V. Bulgakov wrote "Armed Conflict: Forms and Methods of Troop Operations." He stated that the forms and methods for employing various forces and assets are diverse, from "classic" operations to nonstandard actions that differ in operations (in terms of scale, objectives, missions, and the forces and assets used).

Forms of operations include offensive actions where methods include maneuver, frontal attacks, strikes, encirclement; column escorts where methods included march security, search and destruction, facility security; special tactical actions where methods include ambush, terrain sweeps, sealing off areas; and state border protection where methods include search, sweeps, sealing off, holding positions, etc. Forms of combat operations include those in zones of responsibility where methods are sealing off areas and destroying the enemy; raid operations where methods include maneuver, capturing installations, destruction of enemy forces; taking built-up areas where methods include assault operations, sweeps, criminal manhunts, sealing off areas; stopping mass disorders and maintaining martial law where methods include enforcing curfews, area patrols, tactical barriers; and tactical barrier services where methods include sentry, patrolling, etc.[17]

Forms and methods are often introduced as a way to discuss topics covering various branches of service. In 2006, V. N. Zaritsky offered his opinion on operations in an article titled "Forms and Methods of Deploying Missile Troops and Artillery in Combined-Arms Operations."[18] In 2011, A. V. Dolgopolov and S. A. Bogdanov penned "The Evolution of the Forms and Methods for Waging Armed Struggle under Network-Centric Conditions."[19] In 2016, A. P. Korabelnikov composed "Promising Trends in the Development of Aerospace Defense Forms and Methods in the Russian Federation."[20]

This short summary only represents a small sampling of the number of articles and presentations that include the concept of forms and methods. It is obviously a standard approach to implementing strategy and operational art in both Soviet as well as contemporary times.

Evidence of the Concepts' Continued Use and Importance

Russia's recent *National Security Strategy* states that goals are achieved by implementing military policy

Russian president Vladimir Putin is shown a combat robot 20 January 2015 during his visit to the Central Scientific Research Institute of Precise Mechanical Engineering in the Klimovsk, Moscow region. (Photo courtesy of the President of Russia official website)

through strategic deterrence, preventing armed conflict, improving military organizations and forms and methods for armed force deployments, and increasing mobilization readiness. The new *Information Security Doctrine* of Russia notes that state organization tasks include improving the forms and methods of interaction among forces ready to ensure information security. Even Russia's National Guard's intelligence services have "inherited the best traditions and adopted modern forms and methods of operations."[21] Thus, the term is utilized under a host of circumstances when referring to the state's security and military means.

Russian military commanders and ministers often use the concepts. For example, Defense Minister Sergey Shoygu, speaking at an education conference in November 2016, noted that training assumes special importance "under conditions of large-scale Army and Navy rearmament and development of new forms and methods of combat operations."[22] Elsewhere, Western Military District commanders reported studying the organization of military activities for the development of new forms and methods of conducting combat operations.[23]

The views of two prominent Russian theorists add additional focus to the topic. From 2010 to 2017, S. G. Chekinov and S. A. Bogdanov wrote articles on asymmetric warfare, new-generation war, futurology, the art of warfare, and forecasting future war. In each article, they emphasized the forms and methods of fighting. For example, they noted in their article on asymmetric war that asymmetric operations are characterized by qualitative differences in employing new (nontraditional) means of armed struggle and forms and methods of waging it, yet are close in content to the strategy of indirect operations.[24] Asymmetric measures include implementing measures to induce apprehension in an opponent's most vulnerable military assets and other strategically important facilities (command-and-control agencies, major industrial enterprises, hazards [dams, water, nuclear power

stations], and critically important communications facilities).[25] The strategy of indirect operations is characterized by the multiplicity of forms and methods of operations, including the conduct of information and remote (noncontact) confrontations, the segmented use of fires and strikes (land, air, sea), and, in the not too distant future, antisatellite operations.[26]

In a 2012 article, they stated that new technologies and concepts such as network-centric operations play a significant role in the forms and methods of future conflict.[27] In their 2013 article on new-generation war, they asserted that new forms and methods of employing joint forces in operations and engagements will evolve.[28] When discussing futurology, they stated that innovations must be taken into consideration, along with changes in the forms and methods of fighting.[29] In an article on the art of war, they opined that twenty-first century military art will have different forms and methods of struggle, where nonmilitary and indirect actions will dominate with stratagems and surprise helping in their application.[30] Chekinov and Bogdanov assert forms and methods are the most important tasks of military art.[31] Finally, they stated that forecasts of future wars require a skillful combination of military, nonmilitary, and special nonviolent measures using a variety of forms and methods and a blend of political, economic, information, technological, and environmental measures, primarily by taking advantage of information superiority.[32]

Naturally, many other Russian leaders and authors discuss the forms and methods to implement concepts. For example, in a 2015 article, General A. V. Kartapolov noted that nonstandard forms and methods are being developed. Russia's new-type warfare includes "asymmetric" methods for confronting an enemy.[33] Finally, it was noted that the Russian General Staff Academy and the Advanced Research Foundation (much like the United States' Defense Advanced Research Projects Agency) organized a competition, which resulted in 351 submissions; one of the winning essay entries was "Wars of the Future: Forms and Methods."[34]

Tactics

In the June 2016 issue of *Armeyskiy Sborrnik* (*Army Journal*), authors V. Kuznetsov and V. Verem'ev discussed the forms and methods of tactical actions in peacetime, in a period of a direct threat of aggression, and in wartime. The authors' conceptual approach to

tactical actions was presented to the journal's readership as a discussion tribunal for further examination. Listed here are the elements of the authors' outline for the three periods in question according to type, form, and method of tactical employment:

> **Title: The Theory and Practice of Preparing for and Conducting Tactical Operations in Various Periods**
> *Tactical actions*: types, forms, methods
> *In peacetime*: <u>Types</u> are rescue, liquidation, reconstruction, region, deployment, evacuation, supporting, support, march, and counterterrorism; <u>forms</u> are special, strike, maneuver, combat, and nontraditional; and <u>methods</u> are liquidation, evacuation, deliveries, accompaniment, attack, isolation, ambush, blockade, and transport.
> ***In a period of direct threat of aggression***: <u>Types</u> are security, regional deployment, supporting, mobilization, march, and counterterrorism; <u>forms</u> are special, strike, combat, maneuver, and deployment; and <u>methods</u> are isolation, ambush, accompaniment, attack, blockade, deliveries, and transport.
> ***In wartime***: <u>Types</u> are offense, defense, meeting battle, withdrawal, regional deployment, actions in an encirclement, and march; <u>forms</u> are special, strike, combat, and maneuver; and <u>methods</u> are attack, penetration, raid, assault, ambush, and envelopment.[35]

Weapons did not appear to be covered in the author's discussion.

Conclusions

Thus, the somewhat benign-sounding terms "forms and methods" of actions are actually very important, for they relate to the manner that Russia will use to implement concepts in search of future war victories. Specific issues, such as the manner in which disinformation, the principles of war, the use of cunning, and other military actions, can be found therein. Forms and methods also include nonmilitary, indirect, and asymmetric methods.

General of the Army Makhmut Gareev stated that covert cyberattacks, which can cause serious complications in the energy, banking, and financial systems of opposing countries, make it unclear in the minds of enemies against whom to declare war.[36]

Further, forces can include the use of special operations forces and internal oppositions for the creation of a "continually operating front over the entire territory of the opposing state, and also information influence, the forms and methods of which are continually being improved."[37]

At this point it should be clearer why the word "attempt" was used to describe the Russian military's meaning of the concept "forms and methods" at the beginning of this article; and how important this concept appears to be to Russia's military. There are many contradictory meanings that appear to move back and forth between the two. The easiest to understand, from this author's point of view, remains Korol and Romas's definition of forms (organization) and Valeyev and Romas's definition of methods (weapons and military art).

As a result, when I testified before the House Armed Services Committee in March 2017 on Russian information operations, I used forms and methods to explain Russian actions in the information environment, offering the following explanation to congressional participants:

> A "form" is an organization, which in regard to information warfare could include international media elements such as *Russia Today* or *Sputnik* or military developments, such as the creation of cyber and electronic warfare "science companies;" a cyber corps, which was announced in 2013 but for which no further information has been provided; information operation forces, announced in 2017; and the Advanced Research Foundation, Russia's equivalent to the U.S's Defense Advanced Research Projects Agency. These forms or organizations implement methods.
>
> "Methods" are broken into two parts, weaponry and military art. Weaponry includes hackers, reflexive control techniques, trolls, disinformation, deterrence capabilities, killer satellites, and other agents of destruction or influence. Military art includes the use of indirect and asymmetric capabilities to achieve specific goals, such as the exploitation of the West's free press or an indirect attack on the cyber infrastructure of another nation. Russia's excellent contingent of algorithm writers ensures that the nation will be strong for years to come in writing software as weapons that can eavesdrop, persuade, or destroy.[38]

Whether my understanding of the concept is correct or not, the definitions from Korol, Valeyev, and Romas do offer a way to think about Russian operations. Thinking about how a force would be organized, what types of weaponry (traditional, nontraditional, cognitive, etc.), and which elements of military art (deception, maneuver types, etc.) might be utilized helps to establish in staff thinking how a force could be arrayed against you.

Clearly, Russia has used and is continuing to develop, from the requests of Gerasimov, forms and methods of warfare that adapt to current situational and technical developments. They are key indicators as to how future war will be organized and perhaps even conducted. Western analysts would do well to study further the definitions of these two words. To do otherwise would be as delinquent as Russians not seeking to understand U.S. terms such as hybrid, gray area, and multi-domain battle. ∎

Notes

1. Sergey Rudskoy, "Generator of Ideas and Schemes. Russian Federation Armed Forces General Staff Main Directorate for Operations is 316 Years Old on 20 February," *Red Star Online*, 18 February 2018.

2. V. V. Gerasimov, "Principal Tendencies in the Development of the Forms and Methods of Employing Armed Forces and Current Tasks of Military Science Regarding Their Improvement," *Journal of the Academy of Military Science* 1 (2013): 24–29. "The Value of Foresight" was the title of an article about Gerasimov's 2013 presentation in the *Military-Industrial Courier* (*VPK*) and not the actual title of his speech.

3. Ibid.

4. V. V. Gerasimov, "The Role of the General Staff in the Organization of the Country's Defense in Accordance with the New Statute on the General Staff," *Journal of the Academy of Military Science* 1 (2014): 14–22.

5. Ibid.

6. V. V. Gerasimov, "The Organization of the Defense of the Russian Federation under Conditions of the Enemy's Employment of 'Traditional' and 'Hybrid' Methods of Conducting War," *Journal of the Academy of Military Science* 2 (2016): 19–24.

7. V. V. Gerasimov, "Contemporary Warfare and Current Issues for the Defense of the Country," *Journal of the Academy of Military Science* 2 (2017): 9–13.

8. *Voennyy Entsiklopedicheskiy Slovar'* [Military Encyclopedic Dictionary], ed. N. V. Ogarkov (Moscow: Military Publishing House, 1983), 782.

9. O. V. Korol and N. L. Romas, "Form of Military Actions: On the Meaning of the Category," *Military Thought: A Russian Journal of Military Theory and Strategy* [in Russian] 3 (2008): 149–53.

10. *Voennyy Entsiklopedicheskiy Slovar'*, 440.

11. M. G. Valeyev and N. L. Romas, "Choosing Methods of Warfare," *Military Thought* 6 (2010): 4.

12. Ibid., 5, 6, 8.

13. A. A. Strokov, "Changes in the Methods and Form of Conducting Military Operations," *Voyennaya Istoriya* [Military History] (Moscow: Voyenizdat, 1971), 340–45, excerpts, cited in Harriet Fast Scott and William F. Scott, eds., *The Soviet Art of War* (Boulder, CO: Westview Press, 1982), 222–23.

14. N. N. Kuznetsov, "On the Categories and Principles of Soviet Military Strategy," *Military Thought* 1 (1984): 34.

15. I. N. Rodionov, "On Certain Problems of the Development of Military Science," *Military Thought* 11–12 (1991): 46–51.

16. S. A. Komov, "On the Methods and Forms for the Conduct of Information War," *Military Thought* 4 (1997): 18.

17. V. V. Bulgakov, "Armed Conflict: Forms and Methods of Troop Operations," *Military Thought* 1 (2002): 39–43.

18. V. N. Zaritsky, "Forms and Methods of Deploying Missile Troops and Artillery in Combined-Arms Operations," *Military Thought* (2006), issue and pages unknown (Foreign Military Studies Office did not get the issue of the journal containing this article).

19. A. V. Dolgopolov and S. A. Bogdanov, "The Evolution of the Forms and Methods for Waging Armed Struggle under Network-Centric Conditions," *Military Thought* 2 (2011): 49–58.

20. A. P. Korabelnikov, "Promising Trends in the Development of Aerospace Defense Forms and Methods in the Russian Federation," *Military Thought* 1 (2016): 70–78.

21. Interfax News Agency (news release), 3 November 2016.

22. "Shoygu Told About the Role of Military Education under Rearmament Conditions," *RIA Novosti*, 23 November 2016.

23. Ministry of Defense of the Russian Federation (news release), 30 May 2017.

24. S. G. Chekinov and S. A. Bogdanov, "Asymmetric Actions in Support of the Military Security of Russia," *Military Thought* 3 (2010): 16, 19–20.

25. Ibid., 21–22.

26. Ibid., 19–20.

27. S. G. Chekinov and S. A. Bogdanov, "Initial Periods of War and Their Impact on a Country's Preparations for a Future War," *Military Thought* 11 (2012): 19.

28. S. G. Chekinov and S. A. Bogdanov, "The Nature and Content of a New-Generation War," *Military Thought* 10 (2013): 13–25.

29. S. G. Chekinov and S. A. Bogdanov, "Military Futurology: Its Origin, Development, Role, and Place within Military Science," *Military Thought* 8 (2014): 26.

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U.S. Drones
Smaller, Less Capable Drones for the Near Future

Maj. Zachary Morris, U.S. Army

The Department of Defense (DOD) has used drones in almost every military operation since the 1950s to provide reconnaissance, surveillance, and intelligence on enemy forces.[1] They have been called drones, robot planes, pilotless aircraft, remotely piloted vehicles, remotely piloted aircraft, and other terms describing aircraft capable of controlled flight without a pilot onboard.[2] The DOD currently defines unmanned aerial vehicles (UAVs) as:

> Powered, aerial vehicles that do not carry a human operator, use aerodynamic forces to provide vehicle lift, can fly autonomously or be piloted remotely, can be expendable or recoverable, and can carry a lethal or nonlethal payload.[3]

The UAVs are typically described as a single vehicle, including attached surveillance sensors, or as an unmanned aircraft system (UAS), which generally consists of three to six air vehicles, a ground control station, data links, support equipment, and personnel.[4]

Although drones have a long history, only in the last ten to fifteen years have advances in technology made a variety of current UAV missions possible. Still in a period of innovation, both in design and operation, UASs are analogous to early military aircraft, when technology and doctrine evolved at a rapid rate to exploit new capabilities.[5] The use of drones since the 1950s has illustrated the advantages of unmanned aircraft such as eliminating the risk to pilots' lives and enhancing aeronautical capabilities by removing human limitations; and, today, unmanned systems are cheaper to procure and operate than manned aircraft, though this may change in the future.[6]

As UASs comprise a growing portion of the defense budget, they continue to garner more interest from Congress and the military. Due to current budgetary limitations, the DOD has two realistic options for drone programs in the near future, and choosing between them largely depends on perceptions of the strategic and operational environment. The first option advocates fielding fewer, more expensive, and more capable drones such as the Global Hawk and Reaper. The second option encompasses fielding many smaller, less expensive, and less capable drones.

Based on the anticipated future strategic and operational environment, including contested airspace, the United States should pursue the second option. Constraining the military's proclivity to acquire more advanced and expensive systems will facilitate research and development into more advanced survivable systems for the future, sustain current high-end capability, and allow the DOD to procure numerous additional lower-level capabilities to create greater operational flexibility.

The justification for pursuing the second option is addressed in four sections in this article. The first examines the strategic environment and limitations high-end drone technology faces in contested environments. The second examines the evolution of drone force structure and the military emphasis on higher-end capabilities in the future. The third explains the budgetary evolution of drone programs and future budgetary challenges. The final section analyzes both potential solutions to future budgetary and strategic challenges.

The Strategic Environment

In the current strategic environment, drones have become central to the U.S. national security strategy, which combines counterinsurgency on the ground and airborne counterterrorism.[7] Drones were originally developed to

provide tactical and operational intelligence, reconnaissance, and surveillance, but since 2003, UAVs have transformed into the preferred counterterrorism tools for the DOD and the U.S. government. Beginning in 2002, when Predator drones were first armed, the United States has increasingly emphasized aerial strikes against our enemies.[8] By 2016, the United States killed an estimated four thousand enemy combatants using drones outside traditional battlefields.[9] Since 2003, no other nation has relied on such liberal use of unmanned aircraft to implement foreign policy. The United States was able to employ drones in this way largely because of uncontested airspace and prevailing technological dominance of drone capabilities.

However, the increasing likelihood of contested air and electronic warfare environments due to the growing availability of technology on the world market indicates many high-end UASs are becoming increasingly unsuitable for future conflicts. While drones currently play a prominent role in counterterrorism operations, the nature of expanding drone countermeasures potentially limits the future usefulness of current strategic drone programs. Drones currently lack the maneuverability, speed, stealth, and armament to survive in contested airspace. In fact, the single air-to-air combat engagement between a Predator drone and a manned fighter, in March 2003, resulted in the Predator's destruction.[10] Further, in 2015, a U.S. Predator drone was shot down in Syria by President Bashar al-Assad's dilapidated air defense system.[11] Finally, expensive high-capability drone losses in Ukraine have forced the Organization for Security and Co-operation in Europe to withdraw unmanned observer systems.[12]

Most drones employed successfully in Ukraine remain small (a ten-foot wingspan or less, approximately

Table 1. Force Structure February 2003

Unmanned aerial vehicle	Inventory
Global Hawk	4
Predator	48
Pioneer	47
Hunter	43
Shadow	21
Total	163

(Table by author)

equivalent to the U.S. Shadow UAV) to increase survivability by minimizing observable signatures and to reduce the cost associated with their destruction.[13] An MQ-9 Reaper unit cost of approximately $30 million in 2011 represents over half the $55 million estimate for an F-16.[14] A simple comparison identifies the F-16 as a much more versatile combat aircraft with the ability to carry four times the payload and to perform numerous missions the Reaper cannot.[15] Therefore, based on current drone technology, it appears manned aircraft provide a more valuable combat capability in contested air environments. Because contested environments will probably limit current large drones' usefulness, the United States should focus on research and development while limiting the costs of procurement until drone capabilities mature further.

Force Structure

Since 2003, the DOD has increasingly relied on UAVs for a variety of missions and dramatically increased the corresponding force structure and capabilities of numerous programs. In 2003, the DOD only had 163 drones across five different air frames, as depicted in table 1.[16] At that time, these 163 UAV aircraft comprised only 1 percent of the total U.S. aircraft inventory.[17] Between 2003 and 2012, the force structure expanded to 7,494 aircraft.[18] Due to drone expansion, manned aircraft dropped from 99 percent of all DOD aircraft in 2003 to 95 percent in 2005 and fell even further in 2012 to 59 percent.[19] The accelerated expansion of drones between 2007 and 2012 reflects the tenure of then Secretary of Defense Robert Gates and his emphasis on drones for combat missions in Iraq and Afghanistan.[20] The UAV force structure increase also reflects the military's emphasis on widening the capability range available, increasing UAV programs from five in 2003 to over seventeen programs in 2012.[21]

Presently, the DOD maintains a significant force structure and capability, including over 7,500 UAVs,

Table 2. Approximate Current Force Structure

Group	Unmanned aircraft system	Total number of vehicles	Ground control stations	Approximate cost per system
5	RQ-4 Global Hawk	36	7	$140.9-$211 million
	MQ-9 Reaper	276	61	$28.4 million
4	MQ-1 Predator	108	61	~$20 million
	MQ-1 Grey Eagle	26	24	~$20 million
3	RQ-7 Shadow	364	262	$11.1 million
2	Scan Eagle	122	39	$100,000
1	RQ-11 Raven	5346	3291	$167,000
	SAUS Puma	39	26	$250,000
	gMAV/T-Hawk	377	194	-

(Table by author)

providing tactical, operational, and strategic advantages globally. The U.S. military currently organizes drones into five groups based on capability, size, mission, and cost.[22] Table 2 depicts the approximate force structure of the nine largest drone programs organized into the DOD groups. Group five represents higher-end cost and capability, and group one represents the lower end.[23] The current structure maintains a relatively balanced mix of high- and low-end capabilities with the Air Force and Navy emphasizing higher-end capability, and the Army and Marine Corps favoring lower-end capabilities.[24] Because the UASs were originally designed for a fifteen- to twenty-year life span, some Predator and Global Hawk systems are nearing the end of their service life.[25] However, most systems were acquired between 2006 and 2012, making them relatively young. Further, because drones do not carry a pilot, service life extensions are more feasible as they are less risky and costly than manned systems.

In the future, the DOD plans to shift from the balanced high-low mix and emphasize higher-end capabilities predominantly, which will significantly increase the costs of drone operations over time. In the Air Force, current plans entail retiring the Predator fleet and acquiring seventy-five additional Reaper drones by 2021.[26] While procurement costs for such a move are approximately $2.1 billion, the real cost comes from increased operations and maintenance costs. Reaper squadrons currently cost $160 million annually compared to $70 million annually for a Predator squadron.[27] Changing the force structure from Predators to Reapers creates an annual increase in operations and maintenance costs of potentially over $550 million per year. Further, the Navy has invested over $1.4 billion in the Unmanned Combat Air System Demonstration (UCAS-D) program to assess the technical feasibility of operating unmanned air combat systems from an aircraft carrier.[28] The Navy also continues to develop the Unmanned Carrier-Launched Airborne Surveillance and Strike (UCLASS) program to determine how to make an unmanned vehicle take on many aspects of a manned fighter.[29] Expanding these other group five drone programs will increase the operations and maintenance budget even further than the Reaper expansion alone.

Future drone emphasis indicates a desire to improve several specific capabilities including interoperability, reliability, autonomy, engine systems, air-to-air combat capability, and stealth.[30] These characteristics will likely dramatically increase both the capability of drones and their cost. In 1998, the DOD Darkstar research indicated that stealth characteristics alone for an UAV would cost over $1 billion (in Fiscal Year

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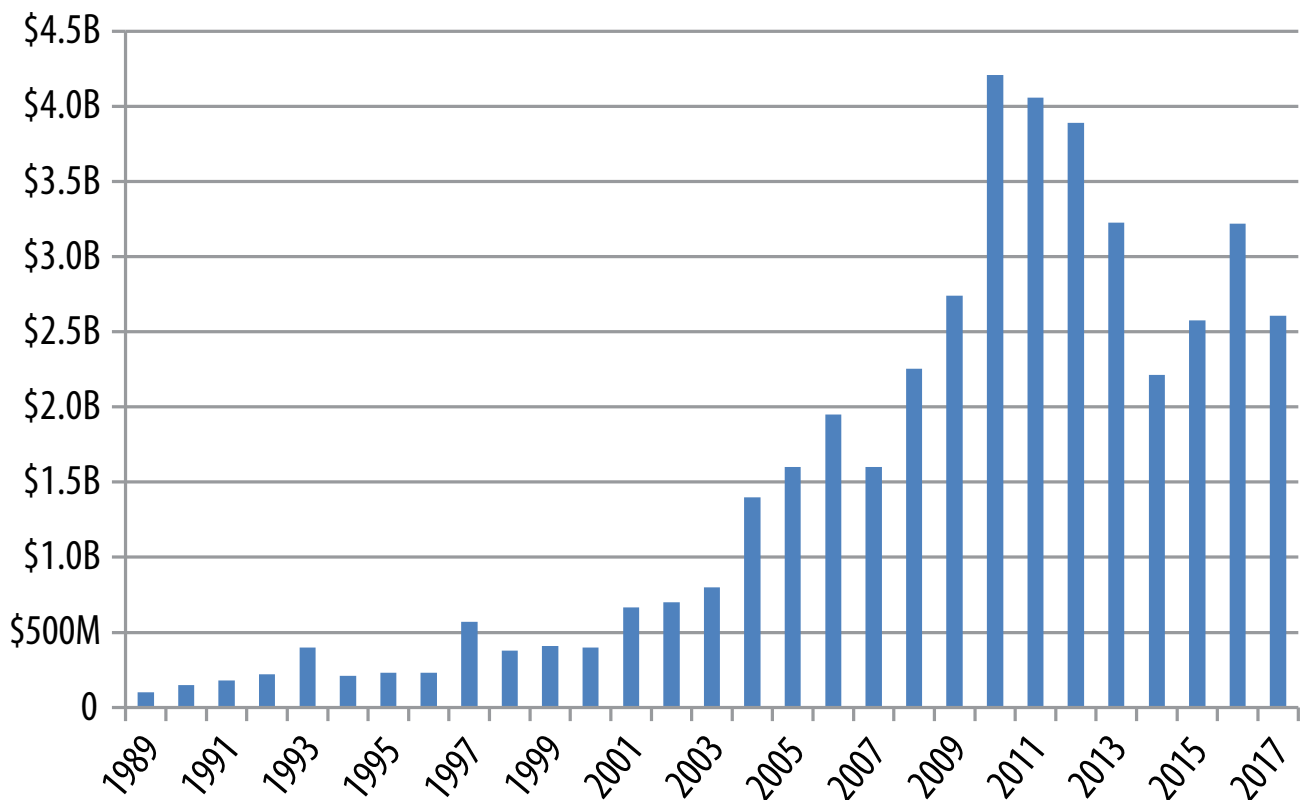
(Graphic by author)

Figure 1. Total Unmanned Aircraft System Procurement Budget in Millions of Then-Year Dollars

1998 dollars) for the life span of one vehicle.[31] Adding the other capabilities indicated previously could easily cause drones to become more expensive than manned aircraft in the future. However, these future capabilities are likely required for drones to serve as viable and survivable tools in future contested environments.

Budget

Determining the UAS budget across the DOD remains difficult for numerous reasons. First, because drones operate as part of a system, including ground control stations, ground crew and operators, communication and data links, and multiple air vehicles, costs are often misleading.[32] Many capabilities required for drones, such as satellite-based communications networks, are not included in UAV costs. Second, monitoring and evaluating costs are further complicated due to differing budgeting conventions between services and the fact that some portion of drone costs are covered by

the intelligence budget rather than the DOD budget.[33] Third, operations and maintenance costs are difficult to find and are often only tracked for larger unmanned systems.[34] Finally, an indeterminable classified budget exists for drones, such as the RQ-170 Sentinel program, that came to light only when one crashed in Iranian territory.[35] This article, therefore, generally focuses only on direct costs for larger drones.

Between 1989 and 2017, the procurement budget—a representative portion of the overall budget—for drones has increased dramatically, corresponding to the increasing force structure and priority accorded unmanned systems over time. Figure 1 depicts the procurement costs of drones from 1989 through 2017. The Reagan administration requested notably higher levels of UAS spending than previous administrations and marked the transition of drones from primarily experimental projects to procurement programs.[36] Figure 1 also illustrates the increasing importance of
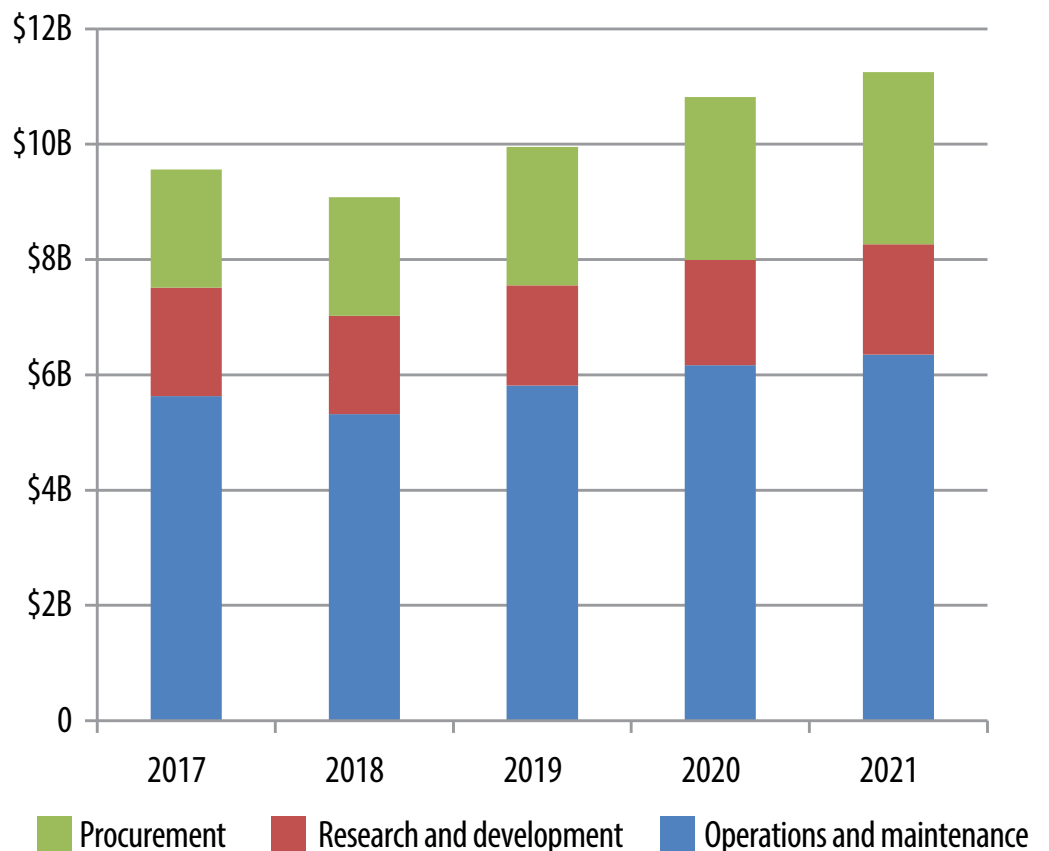
Figure 2. Projected Approximate Spending in Unmanned Aircraft System Group Four and Five through the Future Years Defense Program

(Graphic by author)

begun to dominate the approximately $10 billion annual spending. The continued shift to larger and more capable drones will only increase this cost ratio as each Reaper squadron costs $160 million annually, compared to the $70 million in annual costs for a Predator squadron.[41] Further, Global Hawk units cost approximately $440 million annually for operations and maintenance.[42] The DOD expects similar or higher operations costs for future group five UASs such as the Navy UCLASS. Increasing operations and maintenance costs mean that current plans to increase higher-end capabilities are infeasible under current budgetary limitations.

unmanned systems following the 2003 invasion of Iraq and the substantial increase after the emphasis on UAS in mid-2007 by Gates.[37] The DOD spent approximately $4 billion total on UASs between 1989 and 2000, increasing to an estimated $39 billion for procurement since 2001.[38] In 2011, the UAS budget represented only 8 percent of all U.S. aircraft procurement funds, despite increasing costs.[39] However, not depicted here are the growing operations and maintenance costs, which could eventually crowd out various research and procurement programs.

The current budget, through 2021 in the Future Years Defense Program (FYDP), depicts considerable challenges for unmanned programs. Figure 2 depicts the approximate spending through the FYDP on only group four and group five drones.[40] First, operations and maintenance costs for UAV squadrons have

Second, the DOD expects research, development, and procurement spending to grow steadily over the FYDP from approximately $4–$5 billion annually. This spending will also likely provide fewer actual platforms each year over that time as orders are reduced and technology becomes more advanced. Other larger programs such as the Air Force's LRS-B [Long Range Strike Bomber] program will complicate the picture and could crowd out smaller, newer research and procurement programs.[43] The Air Force's increasing competition for research and procurement dollars are likely to exacerbate budget tension already present in the president's projected budget, which exceeds the 2011 Budget Control Act's limits by a total of $107 billion (in 2016 dollars) through the FYDP.[44]

One significant example of increasing research and procurement costs revolves around the sensor package on higher-end drones. The second generation Global Hawk's sensor payload represents approximately 54 percent of the vehicle's flyaway cost.[45] Sensor costs are increasing due to the basic law of supply and demand. The growing DOD demand and desire for increased capability, matched with a lack of commercial sensor equivalents, means that drone sensor producers face little competition to keep costs down.[46] Further, reducing order sizes, due to increasing costs and limited budgets, increases the cost per airframe. In the Fiscal Year 2012 budget, reducing Global Hawk aircraft purchases from twenty-two to eleven caused Global Hawk unit prices to increase by 11 percent.[47]

Potential Solutions

The future problem centers on fiscal limitations for budget growth imposed by the 2011 Budget Control Act and the military's penchant for acquiring increasingly sophisticated high-end UAS capabilities. Unless budgets are increased, two reasonable options exist for future drone development, and the proper selection largely depends on how decision-makers define the operational environment and UAS requirements.

The first option advocates fielding fewer, more expensive, and more capable group four or group five drones such as the Global Hawk and Reaper.[48] The DOD currently plans to implement this option, expanding the Reaper force structure over 25 percent by adding seventy-five aircraft through 2021.[49] To account for increasing Reaper numbers, the Air Force plans to retire all 108 Predator drones by 2018.[50] However, to balance the operations and maintenance budget at $630 million per year of Predator funding, the Air Force could sustain less than four squadrons of twelve Reapers each.[51] Further, the four squadron mark fails to account for the approximately $350 million procurement cost for each Reaper squadron.[52] Thus, if topline spending limits remain fixed, the Air Force would likely only purchase two to three Reaper squadrons over the FYDP. Overall, this option would result in a decrease of 108 Predators and an increase of at most 36 Reapers.

The first option would likely remain a viable option if the primary mission remains counterterrorism in uncontested airspace. However, since current drones are unsuitable for contested environments, an alternate mission against a more capable adversary limits the usefulness of these platforms.

The second option advocates fielding many smaller, less expensive, and less capable UAVs controlled by local tactical and operational commanders.[53] Several measures under this course of action would sustain current U.S. high-end capability and continue building the foundation for potential future expansion. First, most of the Predator fleet would remain in service through the FYDP. Combined with restricted Reaper acquisitions, aimed only at replacing vehicles lost in service, limited expansion in higher-end drones would provide funds for the continued research and testing of more advanced drone programs. Continued research of sophisticated drone programs would facilitate the development of systems acceptable to future contested environments and provide the United States with options when budgetary limits decrease. Further, limited expansion into higher-end drones would allow the United States to focus on expanding the structure and capabilities of smaller tactical drone programs.

This option would likely serve as the correct and cost-effective solution if decision-makers believe future operational environments include contested airspace and electronic warfare similar to that occurring in Ukraine today. Recent events reveal larger sophisticated drones are vulnerable due to larger observable signatures and reliance on complex communications networks. In 2011, Iran claimed it brought down the classified American RQ-170 stealth drone.[54] Further, in June 2012, a University of Texas at Austin team successfully hijacked a Department of Homeland Security Predator drone for under $1,000.[55] Finally, in August 2016, the Organization for Security and Co-operation in Europe ceased all drone operations over Ukraine after three group four-equivalent drones were shot down in June and July.[56]

While larger drones have proven costly and less survivable, small drones have continued to demonstrate success in Ukraine by providing targeting information and tactical awareness for commanders.[57] Thus, until high-end technology (e.g., stealth, speed, autonomy, and maneuverability) improves, the smaller, cheaper drones provide a better option in contested environments as they are less observable and cheaper when destroyed.

No matter which approach decision-makers choose, there are several options common to both scenarios.

First, the DOD cannot continue the planned expansion into higher-level drones under the current budgetary limits. The immediate effects likely include a reduced expansion of Reaper systems and the prolonged lifespan of at least some Predator units. Second, increasing commonality among different service's systems could save substantial funds. For example, the Army Grey Eagle and Air Force Predator currently have 80 percent commonality, and the only difference is better and more expensive sensors on the Air Force Predator.[58]

Further, the Navy Broad Area Maritime Surveillance system and Air Force Global Hawk are essentially the same system with different sensors.[59] However, the Navy and Air Force have two separate depots, ground stations, and training pipelines for the aircraft.[60] By standardizing various platforms the DOD could reduce costs across research and development, procurement, and operations and maintenance, as repair parts, ground control stations, training, and data links could be consolidated and interchanged across services.

Conclusion

As an increasing number of state and nonstate actors acquire sophisticated air defense and electronic warfare capabilities, current high-end drones become less cost effective and capable. The United States should focus on sustaining current capabilities and improving lower-end capabilities while emphasizing research and development for future capabilities. Following this program will allow the DOD to operate within current budgetary limits, maintain flexible capabilities, and develop conceptual capabilities for future expansion if required. Until technological advances and increased budgets provide the ability to create survivable high-level drones, most programs should focus on smaller, cheaper, and more survivable and expendable tactical drones. The United States should not squander the distinct advantages potentially provided by smaller and more numerous lower capability drones employed at the tactical and operational level in future conflicts. ∎

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23. Data for table 2 was compiled from numerous sources to get the most accurate picture possible. The primary sources differ some in numbers, but each source is listed below. The various groups and which UAVs belong in them came from Weatherington, "Current and Future Potential for Unmanned Aircraft System," 4–5. Data on groups 1–3 came from Gertler, *U.S. Unmanned Aerial Systems*, 8. And, data

on groups 4–5 came from CBO, *The U.S. Military's Force Structure: A Primer* (Washington, DC: CBO, July 2016), 125. Reaper and Predator systems share a common ground control station.

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Photo of Sgt. Ian Rivera-Aponte, U.S. Army Reserve sniper and infantryman 26 July 2017 at Joint Base McGuire-Dix-Lakehurst, New Jersey. (Photo by Master Sgt. Michel Sauret, U.S. Army Reserve)

The Men Who Have No Name

By Staff Sgt. Christopher M. Rance, U.S. Army

In woods of dark
I lie;
heart beating against the pine needle floor.
He is there, in sunlit place, marching up in haste,
up a sloping green meadow.
With the bend of my finger;
gliding metal hurries intensely for a private embrace.
Leaves rustle
(f
a
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l)
in autumn mourning.
Through the looking glass, I cannot see reproachful eyes.
Therein meadow, blood red poppies blow,
a soft wind carries off a nameless soul.

Cognitive Therapy for Soldiers Suffering From Posttraumatic Stress Disorder and Traumatic Brain Injury

2nd Lt. Noelle Walker, Illinois Army National Guard

A young man named Daniel Somers, in love with his high school sweetheart, Angeline Roth, married at the early age of eighteen. Two short years later he was off to the races, enlisting into the National Guard and deploying to Afghanistan shortly thereafter for thirteen months. Between 2001 and 2007, he served in over four hundred combat missions in Iraq and Afghanistan, returning home for the last time in 2007. According to a document repository from the U.S. House of Representatives, Daniel Somers killed himself on 10 June 2013 at only thirty-one years of age. He left a letter of explanation to his wife before committing the act that was later brought to public light: "My mind is a wasteland, filled with visions of incredible horror, unceasing depression, and crippling anxiety, even with all of the medications the doctors dare give."[1]

His story is like many others. In 2015, the Department of Defense reported that 266 active-duty soldiers and 209 reserve-component soldiers killed themselves. This data presents an enormous deficit in soldier resilience with respect to handling posttraumatic stress disorder (PTSD) and depression.[2] In 2010 a study published in *Military Medicine* titled "Spiritual Fitness" found that, "spiritual fitness is key to ensuring optimal force readiness and protection and enhancing resilience and recovery following combat-related trauma. The early identification of spiritual risk factors in individuals can minimize future dysfunction and negative impact on the unit."[3] Thus, spiritual fitness, observed as a pillar in the Army's Comprehensive Soldier and Family Fitness standard, is imperative to soldier resilience.

In 2014, the *New York Times* described the results of a study that compared two groups, one of which received therapy for suicidal thoughts and one that did not. The article reported that "therapy prevented 145 suicide attempts and 30 deaths by suicide in the group studied," a reduction of 26 percent.[4] For this reason, the Army *must* implement mandatory, preventative, cognitive therapy for all soldiers in order to increase spiritual fitness, strengthen resilience, and prevent soldier suicide.

Soldier Resilience: The Problem

CNN reported in March 2014 that "almost

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(Photo taken 8 September 2016 by Erin Bolling, USAMMDA PAO)

25 percent of 5,500 active-duty, nondeployed Army soldiers tested positive for a mental disorder of some kind."[5] According to *USA Today*, U.S. military suicide rates are roughly 20 percent higher than civilian suicide rates.[6] The number of suicides has risen each year since 2001, and the steady increase has been rumored by experts to be "the new normal." The executive director of the National Center for Veterans Studies, Craig Bryan, stated, "I do think there is a sort of creeping mind-set of, 'well, this is just how it is now.' The sense of urgency about this problem has started to fade away."[7]

The overall purpose for a soldier to maintain a healthy spiritual state is to increase his or her resiliency. Resiliency, as defined by Julio Peres et al. in their article "Spirituality and Resilience in Trauma Victims," is "the ability to go through difficulties and regain satisfactory quality of life."[8] Arguably, one of the largest problems in the military is the number of soldiers with PTSD. Treatment for soldiers with PTSD is very limited in terms of physical solutions such as medications. Peres et al. state that the best way for individuals to maintain (or regain) resilience is through spiritual coping: "Several studies have shown that many people cope with traumatic or stressor events on the basis of their religious beliefs … Positive religious coping has been associated not only with better physical and mental outcomes in medically ill patients but also among trauma patients."[9] Spiritual health is imperative to the well-being of all soldiers, argued in this paper to be the cornerstone of resilience.

Edmund S. Higgins, a writer for *Scientific American Mind*, reported in January 2017 that "recent data suggests mental disorders are not improving and that diagnoses are on the rise."[10] There was a large boom in prescription medications for mental health in the 1990s and 2000s, and as the stigma for mental illness began to dissipate slightly, more people turned to medication.[11] Over the past twenty years, mental health-related issues have increased. Suicide rates in the United States have risen to a thirty-year high, with roughly forty-four thousand Americans dying by suicide each year, according to the American Foundation of Suicide Prevention.[12] A study referenced by Higgins conducted in 2010 calculated the number of diseases and injuries between 1990 and 2010. They found that while other serious conditions became more manageable, mental diseases had only grown over the past two decades, and more medications were being used to treat these mental diseases than ever before.[13] According to Higgins, "New antidepressants lift mood no better than the tricyclic antidepressants discovered in the 1950s. Lithium, first used in 1949, remains the gold standard for bipolar disorder."[14] Higgins argues that our primary solution to the problem is preventing or counteracting mental illness by teaching cognitive therapy skills.

The Importance of Spiritual Fitness in Resilience

When someone hears the word "spiritual," the first thought to enter his or her mind is likely churchgoing or praying before dinner. In reality, spiritual wellness is your state of mind. The National Wellness Institute expounds cogently on what exactly spiritual wellness is: "The spiritual dimension recognizes our search for meaning and purpose in human existence. It includes the development of a deep appreciation for the depth and expanse of life and natural forces that exist in the universe."[15] Bill Hettler, the creator of the wellness model utilized by the National Wellness Institute, argues that spiritual wellness is a growth state, never stagnant and always progressing in one direction or another. The outward sign of spiritual wellness will be demonstrated in one's value system: "You'll know you're becoming spiritually well when your actions become more consistent with your beliefs and values, resulting in a 'world view.'"[16]

Our outflow of daily actions are the result of where we are spiritually; our moral decision-making, our behavior toward others, and our motivation and ability to lead. Spirituality is the means by which one is able to grasp the larger picture, and for most individuals, it implies a value system that keeps one's actions in check. And yet, it is so often overlooked.

According to the Joint Service Psychological Health Program, "the need for spiritual wellness is often downplayed as less important than emotional, physical, or social wellness, but vital to the overall wellness of every Service Member."[17] Downplaying the importance of spiritual health does not have a singular effect; it greatly influences other areas of soldier fitness as well.

In a letter quoted in *Healthy in Body, Mind and Spirit*, Rabbi Menachem M. Schneerson expounds on the connection between physical and spiritual health: "Physical health is so greatly dependent on spiritual health … it is an accepted principle that even a small spiritual defect can cause grievous physical harm. The healthier the spirit

Soldiers from Alpha Battery, 2nd Battalion, 32nd Field Artillery Regiment join to say a prayer before a mission 29 October 2007 at Forward Operating Base Liberty, Iraq. (Photo by Spc. Charles W. Gill, U.S. Army)

and the greater its influence over the physical body—the greater its ability to correct or overcome physical shortcomings."[18] He goes on to say how emotions such as joy, contentedness, or sadness—things having to do with our state of mind—are correlated to physical effects. He states, "Since body and soul are totally connected and united, forming one entity, it follows that every phenomenon in the spiritual realm will also result in a physical phenomenon."[19] Although this perspective may seem extreme, there is an arguable influence that the spirit and body have on each other. The previously cited study, "Spiritual Fitness," discussed this influence:

> Most of the health benefits of spirituality are not limited to specific components, but flow from the combined effect of multiple components across domains … hope and optimism, less depression, fewer suicides, less anxiety, less alcohol and drug abuse, greater marital stability, less risky behavior, and lower mortality from various causes.[20]

They go hand in hand, the spirit affecting the body, and the physical influencing one's spiritual state. The importance that spiritual wellness has in creating resilience in soldiers is clear. Where individuals are mentally will determine their effectiveness to fulfill their duties, their ability to support their fellow brothers and sisters, and even their physical well-being.

Reform: Preventative Cognitive Therapy Plants the Garden for Spiritual Health and Resilience

According to the Beck Institute for Cognitive Behavior Therapy, cognitive therapy is defined as "a psychotherapy that is based on the cognitive model: the way that individuals perceive a situation is more closely connected to their reaction than the situation itself. … [It is] a time-sensitive, structured, present-oriented psychotherapy directed toward solving current problems."[21] Rather than a traditional therapy session in which you recover from a traumatic situation, preventative cognitive therapy provides soldiers the tools necessary to properly handle and process a traumatic event, should they encounter one.

> The beauty of preventative cognitive therapy is that although it may not reduce the impact of traumatic events on soldiers, it will give them a way to *compartmentalize* and *cope* with what they experience.

The Army Leadership Requirements Model requires soldiers to be leaders of presence—composed, confident, and resilient. They require that leaders create a positive environment and are of sound judgment and mental agility.[22] The fact that one quarter of our active-duty military suffers from mental illness means that one quarter of our soldiers are not meeting the Army Leadership Requirements Model, something that is cause for alarm. The consistent twenty years of mental health decline despite the military's efforts to increase resources and resilience training has left us disheartened. Worse, we are nearing complacency. PTSD and the traumatic brain injuries that occur among soldiers are difficult, if not nearly impossible to treat. The Army seems to have lost ground in treating mental health problems of this severity, largely because there are so very few solutions. Daniel Somers poignantly described the dearth of treatment options:

> My body has become nothing but a cage, a source of pain and constant problems. The illness I have has caused me pain that not even the strongest medicines could dull, and there is no cure. All day, every day a screaming agony in every nerve ending in my body. It is nothing short of torture.
>
> … Beyond that, there are the host of physical illnesses that have struck me down again and again, for which they also offer no help. There might be some progress by now if they had not spent nearly twenty years denying the illness that I and so many others were exposed to. Further complicating matters is the repeated and severe brain injuries to which I was subjected, which they also seem to be expending no effort into understanding. What is known is that each of these should have been cause enough for immediate medical attention, which was not rendered.[23]

The beauty of preventative cognitive therapy is that although it may not reduce the impact of traumatic events on soldiers, it will give them a way to *compartmentalize* and *cope* with what they experience. The mental wear and tear that can occur without an understanding of how to channel traumatic events will ultimately lead to the exact same place in which Somers found himself. Studies for preventative therapy are particularly difficult to conduct, as researchers cannot predict if or when a traumatic event will occur that can be used to test the effectiveness of the preventative therapy. However, some studies evinced the success of preventative therapy in preventing relapses of flashbacks or triggered episodes, as did a study conducted in 2003 titled, "Mindfulness-based Cognitive Therapy for Depression: A New Approach to Preventing Relapse," where data suggested promising results for preventative therapy:

> In the only major randomized controlled study reported on preventive interventions after a depressive episode … those rated as receiving more elements of interpersonal therapy did better, often delaying depressive episodes for two years, compared with five months for those receiving a lesser "dose" of therapy. What the authors took from this study was a sense of optimism about cognitive therapy as a preventive measure. The challenge was to develop an intervention that targeted the vulnerabilities to relapse.[24]

There is tremendous potential for good in arming soldiers with tools to keep their mental fitness intact, and virtually no harm in at least trying.

Objections to the Validity of Spiritual Fitness

Some may dispute the idea that spiritual wellness has anything to do with resilience, as is the case with a Sgt. Griffith, who calls himself a "foxhole atheist." While taking a required comprehensive soldier and family fitness survey, he grew frustrated with the questions about spirituality. Some of the questions asked about the soldiers daily rituals, if he prayed or meditated. Griffith stated, "I don't do those things, and I don't think any of

those questions have anything to do with how fit I am as a soldier."[25] At the conclusion of the survey, his results suggested, "You may lack a sense of meaning and purpose in your life. At times, it is hard for you to make sense of what is happening to you and to others around you. You may not feel connected to something larger than yourself. You may question your beliefs, principles, and values."[26] As an atheist, and noncompliant to any sort of spirituality in his life, it is understandable that he does not believe his spiritual state should have any bearing on his ability to perform as a soldier.

Others, such as former Air Force lawyer Mikey Weinstein, believe that the pillar of spiritual fitness should be eliminated entirely because of its appearance as a smokescreen for religion, particularly evangelical Christianity. He claims, "This is a one-inch putt if you're playing golf. This is clearly, blatantly unconstitutional—and it has to stop."[27]

It is clear that spiritual fitness affects soldiers' resilience, but how the military is able to properly gauge its soldiers' spiritual readiness is a much stickier subject. Brig. Gen. Rhonda Cornum alluded to the fact that the spiritual fitness test designed by the Army was developed because there seemed to be a connection between resilience and spiritually inclined individuals: "Researchers have found that spiritual people have decreased odds of attempting suicide and that spiritual fitness has a positive impact on quality of life, on coping, and on mental health."[28]

Drawing Conclusions

There is clearly much dissension among soldiers about the value of spiritual fitness, but repeatedly, spiritual wellness has been shown to greatly increase soldier resilience by providing a structured worldview and strong moral values, and it has been irrefutably intertwined with physical health as well. Most soldiers are familiar with the questions on the current spiritual fitness assessment. There is no "pass" or "fail"—the questions consist of choices A, B, or C—and the assessment is only taken once every two years. Although it provides the soldier with some private feedback, there are no real ramifications involved with the test. Because of the nature of being spiritually fit, it is not something that can be easily tested, and merely changing the form of testing will not likely yield better results or provide solutions to the mentally ill.

For this reason, reform must take place through means of mandatory, preventative cognitive therapy. It is ignorant to think that those with no mental illness will be able to cope with mental illness in the future. A physical disease, perhaps not even as debilitating as a mental one, would never be treated in that manner. The key word in this discussion is "preventative." It is much easier to be prevent a disease than to cure a disease. The military is in the unique position of being able to lead society down a new path, as this is a problem for both the soldier and the civilian. Unlike civilians, however, soldiers are trained to go to war and are likely to encounter traumatic episodes that leave them with or worsen a mental disease. By happenstance, this is a perfect pool of individuals to study. This unique position *requires* action of the military but also provides an opportunity to lead the nation in a new way of thinking, a new strategy. There must be professional, preventative cognitive therapy for soldiers to provide them the coping skills necessary to become and remain spiritually resilient. Perhaps above all, the Army cannot become complacent when a quarter of its soldiers are mentally ill. Now is when the Army should be should be hunting down solutions with a ferocious desire to protect its children. ■

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Sgt. Genevieve Braun, assigned to the 77th Sustainment Brigade, issues an assault pack to an Iraqi soldier assigned to the 71st Iraqi Army Brigade 26 October 2015 during an equipment issue at Camp Taji, Iraq. The Iraqi soldiers received assault packs and other military equipment through the Iraq Train and Equip Fund program. The equipment distributed by coalition members with Combined Joint Task Force–Operation Inherent Resolve is one of the key elements in the coalition's mission to build partner capacity. (Photo by Sgt. Charles M. Bailey, U.S. Army)

Setting the Theater

A Definition, Framework, and Rationale for Effective Resourcing at the Theater Army Level

Lt. Col. Joseph John Shimerdla, U.S. Army

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Setting the theater is an extraordinarily complex task often misunderstood by not only our military and intergovernmental partners but also by those responsible for its planning and execution. Such misunderstanding is largely due to a lack of a common definition of the concept among the services and our allies. Nevertheless, setting the theater is essential to the success of joint and combined operations around the globe. However, without a common doctrinal

This article highlights the impact of a doctrinal definition gap while also exploring why setting the theater is such an important requirement for the Army and joint forces. It also discusses the various divergent and largely insufficient descriptions found in doctrine and proposes a common definition and systems approach to facilitate the creation of a framework that will enable the theater army to analyze, plan, and, perhaps most importantly, resource future requirements.

1st Lt. Jordan Springer, contracting officer representative for the 104th Engineer Company, 62nd Engineer Battalion, 36th Engineer Brigade, based out of Fort Hood, Texas, asks a Liberian worker about making adjustments to a well pipe 13 January 2015 at an Ebola treatment unit in Tubmanburg, Liberia, in support of Operation United Assistance. Lack of a preplanning framework resulted in delays to preparatory set-the-theater actions for Operation United Assistance that presented significant obstacles to the humanitarian assistance/disaster relief operation. (Photo by Sgt. Ange Desinor, U.S. Army)

definition of what set the theater means, it is virtually impossible to determine the necessary resources and requirements to do it right.

A theater of operations is never truly set. Setting a theater is supposed to be a continuous, long-term process that creates situational understanding and helps to shape conditions for the success of Army, joint, and combined operations. This understanding, in turn, should facilitate the successful opening and closing of the joint operations area in support of activities across the range of military operations. However, the absence of a common definition and an associated conceptual framework results in recurring misperceptions of the numerous tasks, required resources, and amount of time needed to set the theater.

A Critical Joint and Army Requirement

The joint force must be able to execute a wide range of operations promptly and sustainably in support of

> "In spite of its importance in joint and combined operations, a holistic definition of, and framework for, setting the theater does not exist in either Army or joint doctrine.

national interests and the geographic combatant command (GCC) objectives.[1] To do this, planners cannot wait until a crisis occurs to set the theater. It must be an ongoing process in which one ultimately ensures critical capabilities are already in place to respond to crises and support operations.

Setting the theater is a critical joint requirement that the Army, through its theater armies, executes in support of the GCC across the range of military operations. The theater army does this through its Title 10 responsibilities, Army support to other services, and other executive agent responsibilities.[2] Just a few of the Army's historical set-the-theater tasks include command and control of joint reception, staging, onward movement, and integration of U.S. and coalition forces; establishment of forward support bases; and distribution of inland logistics.

Both contingency and steady-state operations underlie the requirement to set the theater. However, these become difficult without a firm grasp of the dynamics and complexities involved.

The Doctrinal Gap

In spite of its importance in joint and combined operations, a holistic definition of, and framework for, setting the theater does not exist in either Army or joint doctrine. Both currently take a piecemeal approach to describing slices of it, usually by warfighting or joint function. These descriptions are vague, disparate, and inadequate. Nowhere can a theater army planner find an integrated, comprehensive framework that examines all aspects of setting the theater; specifically, the critical requirements of protection, sustainment, intelligence, mission command, and partnership and access.

For example, Joint Publication (JP) 3-31, *Command and Control for Joint Land Operations*, describes setting the theater in terms of communications systems architecture; prepositioned logistics; maintenance of seaport and airport infrastructure; and reception, staging, and onward integration tasks.[3] This list is far from comprehensive, focusing mostly

on sustainment activities, and leaving out protection, intelligence, and mission-command capabilities that enable the land-component command to shape conditions prior to and during operations.

JP 4-0, *Joint Logistics*, briefly mentions setting the theater in very broad terms, describing it as a shaping activity in support of major combat operations.[4] This description is misleading, however. It creates the misconception that setting the theater is something we only do in response to a crisis or in preparation for a specific operation. In reality, setting the theater is a continuous anticipation process that allows us to understand and to shape conditions in support of not only major combat operations but also all activities across a range of potential military operations that also includes humanitarian relief.

Army doctrine also lacks an approved definition and is similarly plagued with conflicting guidance about when setting the theater occurs. Several different publications offer varying descriptions, although none offers a conceptual framework that explains what exactly set the theater entails or how to assess it.

Army Techniques Publication (ATP) 3-93, *Theater Army Operations*, describes it regarding whole-of-government initiatives aimed at access and agreements, with a strong nod toward the importance of security cooperation activities.[5]

Army Doctrine Reference Publication (ADRP) 4-0, *Sustainment*, approaches setting the theater from the perspective of access and the sustainment warfighting

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function, describing it as "activities directed at establishing favorable conditions for conducting military operations in the theater, generally driven by the support requirements … and other requirements."[6]

Field Manual 3-94, *Theater Army, Corps and Division Operations*, describes it as a "broad range of actions necessary to employ land power before and during a crisis."[7] It highlights the critical capabilities that a theater army can provide, such as force protection and a flexible Army headquarters able to meet mission command requirements.[8]

Field Manual 3-0, *Operations*, expands the intellectual space for describing setting the theater, and even discusses Theater Army responsibilities in support of Combatant Commands.[9] Unfortunately, the description of setting the theater in *Operations* is so broad that it could essentially encompass anything and everything the Army does, resulting in an inability to define success and the discrete tasks required to achieve it.

The U.S. Army Training and Doctrine Command has published several pamphlets and articles that expound on setting the theater. However, these are future concepts subject to experimentation and future implementation, and none specifically addresses the need for a common definition of the concept, a common conceptual framework, or specific enumerated requirements.

The 2014 *U.S. Army Operating Concept, Win in a Complex World,* identifies setting the theater as an Army core competency and proposes the following definition: "actions taken to establish and maintain the conditions necessary to seize the initiative and retain freedom of action."[10] It gives a much more expansive and accurate picture of what it means to set the theater, including critical capabilities in logistics, communications, intelligence, long-range fires, and air and missile defense.[11]

Nesting beneath the *Army Operating Concept* is the Army Capabilities Integration Center's Warfighting Challenge 16, "Set the Theater, Sustain Operations, and Maintain Freedom of Movement," which describes setting the theater as "strategic activities directed at establishing favorable conditions for conducting Army and joint operations."[12] This includes operational contract support and leveraging commercial sources for commodities, services, and construction.

Unfortunately, ADRP 3-0, *Operations*, and ADP 1, *The Army*, do not identify set the theater as a core competency, nor has the Army adopted the *Army Operating Concept's* definition into any published doctrine to date.

Operational Impact

This lack of a common definition and framework hinders the ability of theater armies to set the theater for the GCC. Ambiguous requirements cause planners to fail in identifying needed capabilities and resources. As a result, theater armies cannot make an informed request to resource these requirements through the Global Force Management allocation process.

Without a common definition or conceptual framework to evaluate and prioritize tasks, each theater army and GCC has developed its own approach to setting its respective theater based on how they define it, including potential posture locations, forces available, and the relative importance of U.S. interests at stake. This makes it difficult to achieve a consensus of what it means to set the theater and share lessons learned across commands. While this ambiguity may not significantly affect theater armies with sufficient resources—as they have assigned and allocated forces and an ample footprint to execute set the theater operations—those with limited resources have a much more difficult time. A common definition and conceptual framework would reduce ambiguity, eliminate the notion that setting the theater means different things to different organizations, and provide a baseline for all theater armies to request the necessary forces and resources to set the theater and assess the effectiveness of their efforts.

Two vignettes underscore the need to close this doctrinal gap. The first occurred following the terrorist attacks of 11 September 2001. During the initial weeks of Operation Enduring Freedom, because planners

Setting the theater properly demands close attention to planning and managing the disposition of enormous amounts of materiel, including tens of thousands of shipping containers and vehicles, and millions of pieces of Army equipment. Therefore, successful logistical planning demands the synchronization of efforts by a wide range of actors that include all military services, other U.S. government agencies, the governments and militaries of foreign nations, contractors, and nongovernment agencies. (Photo courtesy of U.S. Army)

had not executed setting the theater as a continuous process, U.S. Central Command and U.S. Army Central had just four weeks to do so in preparation for airstrikes commencing on 7 October 2001, followed by the deployment of special operations forces into northern Afghanistan. In that short time, planners had neither identified the capabilities of the support infrastructure needed to sustain operations nor did they fully realize the difficulty of launching operations from austere regional bases.[13] Fortunately, the commands were able to leverage a preplanned exercise, Operation Bright Star, as an intermediate staging base to introduce and sustain forces in theater.

On the other end of the conflict continuum, lack of planning framework and resulting preparatory set-the-theater actions for Operation United Assistance presented significant obstacles to a humanitarian assistance/disaster relief operation led by U.S. Army Africa (USARAF) in response to the 2014 Ebola outbreak in West Africa.[14] Without understanding the conditions in the theater, planners were unable to identify capability gaps or resources needed to close those gaps. A key example was the initial identification of Roberts International Airport in Monrovia, Liberia, as the only C-17 and C-130 capable airfield suitable for strategic and theater airlift. A hasty runway assessment after the declaration of crisis revealed that the runway was in a significant state of disrepair and posed a potential runway collapse hazard to the heavy C-17s. USARAF identified the need for an immediate repair plan that took time to implement, and led to flight restrictions that limited force and equipment flow during the crisis.[15] In retrospect, a requirement specified in a set-the-theater planning framework to conduct runway surveys prior to the crisis would have resulted in a better understanding of the conditions in theater and identified this deficiency.

Additionally, a lack of organic sustainment, intelligence, and protection assets limited the command's ability to shape conditions for success. While USARAF was able to overcome or mitigate these shortfalls, the requisite understanding and subsequent shaping of the joint operations area overrode all other support requirements on the continent to include those executed in support of other services.[16] As a result, numerous security cooperation activities and exercises were either modified or canceled entirely to focus efforts on setting the theater.

Although ultimately successful, these operations challenged the U.S. Army's ability to respond to crises, but it was an unnecessary challenge. Planners can create understanding and shape conditions long before a crisis occurs by prioritizing setting the theater as a continuous and enduring task. This allows U.S. forces to respond more rapidly and effectively. It also alleviates the avoidable strain that comes with trying to understand, shape, and open the theater—rapidly and simultaneously—after a crisis that has already occurred.

A Continuous Process

Setting the theater must enable access not only during times of crises but also during deterrence and steady-state operations as well. Gen. Gustave Perna, commander of the United States Army Materiel Command, stated in a 2015 *Army Sustainment* magazine article, "The Army cannot be globally responsive when it takes weeks or months to deploy forces because of restrictive transportation nodes, poorly positioned equipment, and nonexistent access agreements."[17]

Accordingly, planners must continually use military engagements, security cooperation events, and other activities to assess and understand the current conditions within the theater. However, there is more to setting the theater than just understanding it. It includes shaping conditions to allow for the timely entry of joint forces, the successful execution of operations, and an acceptable level of risk for not only the mission but also for our soldiers.

Setting the theater is a critical joint and Army requirement. However, the current doctrinal gap has the potential to negatively affect our military's ability to conduct operations in support of strategic objectives around the globe. We need a doctrinal framework that includes both a conceptual definition and a planning construct that planners can use to continuously assess tasks and set conditions for success.

Proposed Definition and Framework

Given this background, USARAF has developed a definition and framework for setting the theater that allows the command to assess conditions, identify capability gaps, determine necessary resources, and plan activities required to close or mitigate those gaps. The proposed doctrinal definition developed by USARAF for setting the theater is

creating conditions through protection, sustainment, intelligence, mission command, and access and partnership that enable joint, Army, and combined forces to conduct activities across the range of military operations.

This proposed definition provides greater clarity than any previous definitions or descriptions. It also highlights the importance of setting conditions for future success. However, any attempt to define setting the theater is incomplete without an accompanying framework that divides this complex set of tasks into discrete and quantifiable components. By identifying specifically what setting the theater entails, we can create a common framework for use among theater armies and the joint force. USARAF uses a systems approach to develop such a conceptual framework that deconstructs the requirements and conditions necessary to set the theater for future operations (see table, page 61).

This framework is divided into categories, and each of these categories contain a list of requirements based on elements defined in doctrine. These requirements are further divided into conditions that identify required capabilities and help to inform the staff planning process. Many of these conditions are a joint responsibility that USARAF cannot directly affect. However, planners must still assess them to inform future planning efforts. Using this framework, USARAF is able to conduct a comprehensive assessment, identify gaps in capabilities, and either request additional resources to close them or develop alternate solutions that mitigate risk to an acceptable level.

Four of these categories nest within Army warfighting and joint functions: intelligence, protection, mission command, and sustainment. The first category, **access and partnership**, could have been divided among the other warfighting and joint functions; however, it was kept separate to ensure it received the appropriate level of visibility, given the importance of its role in setting the theater. Additionally, the functions of fires, and maneuver and movement are intentionally excluded due to the potential sensitivity among interagency and international partners to descriptions of set-the-theater activities that include potential combat actions.

Access enables overflight and entry for Army, joint, and combined forces and ensures the existing

Table. Set the Theater Framework

Access and partnership	Intelligence	Mission command	Protection		Sustainment
Access and infrastructure	Signals intelligence	Airspace control	Air and missile defense	Law and order	Contract support
Agreements	Geospatial intelligence	Information operations	Anti-terrorism	Operational area security	Finance
Partnerships	Counterintelligence and human intelligence	Mission-tailored forces	Chemical, biological, radiological, and nuclear	Operations security	Logistics
	Open-source intelligence	Network operations	Explosive ordnance disposal and protection	Personnel recovery	Medical
			Force health protection	Physical security	
			Intelligence support	Safety techniques	

(Table by Lt. Col. Joseph John Shimerdla)

infrastructure and posture locations are able to meet theater-entry requirements. Partnerships—especially enduring partnerships with our allied nations—are perhaps the most important. They underpin all of the other categories and are essential to establishing and maintaining the conditions necessary to set the theater. Thus, the theater army and GCC support the whole of government with its efforts to initiate, maintain, and enhance partnerships and secure access through engagements, exercises, and other activities.

Intelligence ensures situational understanding of the operational environment and enables the joint force to better shape emerging crises and seize opportunities. The theater army accomplishes this through the full range of intelligence-gathering disciplines, including signals, geospatial, counterintelligence, human, and open-source.

Mission command relates to the theater army's ability to provide a headquarters, tailored forces, and a theater communications architecture able to meet the requirements of a joint force.

Sustainment is the category most commonly associated with other descriptions of setting the theater, which view these activities largely through a logistics centric lens. This category not only includes logistics broadly but also underscores the need for distribution networks, contracting, and medical capabilities to meet operational requirements.

Finally, the **protection** category provides planners with an assessment of conditions within each country and key locations, to include the assets available to protect U.S. forces, infrastructure, and other critical requirements.

The framework developed by USARAF provides a systematic, analytical approach that identifies the requirements and conditions necessary to set the theater. Through collaboration with joint, interagency, and multinational partners, USARAF can identify information and capability gaps and then leverage military engagements, security cooperation events, and other activities to close these gaps. Additionally, and perhaps most importantly, this approach enables USARAF to identify, plan, and request forces and

resources necessary to ensure it is prepared to conduct contingency operations within Africa.

Such a framework is applicable not only to USARAF area of responsibility but also to any theater where it is necessary to set the conditions that enable the projection of combat power in support of operations. It enables a theater army to better identify, articulate, and justify requirements necessary to set the theater.

Conclusion

Joint and Army doctrine needs a definition and framework that clearly outlines what it means to set the theater. Not only will these serve as impartial tools to inform future resourcing requests and identify risks if these requirements are not sourced, but a common definition together with the conceptual framework derived from it will also allow for better sharing of lessons learned organized by commonly stipulated categories.

By identifying the specific conditions necessary to set the theater, a doctrinal definition and conceptual framework similar to the one developed by USARAF can scope down what has historically been a tremendously broad undertaking into something much more manageable. Most importantly, it will enable the theater army to meet combatant commander requirements across the range of military operations to protect and advance U.S. interests abroad. ◾

Notes

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9. FM 3-0, *Operations* (Washington, DC: U.S. GPO, 6 December 2017, Change 1), 4-5. FM 3-0 describes setting the theater as a "broad range of actions conducted to establish the conditions in an operational area for the execution of strategic plans" and goes on to describe the Theater Army's role as responsible for "the planning and coordination of Army Capabilities to meet the combatant commander's intent to set the theater."

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11. Ibid., vi and 23.

12. Army Capabilities Integration Center and Sustainment Center of Excellence (ARCIC), "AWFC 16 White Paper (QAR Version)," 16-Set the Theater, Sustain Operations, and Maintain Freedom of Movement, milSuite, accessed 20 February 2017, https://www.milsuite.mil/book/groups/army-warfighting-challenge-awfc-group/projects/16-set-the-theater-sustain-operations-and-maintain-freedom-of-movement/activity (login required).

13. Donald P. Wright, ed., *A Different Kind of War: The United States Army in Operation Enduring Freedom, October 2001-September 2005* (Fort Leavenworth, KS: Combat Studies Institute Press, May 2010), 61.

14. Center for Army Lessons Learned [CALL] Newsletter No. 15-09, *Operation United Assistance Setting the Theater: Creating Conditions for Success in West Africa* (Fort Leavenworth, KS: CALL, June 2015). This CALL Newsletter describes the significant challenges faced by the U.S. Army Africa staff as they conducted activities in support of Ebola response in Liberia. Chapters 3 and 5 through 8 provide the reader with some of the salient lessons learned from Operation United Assistance.

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FUTURE WARFARE
WRITING PROGRAM

As the enduring legacy of wargames with ancient roots like chess attest, military leaders have since ancient times attempted to anticipate and simulate what future wars might look like to better prepare. Similarly, there is a long tradition of well-informed creative writers with intimate familiarity of the issues related to military affairs as well as sociopolitical developments of their own time who were able to predict in prose with fair accuracy where the natural progression of such tendencies might lead and what their influence might be on the nature of future wars as well as society in general. Jules Verne and George Orwell come immediately to mind.

Though the U.S. Army cannot predict with absolute certainty what future warfare might look like, nevertheless, the Army University Press (AUP) is confident that the Army has among its ranks gifted persons that combine both a high level of technical expertise in their own specialized fields with a creative talent for envisioning and describing in prose, either fictional or expository, many aspects of the future operational environment with great accuracy.

As a result, AUP has partnered with the U.S. Army Training and Doctrine Command (TRADOC) G2 "Mad Scientist" to provide an online venue to showcase articles that anticipate the impact of such developments as the introduction of robotics, autonomous systems, artificial intelligence, nanotechnology, and cyber warfare, or explore other topics such as combat in megacities and the potential employment of weapons derived from biological, neurological, or other material sciences.

The imaginative fictional process is the bedrock underlying most military exercises. Fictive scenarios compel exercise participants to expansively consider the details of fictional events within the context of reality-as-it-might happen in order to explore and understand the potential consequences of decisions that are made and the material necessities actually required. As a tool for exposing a truth to scrutiny, fiction is cousin to war-gaming. It creates opportunities to play out potential scenarios in a make-believe framework in an effort to identify how to prepare for them.

For more information on the Future Warfare Writing Program (FWWP) and how to submit manuscripts, see the following webpage: http://www.armyupress.army.mil/Special-Topics/Future-Warfare-Writing-Program/Future-Warfare-Writing-Program-Submission-Guidelines/.

Additionally, the "Mad Scientist" Initiative group has recently announced a call for papers open from 1 May to 15 June 2018. The topic is "Learning 2050." The contest is open to all. For more information, contact Allison Winer, Deputy Director, Mad Scientist Initiative at (757) 806-0933 or usarmy.jble.tradoc.mbx.army-army-mad-scientist@mail.mil. To get an idea of what to write about, read and subscribe to Mad Scientist blog http://madsciblog.tradoc.army.mil/Blog and join the All Partners Access Network (APAN) https://community.apan.org/wg/tradoc-g2/mad-scientist.

Retired Gen. Eric K. Shinseki sits inside a Stryker vehicle 5 May 2011 in Sterling Heights, Michigan, and talks with Col. Robert Schumitz, Stryker project manager, about how the vehicle was first fielded by the U.S. Army. As the authors explain, Shinseki worked with then Secretary of the Army Louis Caldera to ensure the Army's fielding of the Stryker brigade combat team, considered a successful enterprise-level action. (Photo courtesy of Detroit Arsenal Media Services, U.S. Army)

Taking A Bite of the APPLE(W)

Understanding the Defense Enterprise

Col. Charles Allen, U.S. Army, Retired

Col. Robert D. Bradford, U.S. Army

With great fanfare and high expectations, the Department of Defense (DOD) implemented the National Security Personnel System (NSPS) in 2006. This replacement for the General Schedule (GS) was intended to bring DOD civilian personnel practices into the twenty-first century. Accordingly, it implemented pay for performance through the use of pay pools that supervisory panels would use to assess civilian employees' achievement of designated objectives. The panel would then allocate pay increases and bonuses based on performance. In 2009, Congress passed a law ending NSPS, and in response, President Barack Obama's first official act was telling the department to go back to the old GS system.[1]

Although NSPS had noble goals, the DOD leadership—both civilian and uniformed military—made mistakes in implementation that could and should have been foreseen. The DOD did not adequately consider the concerns of the various interested parties and did not sufficiently address the requirements of the existing bureaucratic processes. The NSPS relied on a complex system of evaluation that demanded supervisors' time and was difficult for employees to comprehend. The NSPS lacked safeguards to ensure fairness for all employees and to prevent escalating costs throughout the DOD.[2] Most significant, department leaders inappropriately assumed that top-down guidance without adequate consideration of stakeholders' concerns would not jeopardize successful implementation.[3] In effect, the DOD leaders failed to observe and implement effective change management principles.

Recent history is replete with examples of large DOD initiatives such as NSPS and other change efforts that never quite gain "irreversible momentum" and eventually fail. Some DOD critics argue that such failings are due to the inability of leaders to think and operate at the enterprise level.[4] But, how is it that senior leaders with extensive experience and great power have been unable to implement initiatives such as NSPS? Exploring this question could provide lessons for our field-grade and senior officers, and comparable civilian leaders as they are likely to design and will then be charged with implementing various programs over the course of their service.

This article proposes a new framework for assessing the enterprise environment to help leaders and action officers at the enterprise level. It consists of six enterprise components for identifying and assessing the authorities, the players, the processes, the leverage points, the evaluation criteria, and the work-arounds (APPLE[W]) of a proposed action or initiative. This systematic procedure can lead to greater understanding of the proposed initiative and support development of viable implementation.

The word "enterprise" itself is not well understood within the Army and the DOD. To many, it conjures images either of Capt. Kirk (or Picard) from the *Star Trek* series or management consultant graduates of business schools. The word is foreign to the tactical and operational culture of the Army, in which soldiers and leaders focus on their units achieving assigned missions to support operational objectives that serve national interests. The word "enterprise" is used seventeen times in the DOD dictionary but is never defined.[5]

Merriam-Webster offers two definitions that are relevant in this DOD context. An enterprise is "a project or undertaking that is especially difficult, complicated, or risky"; and is also "a unit of economic organization or activity, especially a business organization."[6] The DOD enterprise comprises the business activities that enable DOD to provide capabilities and ready forces to operational commanders through existing processes and infrastructure. Fundamentally, the enterprise is the business side of warfighting DOD; as such, it lacks a single commander or leader who assumes directive control. Accordingly, DOD enterprise leaders

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gain cooperation, engender collaboration, and build consensus to succeed.

Joint doctrine defines three levels of warfare: tactical, operational, and strategic.[7] This construct enables warfighters to make effective use of their capabilities. However, these levels are less helpful for describing the DOD enterprise—the part of the department that provides its Title 10 capabilities such as equipping, manning, and supplying. The DOD's enterprise issues, initiatives, actions, and activities support and may significantly influence all three levels of warfare. Figure 1 depicts the enterprise alongside the levels of warfare.[8]

To the Army's credit, it is making strides to improve leaders' ability to operate effectively at the enterprise level.[9] In 2015, the Army published a completely revised Army Regulation (AR) 5-1, *Management of Army Business Operations*.[10] The Army Management Framework was introduced in AR 5-1 to assist personnel working on enterprise-level problems (see figure 2, page 67).[11]

This framework can assist leaders in placing enterprise actions and activities in context. It provides "a useful framework … for the application of management techniques in Army organizations."[12] This "conceptual model … relates best Army management practices that have consistently proven to result in improved outcomes."[13] The framework can also support those working on Army enterprise-level issues to organize their actions and focus their efforts; yet by itself, the Army Management Framework does not suffice. Even if the Army uses it in professional
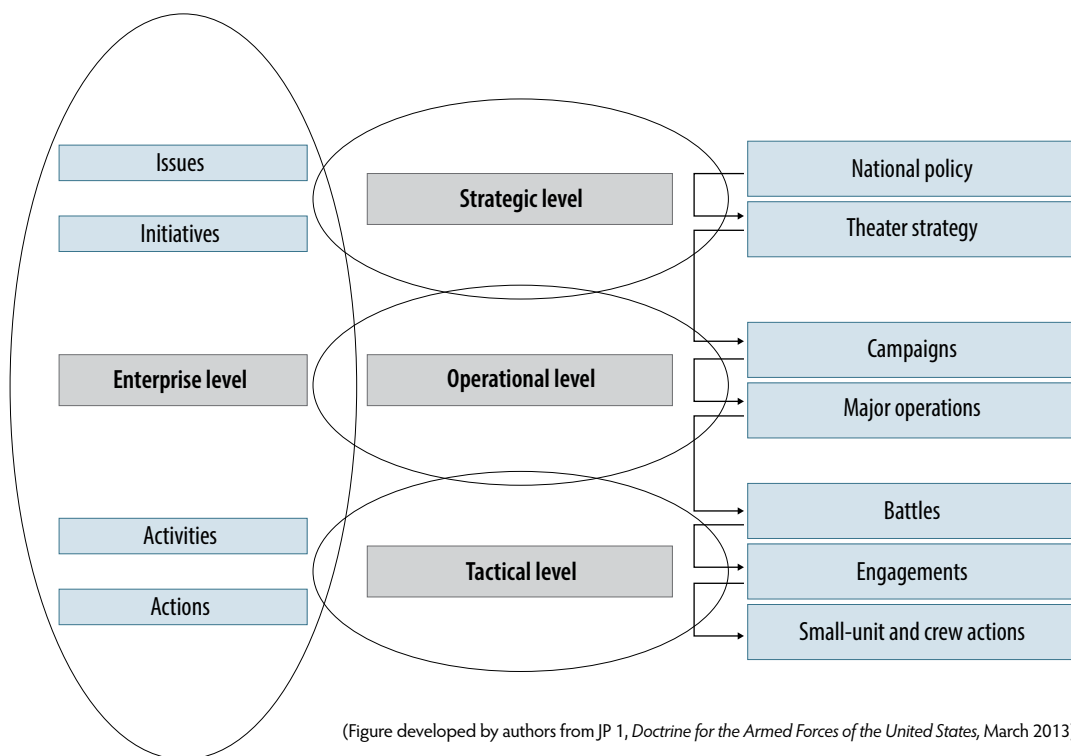
(Figure developed by authors from JP 1, *Doctrine for the Armed Forces of the United States*, March 2013)

Figure 1. Enterprise Influence on the Three Levels of Warfare

development to educate and train new leaders, the Army Management Framework may help enterprise leaders organize and execute their missions. However, it does not help leaders and their staffs to understand, visualize, or describe the enterprise environment.

To facilitate leaders' assessment of their environment as they plan, prepare, execute, and assess operations, Army and joint doctrines provide frameworks at the tactical, operational, and strategic levels. Army Doctrine Reference Publication (ADRP) 5-0, *The Operations Process*, includes solid frameworks to assess the tactical and operational environment. The METT-TC (mission, enemy, terrain and weather, troops and support available, time available, and civil considerations; now known as mission variables in doctrine) is a simple mnemonic that, for years, has helped leaders prioritize and analyze the environment at the tactical level; it has enabled them to better understand the environment they are working in.[14] Similarly, PMESII-PT (political, military, economic, social information, infrastructure, physical environment, and time) is a framework of variables for the operational environment.[15] At the strategic level, the U.S. Army War College teaches a strategy formulation framework

consisting of ends, ways, means, and risk to address strategic problems.[16] These commonly accepted frameworks enable Army leaders to approach problems in a structured way and to make sense of their environment.

But the enterprise environment is often unfamiliar to people working on problems at this level. The previous tactical and operational experiences of majors, lieutenant colonels, and colonels are often not

A common framework for understanding the enterprise environment, as for those used for the mission, operational, and strategic assessments, would assist Army leaders to navigate the world of enterprise decisions. It should help them understand how to accomplish missions and align tasks to achieve enterprise objectives. A similar, simple acronym could serve as a mnemonic; it would identify a framework accessible to those dealing
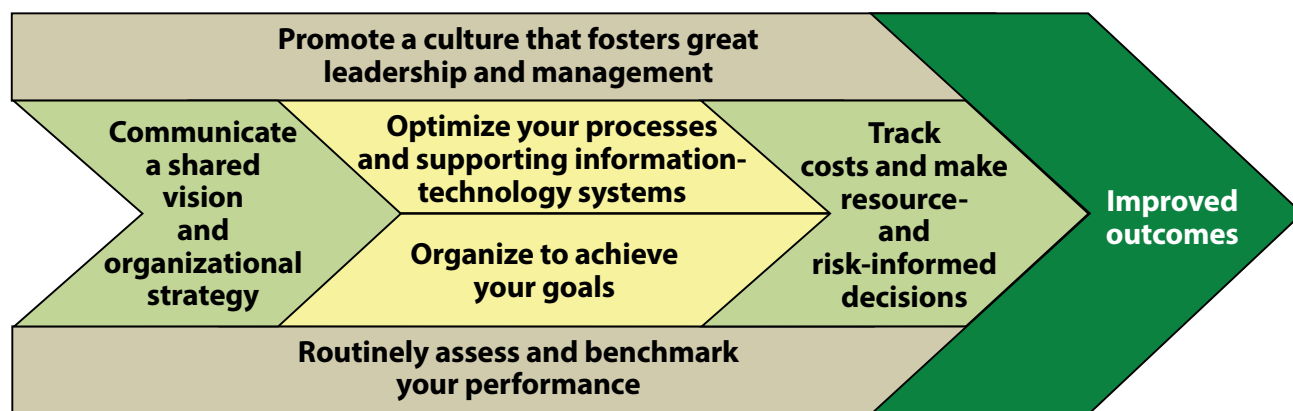
(Figure from AR 5-1, *Management of Army Business Operations,* November 2015)

Figure 2. The Army Management Framework

enough to orient them to their first assignment at the Pentagon or in the Army generating force. Leaders are frequently disoriented when their tactical and operational experiences seem no longer relevant. They do not effectively engage in their enterprise activities, and they contribute little until they have developed their own frames of reference. Frustrated and disoriented, some officers will routinely disparage the bureaucracy and seek a return to areas of comfort.

In general, leaders' previous environmental frameworks do not apply in their new enterprise environment. The METT-TC might help them understand, visualize, and describe the environment for a mission to defend a bridgehead or defeat an enemy on an objective. But it does not help staff officers tasked with adding a new type of unit to the Army force structure or with implementing a new policy on gender integration. Similarly, the PMESII-PT may help them understand the environment as they seek to neutralize an insurgency or provide humanitarian assistance after a disaster. Yet, it does not help with enterprise-level issues such as changing overseas force posture (read, rebalancing) or buying the next Army combat vehicle.

with an enterprise problem. The APPLE(W) framework can help leaders frame their environment for enterprise-level actions and activities. The APPLE(W) is a mnemonic signifying components that help people frame the enterprise environment. Just as the mission and operational frameworks facilitate planning and operations at the tactical and operational levels, this enterprise framework will enable officers to better propose viable options and develop successful courses of action to implement and prepare activities at the enterprise level.

Enterprise components identify characteristics of the environment in which leaders must work on issues that impact the Total Army, both active and reserve components. These issues pertain to the Army's Title 10 responsibilities to "recruit, organize, man, equip, train, sustain, source, mobilize, and deploy cohesive forces effectively and efficiently."[17] To identify the enterprise components and to offer questions that enable users to frame a specific action or activity, see the table (on page 68).[18]

Defining APPLE(W)

Authority, according to Army Doctrine Publication 6-0, *Mission Command,* is "the delegated power to judge,

act, or command."[19] Authorities are individuals, regulations, or laws that obligate or allow a leader to take action. Law, policy, and regulation delegate these powers to specific offices or positions; people occupying those positions are responsible and accountable for wielding the authority. Title 10 is the most important source of authority for Army enterprise leaders. Title 10 specifically describes the roles and functions of specific offices and positions in the DOD. In addition to the law, policies and regulations also describe authorities needed to work in the environment.

Players are the stakeholders who are responsible for, or can influence the activity of concern. Relationships with these organizations and specific people are important; they should be cultivated. Leaders should identify key areas of interest and concerns of the important players; they should consider the proposed new activity through others' points of view.

The Army War College teaches a system to assess players by their power and interest over a particular issue or initiative.[20] The first step is to identify the players that influence this issue or initiative. This identification requires a knowledge of the field and the ability to think broadly about the issue. Once leaders identify the players, they can assess the players on two axes—power over and interest in the issue—to formulate a strategy for communicating with these players. For example, players with both power and interest need to be closely managed, players with power but little interest need to be kept satisfied, players with interest and little power need to be kept informed, and players with little power or interest can simply be monitored to be aware if they don't develop interest or power (see figure 3, page 69).[21]

Processes are "a series of actions or activities taken to achieve a particular end."[22] Organizations establish processes to control complex activities that they execute more than once. Processes reduce the variability of outcomes, allow standardization to facilitate onboarding

Table. Enterprise Variable Descriptions

Variable	Description
Authorities	Every enterprise activity includes power and authority structures around it. · What are the laws, policies, and regulations related to the activity? · What direction/guidance do they provide? · Who has the legal authority to take action in this environment? · Where does the actual power reside?
Players	· Who are the people and what organizations care about and/or can influence the activity? · What are their positions on the proposal? · How might they support or resist the proposal? · How can you elicit their help on the issue, or at least persuade them to remain neutral?
Processes	· What are the established processes for addressing your action? · How are these processes governed? · What are their timelines and entry points? · Who controls the agenda and timeline for the processes? · How do the processes interact? · Is utilizing the existing process(es) the only option?
Leverage Points	Every system has points of leverage where actions can have the most impact (e.g., decisive place and time). · Who can influence the activity? · When is the right time to facilitate a change? · What are the appropriate actions to make a change? · Who should execute the action to minimize resistance and to get it accepted by the whole team?
Evaluation Criteria	· How do you know if the action is successfully achieving its intended purpose? · What are the outcome metrics that can help you validate success? · What are the measures of effectiveness to assess whether your action is working as designed? · What are the measures of performance to assess efficiency?
Work-arounds	· What work-arounds can enable leaders to implement change quickly? · How can they circumvent existing processes to achieve a desirable outcome? · What are the downsides to working outside the system? · How can you mitigate these downsides?

(Table developed by authors from ADRP 5-0, *The Operation Process*, May 2012)

of new members, and provide all players with a common understanding of how things should work. The U.S. military relies on many processes to support enterprise activities; leaders need to understand these processes and to know how they interact with one another. Enterprise processes that support the Army's requirement to provide trained and ready units to the combatant commanders

include force development, force management, resourcing, requirement development, acquisition, manning, equipping, training, and sustaining. The Army Force Management School at Fort Belvoir, Virginia, teaches many of these processes. *How the Army Runs: A Senior Leader Reference Handbook* describes most of these processes and explains how they work in practice.[23] Often there is a significant difference between how the process is supposed to work and how it works in practice.

Once the important processes related to an activity are identified, the key attributes of the process must be mapped out and described. The "black box" of the process that transforms inputs into outcomes is difficult to grasp, especially in more complex systems. The answers to the following questions may help identify leverage points:

- How is the process designed to work and how does the process actually work?
- What are the entry points to the process, and what is its normal timeline?
- Is the process event driven, time driven, or condition driven, or is it a combination of all three?
- Which players make decisions in the process? Who are the gatekeepers who control entry?
- How do all of the different processes that impact the activity interact?
- Are processes executed in sequence, or can they proceed in parallel?

Leverage points enable leaders to move the system toward the desired outcome.[24] They can be specific players and relationships among them, steps in the process, or conditions in the system. By definition, they are the points where efforts can have the biggest impact on effecting change. Leaders should evaluate the enterprise system to identify how, who, where, and when they can best influence the outcome.

Different leverage points require different types of actions. For example, a senior leader-advocate of an action can frequently smooth the way forward. If the right leader supports an activity, his or her influence
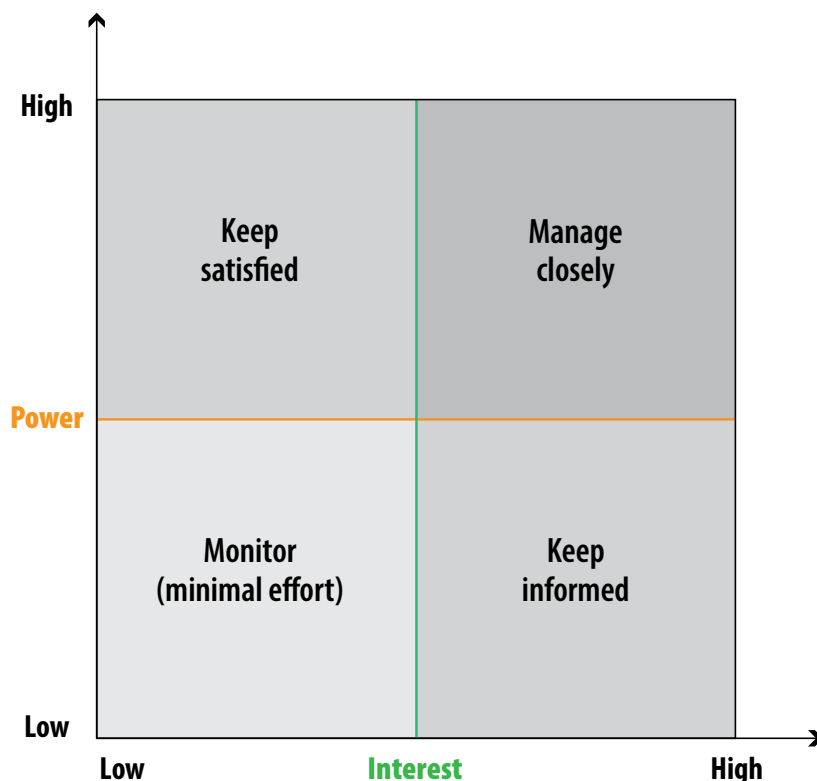
(Figure by Stephen J. Gerras)

Figure 3. Stakeholder Power and Interest Matrix

could dramatically speed processing. Alternatively, a leverage point might be a specific entry point to a process. A successful course of action is responsive to key meetings; it is paced to satisfy specific process requirements. Leaders who understand leverage points can concentrate their actions to prepare the environment, influence the players, and increase the likelihood of the initiative flowing smoothly through the processes. Identifying leverage points assists leaders in developing options and shaping their courses of action.

Doctrine emphasizes the importance of assessing the environment to modify actions to achieve outcomes and to identify better risks and opportunities.[25] **Evaluation criteria** enable enterprise leaders to determine whether efforts are moving the system toward desired outcomes. Doctrine identifies measures of effectiveness. These measures help assess whether desired outcomes are being achieved. Likewise, measures of performance indicate how well the process is delivering outcomes.[26] Effectiveness, achieving desired outcomes, and efficiency—doing so at an appropriate cost—are important in

the enterprise. Selecting the right evaluation criteria and building helpful feedback loops assure that efforts have a greater impact. They increase the likelihood of success.

Even in the best environment, current processes may be too slow and important players may resist change. In his 2011 address to West Point cadets, then Secretary of Defense Robert Gates challenged the Army to "break up the institutional concrete, its bureaucratic rigidity."[27] **Work-arounds** enable leaders to effectively tailor the system to produce a single-iteration outcome. But the bureaucratic system quickly seeks to return to its previous state. While work-arounds may expedite the system and can overcome bureaucratic inertia, they can create drawbacks. Existing processes often develop powerful antibodies that attack work-arounds that might weaken the system or jeopardize a given player's position within the process. When choosing a work-around, a team should anticipate such a reaction and develop actions to mitigate and lessen their effects. If the use of work-arounds become prevalent, this is indicative of the need to change the process. The strategic environment is inherently dynamic and complex. APPLE(W) can identify feedback loops among its components. Accordingly, leaders may have to initiate multiple iterations of work-arounds in their quest for desired outcomes.

Example: Fielding the Stryker Brigade Combat Team

An application of APPLE(W) to a historical enterprise action is instructive. Consider the successful enterprise-level action of the Army's fielding of the Stryker brigade combat team. A Stryker brigade is a medium-weight force, more deployable than formations of Abrams tanks and Bradley fighting vehicles, and more survivable than light infantry. Stryker units were conceived, designed, and fielded relatively quickly at the turn of this century. The period of time between then Army Chief of Staff Gen. Eric Shinseki's first transformation address in 1999 and the deployment of the first Stryker brigade in 2003 was only four years. This was an amazingly short time for the Army to field new combat units of this size and complexity.[28] Consider the following application of the APPLE(W) enterprise framework to the fielding of the Stryker brigade. It demonstrates how understanding the enterprise components may help Army enterprise leaders field a new capability or implement a similarly complex initiative.

Designing, equipping, manning, and training a new unit requires many interrelated actions. Authority to do these actions is rooted in U.S. law. Title 10 assigns the secretary of the Army responsibility and authority to organize, train, equip, and sustain the Army.[29] The secretary of the Army is responsible for force structure, stationing, manning, and equipping. According to Title 10, "the chief of staff of the Army performs his duties under the authority, direction, and control of the Secretary of the Army."[30] Shinseki did not have direct authority to build the Stryker brigades; however, Secretary of the Army Louis Caldera did. It meant Shinseki needed to work closely with Caldera to ensure their agreement on the goals and objectives to make this transformation happen. He was careful in his advisory role to secure the approval of Caldera.

Standing up a new brigade formation required the acquisition of new systems, retraining personnel, stationing new units, and funding to support the desired outcome. Shinseki needed to identify who had authority for each function. While Title 10 gives the secretary of the Army overall authority, in many cases, he delegates specific authorities to other people. The defense acquisition executive approved milestones for large acquisition programs such as the Stryker. The Army G-3/5/7 and the Training and Doctrine Command (TRADOC) established goals for training new soldiers. The secretary of the Army controlled stationing initiatives with close congressional oversight. The assistant secretary of the Army for financial management and comptroller, along with the director of program analysis and evaluation, performed important roles for the secretary in support of resource allocations.

Shinseki had to work with many players when establishing the Stryker brigade. He had to manage, satisfy, inform, and monitor internal and external stakeholders. Inside the Army, many stakeholders were concerned about the future of Army force structure. Armor leaders were concerned that a medium-weight brigade might assume many of its key missions; they engaged in a vigorous debate in *Armor*, their professional magazine.[31] Other internal players included TRADOC, which was responsible for developing the concepts and doctrine for the new unit and ensuring the unit design included important capabilities. The U.S. Army Forces Command was another important internal player; it was the command responsible for providing trained and ready units to the combatant commanders. Others included acquisition

offices, programmers and budgeters, concept developers, and soldiers in the new Stryker units. These professionals had to be informed of the transformation plan and had to support Stryker's role for a successful transformation.

External stakeholders included the DOD and the combatant commanders, as well as international partners, defense industry, installations, and local populations. These offices identified the requirements for forces and

ill-formed ideas. These processes are complex and complicated; they can easily grind the uninitiated to a halt.

Some of the most important processes for fielding a new capability such as the Stryker brigade include the Army concept development process; the force design process; the force management process; the Joint Capabilities Integration and Development System; the Planning, Programming, Budgeting, and Execution

> "The Army and DOD have processes that develop promising new ideas from concept to reality. Even so, critics lament the DOD's cumbersome bureaucracy."

employed them to support the objectives, and the Army had to address their main concerns. Shinseki's rationale for the Stryker brigade emphasized the units' rapid deployability. Their capabilities filled a perceived gap in survivable firepower that could quickly get to where it was needed. This gap was observed by many leaders in the 1990s during Desert Storm, as well as operations in Bosnia and Kosovo.[32] So Shinseki scrupulously ensured that DOD leaders and combatant commanders understood why he was proceeding with transformation.[33]

While the Army and the DOD are part of the executive branch with the president serving as commander in chief, Congress is arguably the most important stakeholder from a resourcing perspective. In its oversight role, every year it authorizes activities through the National Defense Authorization Act. More importantly, it has the power of the purse and appropriates funds for all Army activities. Shinseki needed to ensure that Congress understood his plan. Congress needed to align resources with the Army initiatives and sought-after capability outcomes.

The Army and DOD have processes that develop promising new ideas from concept to reality. Even so, critics lament the DOD's cumbersome bureaucracy.[34] The DOD does rely on many bureaucratic processes used to run an organization of over two million people (active, reserve, and civilian components) with an annual budget of approximately $600 billion.[35] The DOD bureaucracy is designed as a control mechanism to enable leaders to manage this enormous department and to avoid wasteful spending, as well as to prevent pursuit of incomplete or

process; and the Defense Acquisition System.[36] Each of these processes operate in accord with the governing documents for their operations. These documents assign responsibilities and authorities, provide the required information, and prescribe standard timelines.

Shinseki's career background provides a solid grounding in each of these processes. He served as a force integration officer at the Pentagon while a lieutenant colonel, working on force design and building new organizations. Subsequently, he served as an Army director of training, where he learned the enterprise's role in training the Army. In his final assignment before becoming chief of staff of the Army, he served as the vice chief of staff. In this role, he represented the Army at the highest level in these processes, where he gained a clear understanding of the requirements and timelines. These experiences enabled him to expertly manage their interactions and to use processes to his advantage to expedite bringing his big ideas to fruition.

Because Shinseki understood the processes and players, he could easily identify leverage points to expedite the processes. He knew when he needed approved requirements to lock in funding that facilitated timely allocations. He made a concerted effort to communicate his transformation agenda and sought buy-in from important advocates. He identified potential adversaries in the Armor community, then worked to get them on his side.[37] Shinseki exploited these critically important leverage points to make a new concept a reality.

The Army has some criteria to assess unit readiness. Shinseki used all of them to assess the progress

of the Stryker brigade. The Army measured personnel and equipment fill rates. The Army also measured the performance of the Stryker brigade in training environments and validated its success. In the end, the performance of the Stryker brigades during combat in Operations Enduring Freedom and Iraqi Freedom was the key measure of success.

To field the Stryker so quickly, the Army used some work-arounds to support the system.[38] The Stryker team used locally produced doctrine; it borrowed vehicles from Canada; it executed actions outside of standard processes to expedite fielding. To account for these work-arounds, Shinseki put key leaders in important positions to make it happen. Maj. Gen. James Dubik was appointed TRADOC's deputy commanding general for transformation, and TRADOC created a brigade coordination cell at Fort Lewis to synchronize enterprise actions supporting the new unit.[39] These actions contributed to the successful design of the new unit. The unit also executed an aggressive training schedule, even before it was fully fielded with its new equipment. The Army chose to equip the Stryker brigade with existing Canadian systems to expedite the acquisition system. As the new system went through testing, they modified the equipment requirements and unit tactics.

In November 2003, four short years after announcing his transformation initiative, 3rd Brigade, 2nd Infantry Division deployed in support of Operation Iraqi Freedom as the Army's first Stryker brigade. Its successful deployment provided a new capability and expanded options for the operational commander. The fast-moving medium-weight Stryker force, with more dismounted infantry than a light brigade, proved its worth on the battlefields in Iraq.[40]

Clearly Shinseki had a good understanding of the enterprise components that he exploited to achieve his transformation initiative. The Army could not have fielded the Stryker brigade as smoothly and as quickly as it did without this understanding. While Shinseki did not have the APPLE(W) framework to undergird his understanding, he used every element of it to describe his environment and to synchronize actions of players across the Army.

Conclusion and Way Ahead

This article began with a discussion of NSPS, a failed DOD initiative to change the enterprise. The architects of NSPS made mistakes in implementation that may have been avoided by a better understanding of their environment. The APPLE(W) provides a framework for that environmental assessment. But just as a METT-TC analysis will not guarantee tactical success, using the APPLE(W) will not guarantee the success of an enterprise initiative. However, it does provide leaders a helpful way to think about their environment. By itself, the APPLE(W) framework does not empower enterprise leaders to make the elusive "perfect" decisions or enable new staff officers to give expert advice. However, this simple framework does provide a mnemonic and a framework for scanning and understanding the environment. This can enable Army leaders to operate effectively at the enterprise level. Incorporating this framework into leader development, training, and education can make a positive difference. ∎

Notes

1. Barbara I. Haga, Roger Richman, and William Leavitt, "System Failure: Implementing Pay for Performance in the Department of Defense's National Security Personnel System," *Public Personnel Management* 39, no. 3 (2010): 211–30.

2. Ibid., 220–24; Defense Business Board, "Report to the Secretary of Defense: Review of the National Security Personnel System," Report FY09–06 (Washington, DC: Department of Defense [DOD], July 2009), 10–16.

3. James Alexander, Brian Barlow, and Douglas Haskin, *National Security Personnel System (NSPS): An Analysis of Key Stakeholders' Perceptions During DOD's Implementation of NSPS,* Joint Applied Project (Monterey, CA: Naval Postgraduate School, June 2010), accessed 6 December 2017, https://calhoun.nps.edu/bitstream/handle/10945/10510/10Jun%255FAlexander%255FJAP.pdf.

4. See, for example, Charles D. Allen and George J. Woods, "Developing Army Enterprise Leaders," *Military Review* 95, no. 4 (July 2015): 43; Thomas Spoehr, "Leading and Managing High-Performing Army Organizations," *Military Review* 96, no. 4 (July 2016): 8–9.

5. The DOD once defined the enterprise level as "relating to policy, guidance, or other overarching leadership provided by OSD [Office of the Secretary of Defense] officials and the Chairman of the Joint Chiefs of Staff in exercising authority, direction, and control of their respective elements of the Department of Defense on behalf of the Secretary of Defense." DOD Directive 8000.01, *Management of the Department of Defense Information Enterprise* (Washington, DC: U.S. Government Printing Office [GPO], 10 February 2009), 10, quoted in Allen and Woods,

"Developing Army Enterprise Leaders," 45. However, the most recent version of the DOD Directive removed this definition.

6. *Merriam-Webster Online Dictionary*, s.v. "enterprise," accessed 7 December 2017, https://www.merriam-webster.com/dictionary/enterprise.

7. Joint Publication (JP) 1, *Doctrine for the Armed Forces of the United States* (Washington, DC: GPO, 25 March 2013), I-7–I-8

8. Ibid., I-7. This figure is expanded from figure 1-2.

9. Allen and Woods, "Developing Army Enterprise Leaders," 42–49.

10. Army Regulation (AR) 5-1, *Management of Army Business Operations* (Washington, DC: U.S. GPO, 12 November 2015).

11. Spoehr, "Leading and Managing High-Performing Army Organizations," 10.

12. Ibid.

13. Ibid.

14. Army Doctrine Reference Publication (ADRP) 5-0, *The Operations Process* (Washington, DC: U.S. GPO, 17 May 2012), 1-8.

15. Ibid., 1-7.

16. Department of National Security and Strategy, "National Security Policy and Strategy," Course Directive AY17 (Carlisle Barracks, PA: U.S. Army War College, 2016), 5, 87–92, Appendix I.

17. AR 71-9, *Force Development—Warfighting Capabilities Determination* (Washington, DC: U.S. GPO, December 2009), 29.

18. ADRP 5-0, 1-7–1-9. This table is an analog to the tables for operational and mission variables.

19. Army Doctrine Publication 6-0, *Mission Command* (Washington, DC: U.S. GPO, 17 May 2012), 6.

20. Stephen J. Gerras, "Communication with External Audiences – A Stakeholder Management Approach" (faculty paper, Carlisle Barracks, PA: U.S. Army War College, June 2010).

21. Ibid., 3.

22. *Oxford English Dictionary Online*, s.v. "process," accessed 7 December 2017, https://en.oxforddictionaries.com/definition/us/process.

23. Louis G. Yuengert, ed., *2015-2016: How the Army Runs: A Senior Leader Reference Handbook* (Carlisle Barracks, PA: U.S. Army War College, 2015) accessed 3 January 2018, https://ssl.armywarcollege.edu/dclm/pubs/HTAR.pdf.

24. See, for example, Donella Meadows, "Leverage Points: Places to Intervene in a System," The Donella Meadows Project: Academy for Systems Change, accessed 7 December 2017, http://donellameadows.org/archives/leverage-points-places-to-intervene-in-a-system.

25. JP 3-0, *Joint Operations* (Washington, DC: U.S. GPO, 17 January 2017), xii.

26. Ibid., II–11.

27. Thom Shanker, "Warning against Wars like Iraq and Afghanistan," *New York Times* (website), 25 February 2011, accessed 7 December 2017, http://www.nytimes.com/2011/02/26/world/26gates.html.

28. Mark J. Reardon and Jeffery A. Charlston, *From Transformation to Combat: The First Stryker Brigade at War* (Washington, DC: U.S. Army Center of Military History, 2007), iii.

29. Secretary of the Army, 10 U.S.C. § 3013(b) (2011).

30. Chief of Staff, 10 U.S.C. § 3033(c) (2011).

31. The letters section in *Armor* magazine, the journal of the U.S. Army armor branch, contains many heated discussions after Gen. Eric Shinseki announced transformation. See the first few issues of the year 2000, in particular, to read and understand how some in the branch view transformation as an attack.

32. "The Future of War" series by *Frontline* provides an excellent overview of the opinions at the time. For Shinseki's specific comments about Desert Storm, see "Interview: General Eric K. Shinseki," *Frontline*, PBS, accessed 7 December 2017, http://www.pbs.org/wgbh/pages/frontline/shows/future/interviews/shinseki.html. For opinions from Ralph Peters, Lawrence Korb, Andrew Krepinevich, Gen. Eric Shinseki, and Maj. Gen. James Dubik on lessons from Task Force Hawk and how they apply to the Army, see "Analyses: Task Force Hawk," *Frontline*, PBS, accessed 7 December 2017, http://www.pbs.org/wgbh/pages/frontline/shows/future/experts/taskforce.html. All concur that it took too long for the Army to deploy in Kosovo, and the Army would have to adapt to be useful on the lower end of the range of military operations. For further discussion of Army challenges in Kosovo, see also John Gordon IV, Bruce Nardulli, and Walter L. Perry, "The Operational Challenges of Task Force Hawk," *Joint Force Quarterly*, no. 29 (Autumn/Winter 2001-02): 52.

33. "Address to the Eisenhower Luncheon, 45th Annual Meeting of the Association of the United States Army (as prepared for presentation)," Washington, DC, 12 October 1999, in the Eric K. Shinseki Collection, box 85, U.S. Army Military History Institute, Carlisle Barracks, Pennsylvania.

34. See, for example, Robert Gates, "Why Bureaucracies So Often Fail Us," chap. 1 in *A Passion for Leadership: Lessons on Change and Reform from Fifty Years of Public Service* (New York: Alfred Knopf, 2016), 4–22.

35. See "Figure 1-1. Department of Defense Budget" and "Figure 5-1. Pay & Benefits Funding" in Office of the Undersecretary of Defense (Comptroller) Chief Financial Officer, *Defense Budget Overview: United States Department of Defense Fiscal Year 2018 Budget Request* (Washington, DC: DOD, May 2017), 1-1, 5-2, accessed 3 January 2018, http://comptroller.defense.gov/Portals/45/Documents/defbudget/fy2018/fy2018_Budget_Request_Overview_Book.pdf.

36. For details on these and other Army enterprise processes, see Yuengert, *How the Army Runs: A Senior Leader Reference Handbook, 2015–2016*.

37. Shinseki's efforts include presenting his ideas at the annual armor conference, establishing the Armor Center at Fort Knox, Kentucky, as the center for the study of transformation. For details see Harold Kennedy, "Army Approaches Decision on Interim Combat Vehicle," *National Defense*, September 2000; B. B. Bell, "Welcome to the Future at Fort Knox," *Armor* 109, no. 2 (March-April 2000): 5.

38. Reardon and Charlston, *From Transformation to Combat*, 1-18. The chapter, "A Need for Change," describes the work-arounds highlighted in the next two paragraphs.

39. Ibid., 5.

40. Ibid., 67–71. "Analysis" describes the successful mission of the first deployment of Strykers to Iraq.

Basic Infantry Building Block

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Information technology has become so important in defining military power that it overwhelms almost everything else. … The front line really is disappearing from war. Armies must hide. Concealment and deception become their normal operating status. Victory goes to the side having more influence over technology and better access to the world's electronic infrastructure.

—Bruce Berkowitz, *The New Face of War*

Bruce Berkowitz was almost right. However, if anything, the wars in Iraq, Afghanistan, and Syria have shown us that access to better technology and a robust electronic infrastructure are simply not enough, and will not be at least for some time in the future. While technology—information technology in particular—and access to electronic

infrastructure are important, they are not decisive. Standoff weapon systems and extensive use of technology are making us forget a basic tenet of war: war is a human endeavor. It stems from human interests and emotions, and it is driven by them.

This article will focus on the basic building block of the infantry, the rifle squad, in terms of its capabilities, survivability, combat power, and employment on the battlefield. It will consider the history of the squad; discuss some alternative approaches to squad organization, equipping, and tactics; and consider the impacts of new technology on the infantry squad.

Historical Origins of Squad Composition and Its Role on the Battlefield

We can trace units as small as a modern infantry squad all the way back to the Roman legion. There, a *contuberinum* was composed of eight legionaries who shared a tent and provided a basic building block of a *century*.[1] However, a contuberinum was not an independent fighting unit, and its leader only performed administrative duties.

A modern squad first appeared during the First World War. Automatic weapons on the battlefield, with their massive volume of fire, caused a stalemate on the western front that the traditional infantry formations of the time were unable to break. At the same time, the relatively heavy weight of the first machine guns prevented infantry squads from moving quickly around the battlefield. However, this changed when the Germans introduced a light machine gun into the infantry. Now, small groups of infantry organized around a light machine gun could attack an objective and succeed. The squad became the basic tactical unit.

Based on this experience, Western armies reorganized their infantries and built infantry squads around light machine guns or automatic rifles.[2] But, from the very start, a question arose regarding employment of an infantry unit built around a light machine gun: Should it only be expected to form a base of fire element or a maneuver element;

or, could it perhaps conduct both tasks simultaneously? In the years after World War II, different approaches and theories dealt with the question of a basic infantry unit and its mission. However, these arguments lost precedence in professional discussions because armies as a whole were becoming increasingly complex, expensive, and limited in manpower.[3] Most Western armies were concerned with the squad's ability to maneuver under fire, in preparation for a final assault on enemy positions. However, there is another approach to a squad's employment on the battlefield, a way that we should study.

Key Battlefield Considerations in Determining a Basic Infantry Unit

As we consider what a basic infantry unit (BIU) should look like, we must first consider what it must be capable of achieving. In Western armies, the commonly accepted notion is that the infantry squad's role is to close with and destroy the enemy. It does this across the full spectrum of operations by maneuver to seize an objective with the intent of holding ground.[4]

The initial appearance of gunpowder and explosives on the battlefield led to ever-increasing lethality of weapons. Units engaged against increasingly sophisticated guns and explosives were forced to disperse more as well as to more often act in the absence of close and direct contact with other friendly units.[5] This characteristic is even more prevalent today with the use of modern high explosive and precision munitions. These force armies to consider smaller tactical units and even greater dispersion, to the point where a unit or an individual no longer represents a cost-effective target for highly accurate explosive munitions.

On the other hand, psychology suggests the extreme importance of physical contact among fellow soldiers in combat.[6] Physical contact as a component of unit cohesion and morale is even more important to success than shooting accuracy.[7] Moreover, RAND research points out many advantages of having larger basic

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New Jersey Army National Guard soldiers from Company C, 1st Battalion, 114th Infantry (Air Assault) do a practice run 9 April 2018 before executing a live-fire battle drill on Joint Base McGuire-Dix-Lakehurst, New Jersey. (Photo by Master Sgt. Matt Hecht, U.S. Air National Guard)

combat units such as greater resilience, better fire-and-movement techniques, and conduciveness to organization into assault, support, and security elements.[8]

Other key characteristics of the modern battlefield to consider when determining the characteristics of a BIU are the increasing importance and use of technology, the complexity and variety of operating environments, and civilians along with many other competing actors on the battlefield. Finally, as we analyze the basic infantry building block, we must also consider politico-economic constraints put on the armed forces in terms of cost-effectiveness.

Defining the Basic Infantry Unit in Western Armies

The composition of infantry units and the process of forming infantry squads varies significantly among NATO members.[9] Three distinct examples follow of how BIUs are determined and organized in three different NATO alliance armies.

The U.S. Army squad. For the U.S. Army, "the infantry squad fire team is designed to fight as a team and is the fighting element within the infantry platoon. … Currently, there is only one type of infantry squad and its primary role is a maneuver or base-of-fire element."[10] The U.S. Army also breaks down fire teams into pairs of soldiers called "buddy teams."[11] Within U.S. Army squads there are two balanced fire teams.[12] Either team can serve as a base-of-fire or maneuver element. At the platoon level, we also find a weapons squad, which has the primary purpose to "provide the base of fire for the platoon's maneuver."[13]

The Slovenian Armed Forces squad. The second example of infantry squad organization is the Slovenian Armed Forces (SAF) infantry squad as defined by the SAF squad leader manual.[14] The squad's mission is to destroy or disable enemy soldiers, weapon systems, and materiel. The SAF infantry squad is the smallest unit of the infantry, and it does not subdivide further. Only in extreme circumstances would it conduct independent fighting.[15] However, there are several types of infantry squads (e.g., rifle, reconnaissance, and machine gun).

The French army squad. The third example is a French army infantry squad. It is composed of two fire teams based on the effective range of their weapon systems—a three hundred-meter team and a six hundred-meter team—and a vehicle crew.[16] The French army organizes its infantry squads around three-man cells, with the option of attaching specialists to them. Depending on the source, the composition of dismounted teams varies from two three-man teams to a three-man team and a four-man team. A squad leader is in charge of the two dismounted teams and the vehicle crew.[17] The French army considers the squad a BIU, as the cells are specialized based on their role in the fight and therefore incapable of independent action.

The above examples all describe infantry squads with a strong inclination for fixed organizational solutions and firepower. However, some would argue there is another way to organize low-level tactical units.

Squads in Eastern Armies

Eastern armies, up until the end of the Cold War, lacked the modern military technology available to Western armies.[18] However, this did not mean they were unable to counter Western military power. Although Eastern armies were unable to project military power globally, they were able to counter Western technological and firepower advantages on their own ground through excellent tactical execution and unique organizational solutions at the lowest tactical level.[19]

The Iranian army squad. If we look at the Iranian infantry squad from the Iran-Iraq war (according to H. John Poole), we see a squad composed of a squad leader, a sniper, a two-man rocket-propelled grenade team, and three four-man fire teams with automatic rifles. What is notable is the lack of a machine gun to provide covering fire.[20] This implies a different approach to fighting, one that emphasizes surprise and mobility over firepower. What is also of note is the size of the squad, with sixteen members in six elements. As this is over the limit of what is generally considered a manageable span of control, these squads have to be fairly independent and well rehearsed in their execution.

The People's Liberation Army squad. Another example is the Chinese People's Liberation Army (PLA) infantry squad. Information is scarce on this unit, but one source from a professional discussion forum indicates the PLA squad has nine or ten men organized into three cells.[21] Of note is a rather large number of antiarmor weapons and the unbalanced nature of squad elements (in terms of manpower and weapon systems) in a PLA squad.

Eastern Way of War

Simulated retreats and set-piece battles have always characterized the Eastern way of war. Eastern armies prefer to choose when and where to fight, and they rely on stealth and surprise instead of firepower. They also tend to disengage from battle when they determine that victory is out of reach.[22] Their tactical approaches vary considerably and are too numerous to go into detail here. However, they do not necessarily draw a clear distinction between guerrilla warfare, war of maneuver, and positional warfare. In fact, they can conduct guerrilla and war of maneuver at the same time. Based on the teaching of Mao Tse-tung and Taoist philosophy, they can transfer between different war styles with relative ease. Unlike their Western counterparts who "move to the sound of guns," Eastern commanders exhibit a larger degree of patience, environmental adaptability, planning, flexibility, and common sense, even at squad level.[23]

Eastern armies are advancing in technology and firepower. Tactical excellence coupled with technological parity has the potential to shift the balance of military power away from the West. Perhaps the West should incorporate some Eastern techniques to maintain its advantage.

Balancing Competitive Requirements

Between 1946 and 1966, U.S. Army studies were designed to provide the answer to what the optimal U.S. Army squad would look like.[24] Due to the changing definition of the squad over time, the results of the studies can be difficult to compare, but they give us a good reference when we try to determine the key requirements for a BIU. Overall, the studies evaluated the BIU using the criteria of control, sustainability, flexibility, and lethality.

Control. The 1946 Infantry Conference determined that a squad leader has difficulty in controlling an element greater than nine men, even when assisted by another noncommissioned officer. The conference also determined that the nature of infantry combat precludes the effective use of subordinate teams. As a result, a squad was expected to either fire or maneuver, but it could not be expected to do both.[25] The 1966 Infantry Rifle Unit Study determined that control is best facilitated by a one-to-four or one-to-five leader-to-led ratio.[26] It is generally accepted that a commander can control up to five active subordinates. However, removing squad leaders from leading fire teams (changing the ratio

to one-to-two) increases their ability to make timely decisions and have a greater impact than if they have to simultaneously control the actions of a fire team.[27]

Attrition. A squad must be small enough for the squad leader to control but at the same time big enough to absorb casualties. Squads of less than seven cannot take a casualty and continue the fight. If this happens, it is considered better to reorganize the platoon into fewer squads and adapt tactical employment accordingly.[28] Having less than nine men prevents squads from conducting fire and maneuver. It was also established that an infantry squad in combat would routinely operate at less than its authorized strength due to various reasons, not only because of battle casualties.[29] Therefore, the doctrinal size of BIU should in some way account for all types of attrition.

Firepower. To effectively conduct fire or maneuver, the squad needs suppressive firepower of an organic light machine gun (LMG). But, there is a point where too many machine guns limit a squad's ability to conduct other tasks. Thirty percent of squad personnel equipped with an LMG was determined as a maximum. The best combination of weapons for a squad was determined to be a single LMG for point and area suppression and a single grenade launcher for area suppression together with assault rifles for close combat.[30] While LMGs and grenade launchers are useful for seizing and holding terrain (the BIU's primary purpose), when it comes to close combat, the automatic rifle is queen. Therefore, a BIU should have a clear preponderance of automatic rifles. Traditionally, individual riflemen also carry additional ammunition for the platoon or the section support weapons, so it is better to keep the number of supporting weapons in a squad to a minimum to effect greater squad maneuverability.[31]

Contrary to the above findings, the current U.S. Army consensus view remains that the optimal squad is a nine-man squad composed of two balanced teams. However, according to Timothy Karcher, this is more a result of personnel and budget constraints outside of the U.S. Army control than recognition of optimal organization.[32]

Vehicle space. Another important factor in infantry unit organization is vehicle space. Soldiers often accept vehicle space as it is provided without ever questioning the doctrinal effects and tactical sensibility of it. The vehicle space should not determine the size of a BIU; rather, it should be the other way around. A unit's size is determined by its doctrinal purpose.

Armies tend to offset the shrinking size of a squad with an increase in firepower. However, increasing firepower means increasing the amount of equipment at the squad level, which means "the loss of even one soldier in the squad puts an ever increasing physical burden on those that remain."[33] The extra burden is believed to be somewhat offset by an assumption today that infantry squads will always be closely linked to their vehicles, which can provide greater firepower as well as medical evacuation capabilities. Thus, when operating with a vehicle, infantrymen can carry lighter loads.

Vehicles are undoubtedly a combat multiplier. They provide greater mobility, protection, and firepower (in terms of volume, range, precision, and lethality); better command, control, communications, computers, and intelligence; and additional capacity to transport supplies and equipment. However, once dismounted, the infantry in close combat cannot always rely on vehicle support. Moreover, dismounted infantry is very sensitive to attrition and cannot always maneuver effectively when separated from the vehicle.[34] The dismounted element should be optimized for close combat, as dismounted infantry is supposed to fight when the vehicle is not able to—in close combat.

Technology. As it stands today, new technological enablers for the infantry require proper maintenance and training to employ them in addition to the standard infantry equipment a soldier already has.[35] However, it is essential for technology not to take away from the individual soldier's capabilities in close combat, but to enhance them. If the infantryman has to worry about battery life, excessive weight, and the possibility of equipment damage or malfunction, and if it takes away from his cognitive ability to be aware of his surroundings, the technology has no place in the infantry. As noted by Victor Sattler and M. O'Leary, "The key factor in developing and extending network support to the infantry soldier is to balance the additional skill requirements and cognitive demands such that they do not become primary responsibilities in and of themselves."[36]

Technology improvements provide both opportunities and vulnerabilities. For example, food processing and water storage advancements are very welcome, as they take away overall equipment weight. Likewise, unmanned ground systems in the logistical support role could unburden the infantryman by lightening his load to a manageable 25–30 kilograms. GPS locators in those unmanned ground systems and unmanned aircraft systems could assist the infantryman by providing information or following the squad with logistic support. Self-driving/autonomous vehicles could reduce the requirement for drivers and therefore allow for more dismounts in a vehicle. At the same time, advancements in information and remote control technology could reduce the need for dedicated gunners and machine gunners, allowing for additional dismounts. Advancements in weapon design such as around-the-corner shooting could increase protection and lethality.

On the other hand, energy requirements of all electronic devices represent an Achilles's heel, as they bind infantry soldiers to supply lines and energy sources (e.g., a vehicle or a base) more than anything else does. At the same time, the cyber and space domains are playing an increasingly important role. Information technology has the capability to allow greater dispersion of individual soldiers and teams, through the so-called "social media effect" on the battlefield.[37] However, as all information-based technology is vulnerable to cyberattacks, there is an issue with what happens if or when such an attack is successful. How will soldiers who are unconsciously dependent on information technology perform in the absence of it?

Notwithstanding, near-term advances in technologies will not significantly change the nature or character of combat operations, nor will the basic weapons within the BIU change significantly. New weapons systems may make the individual soldier more lethal, but the BIU will continue to conduct fire and maneuver. But, there is potential for changing the way a BIU approaches combat situations. Information technology might not result in a reduction of actual numbers of soldiers. It will, however, allow for more independent and dispersed actions of a BIU and its elements. In this way, it will contribute to the lethality and survivability of the BIU.

Robotization of the Basic Infantry Unit

On the other hand, robotization has the potential to reduce the number of soldiers in a BIU (if we assume robots do not count as soldiers). However, robots can bring with them many legal and moral issues that are similar to those encountered in unmanned aircraft systems, but made far more complex in close combat situations as described in the 2014 Combat Studies Institute publication *Robots on the Battlefield*.[38]

A Slovenian Armed Forces machine-gun squad conducts live-fire training in 2015 at the Central Firing Range and Training Area (OS-VAD) Postojna–Poček, Slovenia. (Photo courtesy of Slovenia Armed Forces, 1st Brigade, 10th Infantry Regiment)

At the same time, a potential exists to start treating the individual soldier as an "information gatherer and gun platform" rather than a warrior. As Poole puts it, "all the high-tech systems are not really making the individual soldier better; rather they are making him an extension of higher headquarters. Instead of making him more adaptive, innovative, and attentive to his soundings, they are making him passive."[39]

Battle Drills Are Not Tactics

A BIU must be able to fire and maneuver to execute battle drills. First introduced into the U.S. Army during World War II, battle drills have since spread to most Western armies to different degrees, so much so that they have come to symbolize tactics at the lowest tactical level. It is interesting to note that the 1946 Infantry Conference opposed the concept of battle drill as stereotyped tactics. But, battle drills as such are not a flaw, rather a first step. Battle drills are an effective tool for trained infantrymen in short intense battles usually with plenty of outside supporting fire. But, they can only work over very short distances and in very short, intense engagements. There are,

however, a whole spectrum of situations that do not fall into this category, and a BIU must use tactical options, not drills, in response to them.[40] This requires the BIU leader to read the ground, anticipate likely enemy moves, and actively control the deployment of firepower and assault elements to meet threats.

A Proposed Basic Infantry Unit

We saw above how different armies define a BIU. But, as these definitions of an infantry squad are somewhat confusing and limiting, a better definition of the BIU should be in terms of its capabilities. Therefore, the BIU should be defined as *the smallest unit capable of independent action for the purposes of seizing and holding an objective in close combat in any operation or environment.* The essential capability of the BIU is to conduct independent maneuver.[41]

Based on the above findings, a more flexible organization of the BIU is required and possible. The BIU should be either smaller or organized in a fashion that allows dispersion and rapid convergence. It should also be organized so it has both a small footprint in crisis-response operations and a big punch in high-intensity warfighting. Political and economic factors will always play a role, but as the BIU is the base of an army's fighting power, it should be optimal in organization, not minimal. If an army fails at the BIU level, no amount of battalions, brigades, and divisions will do the job, as they will all be hollow units. In doctrinal terms, we must move away from fire and maneuver in close combat as the primary task of the BIU. Rather, we must view it as one of the tasks—not necessarily the most difficult or the most important. We must also take into consideration the results of the U.S. Army's research in the 1950s and 1960s, and we must link these findings to what we can learn from the Eastern way of war.

The current buddy-team system should be replaced by three-man cells. Sattler and O'Leary observe that "with a minimum of three, the soldiers share the core tasks of movement, readiness to provide covering fire for the moving soldier and maintaining surrounding situational awareness to the limit that that may affect the assault group's intended actions."[42] Three soldiers can better cover 360 degrees than two can (see figure 1). This is important on modern noncontiguous battlefields where the danger is all around. In addition, a three-man cell is better capable to deal with attrition.[43] The three-man cell also has the ability to operate more independently when required.

But, a cell cannot be a BIU since it does not have a capacity to seize and hold terrain in close combat. Several specialized cells would form a BIU: a command cell, a support-by-fire cell, and two assault cells, totaling twelve men (see figure 2, page 81).[44] The BIU leader

would be required to control the maximum of five individual elements (the other three cells and the two rifleman of his cell), which is within manageable limits. The fire support cell would be controlled by the BIU second in command. The BIU should not organically subdivide into predetermined fire teams but should be composed of cells as primary building blocks. The command cell would also provide security and, when necessary, rein-

Human eye horizontal field of view = 120˚ (binocular–stereoscopic)
Monocular field of view = 35˚ (additional to each side)
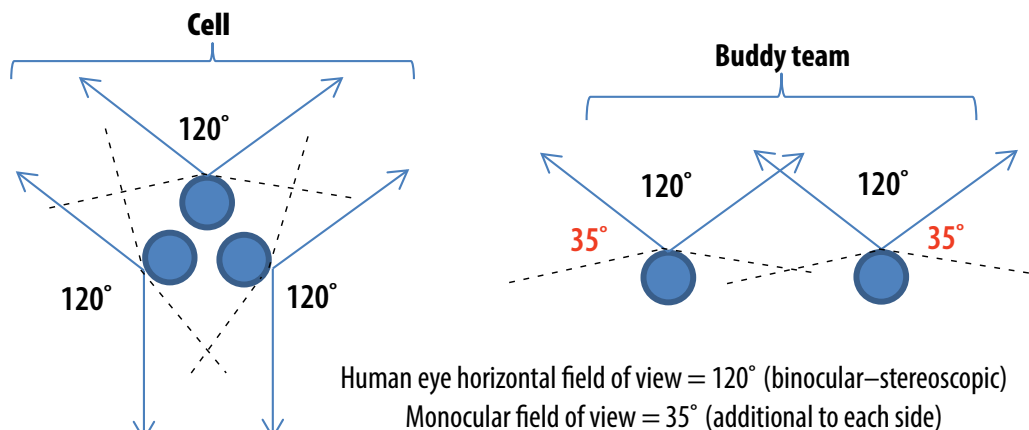
(Graphic by author)

Figure 1. Fields of View

forcement to the other cells. The command cell should not be used for reconnaissance purposes because there is a high risk that the squad leader will be pinned down and unable to control the maneuver of the remainder of the BIU. Instead, one of the assault cells should be used for that purpose when necessary.

When necessary, such a unit could form fire teams. The teams would be unbalanced, but this would not considerably degrade the BIU's capability to maneuver by teams. However, it would allow the BIU leader more flexibility in his tactical options, either by reinforcing the support-by-fire cell or an assault cell, depending on the tactical situation. While using two balanced teams might be the optimal solution for a BIU conducting a direct assault on enemy position, it makes sense to have unbalanced/specialized teams for any other tactical approach.[45]

The proposed twelve-man BIU would be able to absorb considerably more casualties without markedly degrading its combat effectiveness.[46] It would also enable better distribution of additional weight, which is considerable in the modern combat load.[47]

Basic infantry unit

Command cell — SSG — CLS

Assault/SCOUT cell

Assault cell — Designated marksman

Fire support cell — SGT

Command cell — SSG — CLS

Assault/SCOUT cell

Assault cell — Designated marksman

Fire support cell — SGT

Weapons basic infantry unit

Command cell — SSG — CLS

Antitank guided missile cell

Medium machine gun cell

Medium machine gun cell — SGT

Platoon leader cell — 2LT/1LT — Radio operator

Platoon Sergeant cell — SFC — CLS — Information specialist

Mortar cell — SSG

Mortar cell

Platoon headquarters

Key

Antitank rocket launcher	Machine gun	Machine gun
Grenade launcher	Mortar (60mm or less)	Semiautomatic rifle

Antitank missile launcher

1LT–First lieutenant   **SSG**–Staff sergeant
2LT–Second lieutenant   **SGT**–Sergeant
SFC–Sergeant first class   **CLS**–Combat lifesaver

(Graphic by author)

Figure 2. Platoon Organization with Proposed Basic Infantry Units

In terms of firepower, the proposed BIU would have two LMGs, a grenade launcher, and seven rifles, not counting the BIU leader and his second in command. In addition, one rifleman would be equipped with an antitank weapon (see figure 2). As the number of supporting weapons (LMGs, grenade launcher, and antitank weapon) is 30 percent of the BIU, it is at the maximum limit for supporting weapons. Above all, the number of automatic rifles makes such a BIU lethal in close combat.

Proposed Platoon Reorganization

Accepting the proposed BIU, the U.S. Army and all those armies with the same or similar organizational solutions should also rethink their current infantry platoon organization of a platoon headquarters section, three rifle squads, and a weapons squad. The current U.S. Army doctrine states, "the infantry weapons squad provides the primary base of fire for the platoon's maneuver."[48] However, contrary

to this, a U.S. Army platoon leader will often distribute weapons squad elements among the rifle squads based on the tactical situation. For this reason, instead of three infantry squads and a weapons squad, a platoon might be better served with two BIUs and a weapons BIU. Doctrinally, there is no need for the third BIU, as the platoon leader could employ the weapons BIU in a fire support role while one of the infantry BIUs maneuvers to the objective and the second provides reserve or reinforcement.

The weapons BIU could also be based on four cells: a command cell, an antitank cell, and two medium machine gun cells (see figure 2). The antitank cell should be equipped with a Javelin-type antitank guided weapon. Bearing in mind that the primary mission of the weapons BIU would be to provide a base of fire for the platoon's maneuver, it is of course somewhat less capable of independent action, especially due to its heavier equipment. However, it could still maneuver independently in a manner similar to the

BIU, with the two medium machine gun cells providing a base of fire while the antitank cell (without the antitank weapon systems) and command cell could maneuver to the objective.

Mortars could also be assigned at the platoon level, providing the platoon leader with responsive fire support and making the platoon far more independent on the battlefield. (A downside to this might be the inexperienced platoon leader's inability to command and control two BIU's, a weapons BIU, and a mortar section.) The platoon headquarters could also be based on cells: a platoon leader cell, a platoon sergeant cell, and two light mortar cells (see figure 2, page 81). Here, the platoon sergeant would have the additional assignment of conducting the platoon fight in the information domain with the assistance of an information/media technology specialist.[49] This is another important capability that has to be introduced at the platoon level, as today's fight can be perceived as won or lost in the media regardless of the actual battle results.

One major drawback to this proposal is that such a platoon would consist of forty-eight soldiers. This number is incompatible with a four-vehicle standard for a platoon. The largest personnel carriers in use have space for only ten dismounts, which would mean the platoon has to be cut down to that number. The proposed platoon composition is therefore only suitable for a light infantry unit with truck support, or if the platoon will never conduct a mission as a whole but will always be tailored to the mission with the rest staying behind as a ready reserve. Or, the platoon headquarters element could be cut to one cell comprising the platoon leader, the platoon sergeant, and a rifleman (preferably the information/media specialist). ∎

Notes

Epigraph. Bruce D. Berkowitz, *The New Face of War: How War Will Be Fought in the 21st Century* (New York: The Free Press, 2003), back cover.

1. Benjamin J. Nagy, "Maniple to Cohort: An Examination of Military Innovation and Reform in the Roman Republic" (master's thesis, Command and General Staff College, Fort Leavenworth, KS, 2014), 31, accessed 8 February 2018, http://www.dtic.mil/dtic/tr/fulltext/u2/a611719.pdf. A century was composed of eighty men in ten contuberinums.

2. Paul E. Melody, "The Infantry Rifle Squad: Size Is Not the Only Problem" (monograph, Fort Leavenworth, KS: School of Advanced Military Studies, 1990), 3, accessed 8 February 2018, http://www.dtic.mil/dtic/tr/fulltext/u2/a225438.pdf.

3. Victor Sattler and M. O'Leary, "Organizing Modern Infantry: An Analysis of Section Fighting Power," *Canadian Army Journal* 13, no. 3 (Autumn 2010): 23–53, accessed 8 February 2018, http://regimentalrogue.com/blog/caj_vol13.3_06_e.pdf. As Canadian army officers Sattler and O'Leary put it, "The development of the section [squad] structure seems to have been done more in the context of the new equipment that required manning than in the larger, coherent review of the infantry battalion as a fighting system in an operational context."

4. Ibid.

5. Robert C. Johnson, "Fighting with Fires: Decentralized Control to Increase Responsiveness" (monograph, Fort Leavenworth, KS: School of Advanced Military Studies, 2000), accessed 8 February 2018, https://www.hsdl.org/?view&did=727039.

6. Robert H. Scales Jr., "The Army and the Future of Irregular Conflict (transcript of presentation)," *Warfare in the Age of Non-State Actors: Implications for the US Army*, eds. Kendall D. Gott and Michael G. Brooks (Fort Leavenworth, KS: Combat Studies Institute Press, 2007), 258.

7. Ibid.

8. John Gordon IV et al., *Comparing U.S. Army Systems with Foreign Counterparts: Identifying Possible Capability Gaps and Insights from Other Armies* (Santa Monica, CA: RAND Corporation, 2015), 80.

9. Ibid., 77–82. The RAND study established that infantry squads are not standardized and may have from eight to thirteen members, subdivided into two or three teams. They also have different names and different structures, depending on the country of origin.

10. Army Techniques Publication (ATP) 3-21.8, *Infantry Platoon and Squad* (Washington, DC: U.S. Government Publishing Office [GPO], 2016), 1-11 to 1-12.

11. As the name suggests, a buddy team is composed of two soldiers who cooperate and rely on each other on the battlefield.

12. Each fire team is composed of a team leader, a light machine gunner (automatic rifleman), a grenadier, and a rifleman.

13. ATP 3-21.8, *Infantry Platoon and Squad*, 1-13. The weapons squad is a specialized squad divided into two M240 machine-gun teams and two close combat missile teams armed with Javelin missiles.

14. *Prirocnik za Poveljnike Oddelkov* [Squad Leader Manual] 811-11-1/97, *Taktika* [Tactics] (Slovenia: Ministry of Defense, 14 December 1998). The current Slovenian Armed Forces (SAF) infantry squad Table of Organization and Equipment is a copy of the U.S. Army infantry squad, but the old SAF squad's organizational structure is still doctrinally valid. According to the SAF Squad Leader Manual, an infantry rifle should doctrinally be composed of squad leader, a designated marksman, a light machine-gunner and assistant, a grenadier, an antiarmor specialist and assistant, and four riflemen; in total, eleven soldiers that are not organically subdivided into teams.

15. Ibid., chapter IV.

16. Gordon IV et al., *Comparing U.S. Army Systems with Foreign Counterparts.* The 300 meter (m) team is composed of a team leader and two riflemen, usually augmented with antitank rockets. The 600 m team is composed of a team leader, a 51 mm assault mortar man, a light machine-gunner, and optionally a sniper/marksman.

17. Ibid.; "French army organization," Armaholic, accessed 2 March 2018, http://www.armaholic.com/forums.php?m=posts&q=10420.

18. For the purpose of this article, the term Eastern armies relates roughly to those of China, Vietnam, North Korea, and some Middle Eastern insurgency/terrorist organizations (e.g., Hezbollah).

19. H. John Poole, *Phantom Soldier: The Enemy's Answer to U.S. Firepower* (Emerald Isle, NC: Posterity Press, 2001).

20. H. John Poole, *Tactics of the Crescent Moon: Militant Muslim Combat Methods* (Emerald Isle, NC: Posterity Press, 2004), 25.

21. Norfolk, "The Rifle Squad/Section-What Should It Do and How Should It Be Organized?," SinoDefenceForum (website), 12 August 2007, accessed 9 February 2018, https://www.sinodefence-forum.com/the-rifle-squad-section-what-should-it-do-and-how-should-it-be-organized.t3379/. The leader of this online professional discussion indicates that a People's Liberation Army squad comprises a four-man fire team (including the squad leader and an antitank weapon), a three-man fire team with an antitank weapon, and a three-man fire team with a light machine gun.

22. Poole, *Tactics of the Crescent Moon.*

23. Poole, *Phantom Soldier*, 33–46.

24. Melody, "The Infantry Rifle Squad." The studies included the 1946 U.S. Army Infantry Conference, the 1956 Research Study of Infantry Rifle Squad, the 1961 Optimal Composition of the Rifle Squad and Platoon, and the 1966 Infantry Rifle Unit Study.

25. Ibid. This was later on ignored by the U.S. Army, but one has to note that the 1946 Infantry Conference was the result of the collective U.S. experience from the Second World War.

26. Timothy M. Karcher, "Enhancing Combat Effectiveness, the Evolution of the United States Army Infantry Rifle Squad since the End of World War II" (master's thesis, Command and General Staff College, Fort Leavenworth, KS, 2002), 85, accessed 12 February 2018, http://www.dtic.mil/get-tr-doc/pdf?Location=U2&doc=GetTRDoc.pdf&AD=ADA407058.

27. Sattler and O'Leary, "Organizing Modern Infantry," 40.

28. Ibid., 32.

29. Melody, "The Infantry Rifle Squad." Squad attrition rates in high intensity combat are on average between 20 and 30 percent, but we have to consider that the squad size at any given time is also affected by illness, leave, courses, etc.

30. Ibid.

31. Michael O'Leary, "The Canadian Infantry Section Attack Part One: Attrition Training in a Manoeuvre Army," The Regimental Rogue website, 1999, accessed 12 February 2018, http://regimentalrogue.com/papers/sect_atk.htm. Squad members routinely carry extra belts of machine-gun ammo, mortar rounds, and light antiarmor rockets.

32. Karcher, "Enhancing Combat Effectiveness," 9–10. "The issue of standardization across the infantry force (heavy and light units) finally caused planners to settle on a nine-man infantry rifle squad, while keeping the fire team organization … Thus, over the last twenty-five years, one witnesses a decline in the capability of squad-level fire and maneuver due primarily to personnel constraints."

33. Melody, "The Infantry Rifle Squad," 1. Heavier loads are making the soldier less mobile and make it harder to react to surprise events.

34. Karcher, "Enhancing Combat Effectiveness." As pointed out by Karcher, "the concept of the BFV [Bradley fighting vehicle] providing the base of fire to allow the mechanized infantry 'squad' to maneuver is flawed, and yields a rifle squad incapable of conducting fire and maneuver"; see also Melody, "The Infantry Rifle Squad," 41. "Bradley dismounted element of six is to small and too heavily armed."

35. Not necessarily a simple, short, or cheap proposition.

36. Sattler and O'Leary, "Organizing Modern Infantry," 35. To put it in another way, there is no point in situational awareness that tells a soldier or his commander what is going on in an adjacent sector and an insight into the bigger picture if he is not able to process and react to the enemy coming up from the sewer behind him.

37. Online and Social Media Division, *The United States Army Social Media Handbook* (Washington, DC: Office of the Chief of Public Affairs, April 2016, obsolete). Among other things, the *Army Social Media Handbook* discusses how social media enables the U.S. Army family around the world to stay connected and tell the U.S. Army's story. The key phrase for our purpose is "staying connected." Social media effect on the battlefield relates to the feeling of connectedness in the absence of physical contact. Through social media usage on the battlefield, the Army can—to some extent—mitigate the negative impact of the absence of physical contact caused by greater dispersion of units and individuals.

38. Ronan Doaré et al., *Robots on the Battlefield: Contemporary Issues and Implications for the Future* (Fort Leavenworth, KS: Combat Studies Institute Press, 2014).

39. Poole, *Phantom Soldier*, 223–27.

40. O'Leary, "The Canadian Infantry Section Attack Part One." The author quotes Col. Arjun Ray: "Fetishism for battle drills has been largely responsible for sanitizing imagination, creativity, and mental mobility in infantry ranks. Battle drills are … a set of reactions … Conversely; tactics are a thought out plan to overcome the threat. The two are therefore dissimilar."

41. The objective may be a section of an enemy trench, a family home, a bunker, or similar-size target; Army Doctrine Reference Publication (ADRP) 3-0, *Operations* (Washington, DC: U.S. GPO, October 2017), GL-2. *Close combat* is defined as "that part of warfare carried out on land in a direct-fire fight, supported by direct and indirect fires and other assets"; Joint Publication 3-0, *Joint Operations* (Washington, DC: U.S. GPO, January 2017), GL-12. *Maneuver* is defined as "employment of forces in the operational area through movement in combination with fires to achieve a position of advantage in respect to the enemy."

42. Sattler and O'Leary, "Organizing Modern Infantry," 41.

43. Two soldiers are much better able to treat and evacuate a wounded soldier than one "buddy" soldier. And, if a soldier is killed, a replacement's integration into a cell is easier than building a new buddy team.

44. Symbols used in the figure are from ADRP 1-02, *Terms and Military Symbols* (Washington, DC: U.S. GPO, November 2016), table 5-1.

45. A predetermined organizational solution tends to dictate tactical options; therefore, a flexible organization at squad level is preferred. Two balanced fire teams also mean two light machine guns and two grenade launchers, which studies have shown are not the most desirable weapon systems in close combat (e.g., urban, trench clearing, and bunker assault).

46. The basic infantry unit would be able to sustain 33 percent casualties (four men) before being unable to fire and maneuver, as opposed to 11 percent casualties (one man) of the current U.S. Army and SAF infantry squad.

47. A combat load is not just ammunition and explosives, but also water, rations, and life-support items, as well as other enablers such as unmanned aerial vehicles, biometric devices, batteries, observation devices, nonlethal weapons, ladders, breaching devices, etc.

48. ATP 3.21-8, *Infantry Platoon and Squad*, 1-13.

49. As advancements in communications technology are making radios smaller, lighter, and more user-friendly, there is no longer a need for a designated radio operator at the platoon or basic infantry unit level.

Overcoming the Challenges in Implementing Emerging Maneuver Concepts

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In January 2012, we published an article introducing the concept of MANeuver in N-dimensional terrain (MAN^N), which is synchronized maneuver across multidimensional terrain that is not limited to only the dimensions of space and time. MAN^N masses all battlefield effects toward a central concept of operation.[1] Since then, other concepts on maneuver in the contemporary operational environment have emerged, notably the *multi-domain battle concept* and *cognitive maneuver*. These concepts share the premise that influencing people and populations to act in a way that supports U.S. interests is fundamental to the achievement of enduring success. The common aim is to impose multiple forms of contact on our opponents to gain a position of advantage in order to mass physical and nonphysical effects, limit enemy responses, seize the initiative, maintain momentum, consolidate gains, and achieve a lasting victory. In this article, we discuss the convergence between new concepts on maneuver and MAN^N, challenges in their implementation, and the implications for information technology development needed to operationalize these concepts, particularly at the tactical level.

The Operational Environment

Continuous competition, often violent, below the level of armed conflict is a dominant feature of the operational environment today and is expected to persist into the future. This competition is fraught with ambiguity, underlying causes of conflict that are difficult to discern, and nonlinear solutions.[2] At the same time, the potential for nation-state conventional combat cannot be discounted. In reflecting on this future and the conduct of operations since the 2003 invasion of Iraq, we recognize the need for new approaches to account for the nature of contemporary conflict and new methods to achieve an advantage. One of these methods is an expanded concept of maneuver. While the basis of a broader concept of maneuver is familiar, what is new is the generally accepted need for wider application of maneuver in an integrated manner.

Emerging Maneuver Concepts

Two emerging concepts stressing the importance of broader maneuver are found in the United States Army-Marine Corps white paper titled "Multi-Domain Battle: Combined Arms for the 21st Century" and the United States Army Special Operations Command white papers titled "Expanding Maneuver in the Early 21st Century Security Environment" and "Cognitive Maneuver for the Contemporary and Future Strategic Operating Environment."[3] These concepts share a vision of the future operational environment as complex, where

conventional military advantages the United States once enjoyed are now less decisive. They also share the view that nonphysical, cognitive domains must be included in the concept of maneuver and campaign design.[4] Emphasis is placed on sophisticated understanding of the operational environment, on the ability to influence populations and opposing decision-makers through the combined effects of the physical and nonphysical domains, and through simultaneous and sequential actions that create windows of opportunity for the decisive application of combat power.[5] Applied in this way, the United States can gain and keep the initiative, maintain momentum, consolidate gains, and achieve enduring success. These concepts are consistent with our concept of MAN^N.

MANeuver in N-Dimensional Terrain

MAN^N is synchronized maneuver operations in a multidimensional terrain, achieving a position of advantage in order to mass effects. MAN^N generalizes spatio-temporal-centric maneuver terms and forms of contact so that maneuver extends broadly across the operational environment, including the political, military, economic, information, infrastructure, physical, and social dimensions. MAN^N is complex, dynamic, adaptive, and distributed.

Like traditional maneuver, MAN^N operates at the strategic, operational, and tactical levels of war. It is employed in all phases of conflict, from deterrence to post-hostilities. While the three coordinates of position (x, y, and z) and the coordinate of time (t) describe traditional geospatial maneuver, MAN^N covers more than these four coordinates since it operates in a multidimensional terrain that spans human institutions and interactions. The challenge is identifying the MAN^N coordinates unique to a specific operational area

(Graphic developed by Arin Burgess, Army University Press. Original elements designed by brgfx/Freepik, https://www.freepik.com)

and using them in a similar manner as x, y, z, and time for geospatial maneuver.

A "multidimensional chessboard" analogy is useful in visualizing how MAN^N operates. The figure (on page 86) presents MAN^N within this construct, which is continually changing as actions occur. Readers will see the similarity to the center of gravity analysis process. The commander develops an N-dimensional concept (where N is greater than the dimensions of space and time) to achieve a position of advantage in order to attain a given objective. In the context of the "chessboard" in the figure, this concept could include movement in the geospatial dimension (Action G at time = t_G), an information operation in the information dimen-

Legend:

$\triangle$ An action in a given dimension that is connected to a key terrain feature in that dimension
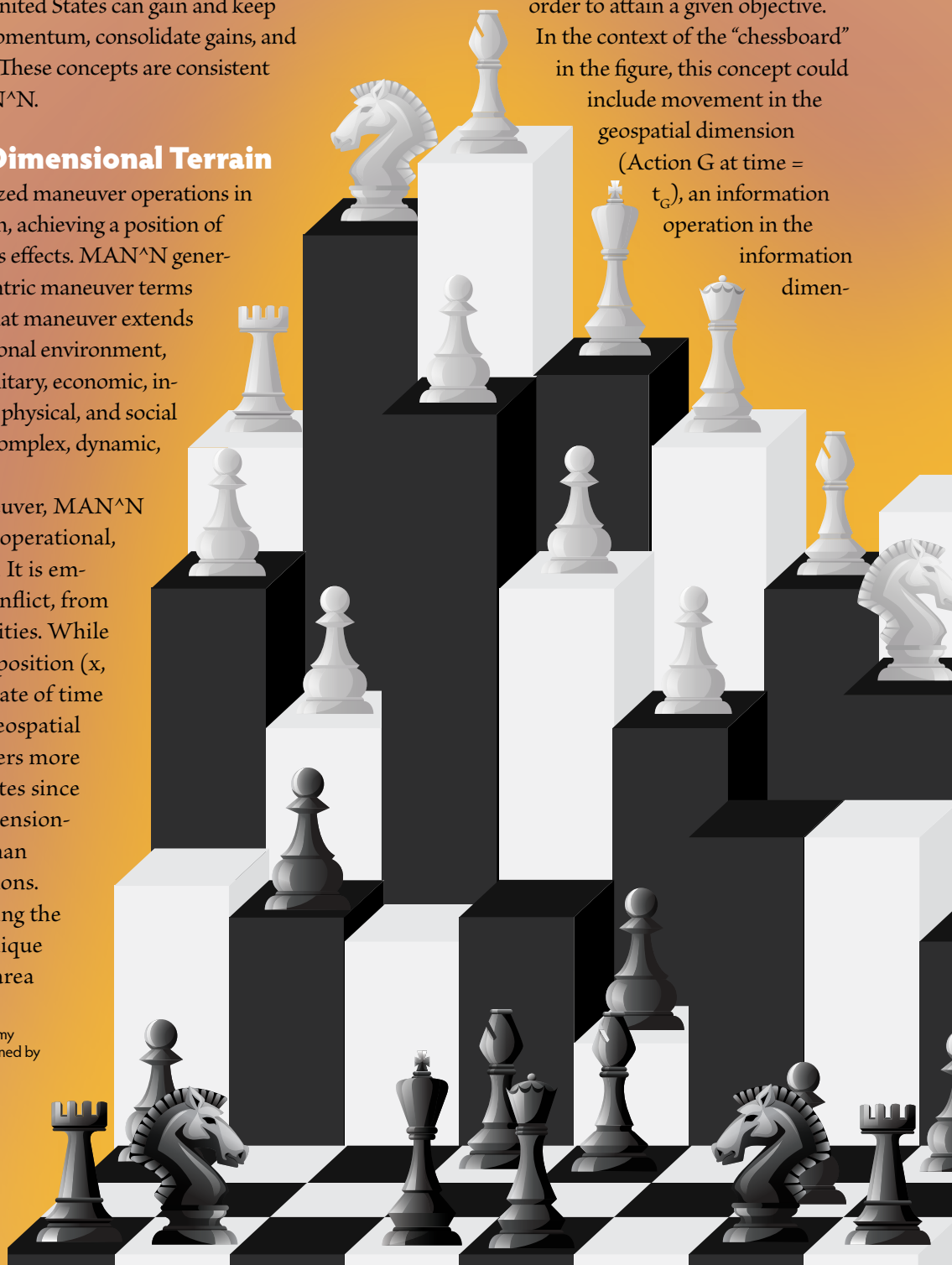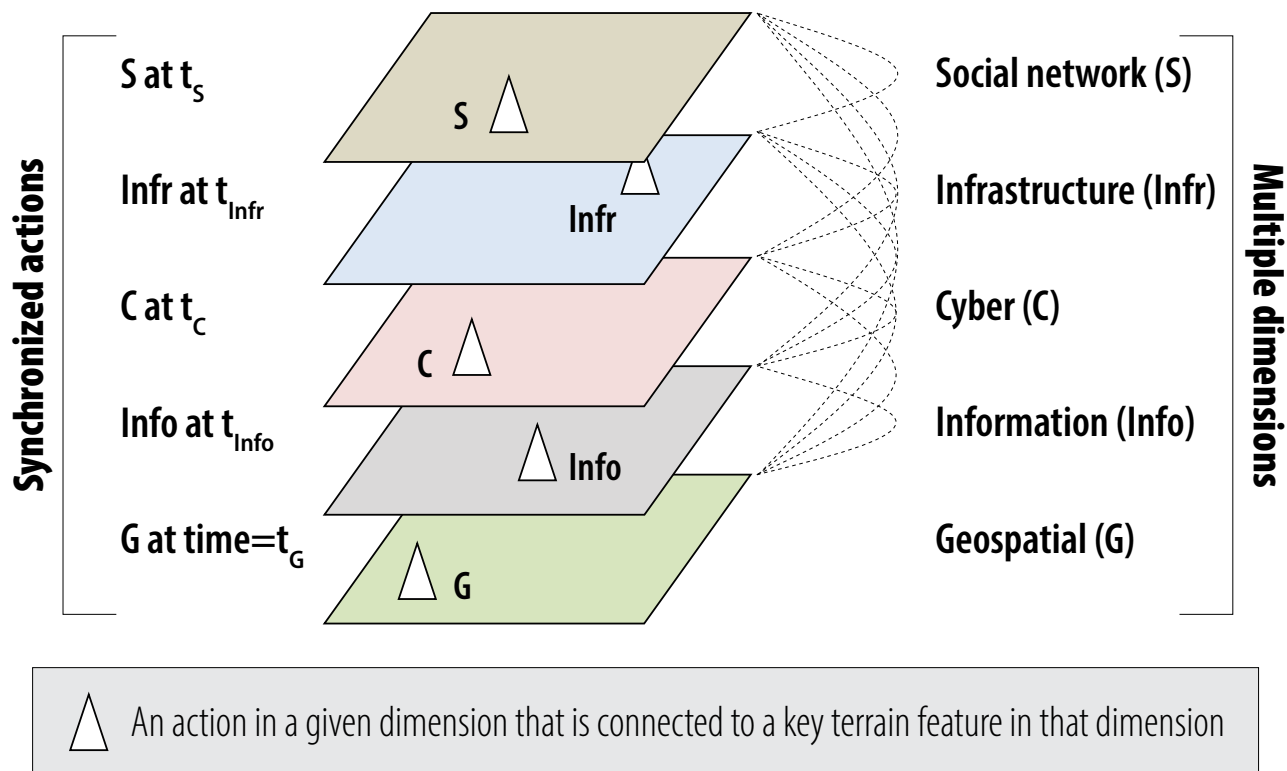
Figure. Example of a Multidimensional "Chessboard" for MAN^N

sion (Action Info at time = t_{Info}), a cyber operation in the cyber dimension (Action C at time = t_C), an infrastructure building effort in the infrastructure dimension (Actions Infr at time = t_{Infr}), and changes in the social network dimension (Action S at time = t_S). The dashed lines connecting the different dimensions (or planes) in the figure represent interactions between actions in these dimensions. The key is that the actions are synchronized in space and time for greatest effect. In MAN^N, any of the dimensions could be the decisive operation (the operation that accomplishes the mission) or a shaping operation (an operation that establishes conditions for the decisive operation through effects on the enemy, other actors, and the terrain).[6]

MAN^N is consistent with multi-domain battle (MDB) and expanded/cognitive maneuver. The aim is to combine military activities into a concept of operation and a scheme of maneuver that gains physical and nonphysical positions of advantage over competing groups, defeating the enemy while protecting and

winning the support of the population. The value of these concepts is clear. Implementing them—translating theory into action—has to address some challenges to conceptualizing, synchronizing, executing, and adapting sophisticated maneuver concepts.

Challenges

The sophistication and multidimensionality of MAN^N, MDB, or cognitive maneuver pose a number of challenges. We have chronic planning shortfalls that make highly sophisticated maneuver problematic, but information technology can help overcome these challenges. The primary challenges are (a) understanding the users in context, (b) planning sophisticated multidimensional maneuver, (c) achieving "near native" understanding of the operational environment, and (d) developing and analyzing courses of action (COAs) that includes enemy COAs (ECOAs).

Understanding the users in context. It is critical to understand the people who will plan, prepare, and

execute advanced, sophisticated multidimensional maneuver. This is important because of a misperception that these concepts are already being done:

> A common counter argument from many organizations and participants with regard to existing processes is "Well, we do that already." Yes they do, but no they do not. People within different disciplines do separate aspects of cognitive maneuver … They all do a function related to maneuver, but are they united by a common purpose? Are they synchronized within an organizing framework to achieve operational objectives or a sequence of operational objectives? The short answer to that question is no. There has been a real struggle to orchestrate information related capabilities in a coherent manner toward a synchronized objective.[7]

This statement shows that members of the force understand the concept of combining the effects of physical and nonphysical actions. Their challenge is in translating that understanding into action. So, it is important to objectively look at who are the planning teams.

Planning sophisticated multidimensional maneuver. There are two major factors that impact the composition, experience, and stability of planning teams: peacetime manning levels and personnel rotation policies. Furthermore, time constraints and network bandwidth limitations impede these teams from adequately generating robust, integrated plans. This article does not propose any changes to these factors but seeks to qualify their impact on planning performance.

Peacetime manning levels are always lower than what is needed in wartime, which results in the wartime planning team being essentially a new one with little collective planning competence. This is particularly true for low-density specialties that have some of the critical nonphysical domain expertise. Similarly, normal service personnel turnover, where key personnel change at least once a year (more often in some cases), again results in planning teams that struggle to gain and maintain collective planning competence.[8] This is particularly challenging at tactical levels of command where the level of training and experience is lower but will have to meet the expectation that the advanced maneuver concepts will be used by widely-dispersed tactical formations.[9] To make any

advanced maneuver concept a reality, automated decision tools are a necessity.[10] Unaided by information technology, the tendency is to conduct abbreviated planning processes that often fail to achieve even basic levels of understanding of the operational environment and warfighting function synchronization.

Time constraints are a common feature of nearly every planning effort. The pressure of deployment, current operations, enemy activity, and effects of higher headquarters activities combine to shorten the time available for planning. Studies on joint task force operations show that there is usually five weeks from alert to commitment.[11] Organizational adaptations (e.g., working groups) can gain efficiencies but often lead to stovepiped analysis and planning.[12] Under these conditions, despite the best efforts to use rapid decision-making techniques, shortcuts lead to incomplete analysis of the situation, fewer options considered, and abbreviated analysis.[13]

In regard to restrictions on bandwidth, current planning tools and technologies place demands on the communication systems that are supporting the headquarters as a whole. Naturally, this creates competing demands between planning and execution, which may restrict network access for the planning teams.[14] Planners will need capabilities that allow them to continue to work offline and then rapidly update their estimates and

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> **Our adversaries are developing integrated, multidimensional COAs, as seen in the Crimea, Ukraine, and the South China Sea, which should drive us to expand our planning representations.**

analyses when they have network access. This condition of intermittent access to "reachback" networks is explicitly recognized in the MDB concept.[15]

Achieving "near native" understanding of the operational environment.

> Arguably, mission analysis is the most critical step in the process. However, many BCTs [brigade combat teams] struggle to properly capture key inputs and outputs during this step.[16]

A major challenge of mission analysis is achieving a "near native" understanding of the operational environment. The lack of a truly integrated intelligence preparation of the battlefield (IPB) is a long-standing problem that continues to hamper our ability to gain a sophisticated understanding of the operational environment.[17] The tendency to stovepipe analysis has an effect on this task, where a common technique is to break the IPB into two parts, one kinetic, the other nonkinetic/PMESII (political, military, economic, social, infrastructure, information)/ASCOPE (areas, structures, capabilities, organizations, people, and events), without complete integration.[18] Achieving understanding builds upon knowledge, information, and data.

It is a daunting task to collect and analyze the data and information needed for intelligence preparation of the operational environment. Although we have spent nearly two decades in Iraq and Afghanistan collecting and analyzing data in breadth and depth, it is likely we would still have significant information and knowledge gaps across the many dimensions that would be needed to execute MAN^N/expanded maneuver in the fullest sense. Recall the description of the users in context and consider this:

> If you substitute Civil Engineering for Infrastructure, all of the PMESII domains are independent academic disciplines which, when staffed in a university … a typical department has dozens of faculty with expertise in a variety of areas. IPB might be the place this problem gets "solved"

doctrinally, but the truth is that no IPB of PMESII domains will EVER provide the sort of clarity that one hopes for from IPB for a force-on-force engagement. Even THAT is messy and prone to error.[19]

Currently, our ability to analyze data and translate this analysis into action cannot keep up with the collection of data. To compound the problem, the multidimensional data requires continuous updates, a task that challenges operations today.[20] The data challenge poses a number of questions: How do we leverage modeling approaches to assist in mapping the multidimensional terrain and in reasoning about it? How do we identify the decisive points for each dimension and for the interactive connections between them? What are the multidimensional equivalents of "high ground" and its converse? Tools exist today for this analysis, but the state of the art requires expert technical support to set up, run, and interpret the results, and this takes too much time. Answering these questions, aided by information technology that is useable directly by the planners on their timeline, is the objective (see below). Collection and analysis of this information to understand the operational environment is just the beginning, with the commander needing sophisticated capabilities to plan and execute advanced maneuver. A degraded understanding of the operational environment leads to the next challenge, estimating what the enemy is going to do.

Developing and analyzing courses of action. All the preceding challenges impinge on the planning team's development of courses of action. It takes substantial detailed knowledge to do a good job planning for effects in all of these "new" nonkinetic domains. Just having the knowledge is not enough; it has to be made available to planners so that they can use it to plan. Even if the planners have near-native knowledge of the domain, skillful planning is still hard, and tools are needed that help with the mechanics of developing COAs. Producing multiple meaningfully different COAs and predicting their effects are the desired goals.[21]

In the case of enemy actions, time-constrained planning techniques result in the development of two ECOAs, most likely and most dangerous, which are typically developed with only a conventional combat focus. The ECOAs for the other hostile and nonhostile groups in the area of operations are developed and presented to the commander in a separate brief.[22] This leads to an incomplete estimate of the threat, where the physical and nonphysical activities are not visualized as a whole and where supporting and complementary effects are not fully understood. Our adversaries are developing integrated, multidimensional COAs, as seen in the Crimea, Ukraine, and the South China Sea, which should drive us to expand our planning representations. This process continues in the next step of developing, analyzing, and synchronizing courses of action by friendly forces.

> Commander's planning guidance observed at the NTC [National Training Center] typically takes the form of a single directed COA, normally as a result of the assessed lack of time for the staff to develop multiple options based on several unique enemy COAs. This single-directed COA often is not supported by a sufficient understanding of the enemy or tactical situation and fails to take into account the capabilities of a near-peer threat.[23]

At the tactical level, friendly COA development, like ECOA development, is routinely abbreviated for sake of efficiency. Most often, the commander directs the staff to develop a single COA based on his guidance, rather than a set of alternative COAs with unique concepts of operation that imagine a varied range of potential enemy actions.[24] The commander is the most experienced officer in the unit and has collaborated with the subordinate commanders on his COA. However, the directed COA is unlikely to fully cover all dimensions and will not experience the creativity and imagination provided by the collective staff. Information technology offers the potential to allow the commander and staff to develop a range of integrated COAs (both physical and nonphysical activities) that are distinguishable by type and form of maneuver, task organization, and other factors. Range of COAs for analysis gets to the next challenge.

As noted in an August 2017 bulletin published by the Center for Army Lessons Learned, "Many BCTs are inexperienced at COA analysis, or wargaming, missing necessary outputs of this step. The war game is a critical area that often determines success or failure at the BCT level."[25] Course of action analysis at the tactical level is currently a manual process. It is a collective skill that requires preparation, training, and discipline to be effective. Unfortunately, COA analysis is poorly done when done at all. Units struggle with the process overall and lack tools to make the objective estimate of effects needed to analyze the overall effectiveness of the COA.[26] The analysis of integrated COAs is even more difficult, given the need to synchronize the combined effects of physical and nonphysical domains to evaluate the integrated, complementary effects the COA is trying to achieve. One example of the analytical challenge is understanding potential effects that have different time factors: when effects take hold, how long they last, and their resilience to countermeasures. Advances in information technology can support sophisticated wargaming and red-teaming analysis that incorporate multidimensional information and capabilities. This includes the multidimensional maneuver aspects of penetration, frontal attack, infiltration, envelopment, turning movement, blocking, fixing, and disruption. This technology needs to operate during mission execution, as changing conditions across the dimensions are assessed in real-time in order to seize and maintain the initiative. A significant challenge is building these tools to conduct MAN^N/ expanded maneuver at the tactical level, as well as the operational and strategic levels.

Overcoming the Challenges

There are lessons learned that should inform new technology development projects to enable advanced maneuver concepts. The most important lesson is the first of the challenges in this article—understanding the users in context. Technology developers have to understand the complexity of modern operations, the nature of the asymmetric fight, and the broad spectrum of actions that military units face. The developers have to see the people at work to better understand the process, the tools in use, and the expected outcomes. Partnership with an operational unit and potentially deployment with that unit to an active theater can help lead to effective technology objectives.

For example, the Defense Advanced Research Projects Agency (DARPA) funded a Small Business

Innovative Research project that established a partnership with a brigade combat team during its preparation for and deployment to Iraq.[27] While engagement with the users is important, it has to be tempered with understanding their perspective of wanting something quick and easy to get the job done. As a result, someone has to make an evaluation of their proficiency at their tasks, noting that every user will have different levels of training and experience that affects their performance. A guide is usually needed to point out how the tasks should be performed, and what that means to the technology development. Doctrine should be the baseline guide for development, which takes real discipline and judgment. This is important because doctrine is the common language of the force and prevents the technology development from becoming a reflection of how one unit performs the task.

Finally, the technology team has to have knowledge of the technology state of the art in order to know how to expand the technology's contribution without becoming captive to the perspective of the user. They have to be able to show the users the range of what is possible given the state of the art. Guided, sustained exposure to the intended end user will provide an important sanity check on technology concepts. In summary, essential to transition success is the practice of development operations, also known as DevOps, which unifies technology development with its operation.

In regard to analyzing the nonphysical dimensions in MAN^N, there has been significant investment in the development of human, social, cultural, behavioral sciences (HSCB) models. DARPA's Causal Exploration program aims to leverage this investment in the development of planning tools for expanded maneuver:

> Causal Exploration seeks to develop a modeling platform to aid military planners in understanding and addressing underlying causal factors that drive complex conflict situations. The technologies embodied in the Causal Exploration platform will enable users to rapidly create, maintain, and interact with a causal model that has been tailored for the operational environment they are facing. Interaction with the model will allow users to explore the causal dynamics driving the conflict, and gain in-depth understanding of the operational environment to support and inform their planning efforts. While this capability will have

broad applicability, the program will focus on hybrid or irregular conflicts, which are dominated by complex human dynamics with intertwining political, territorial, economic, ethnic, and/or religious tensions.[28]

Another DARPA program worth noting here is Active Interpretation of Disparate Alternatives (AIDA).[29] This program seeks to make sense of complex events, situations, and trends of interest by overcoming the noisy, conflicting, and potentially deceptive nature of today's data environment. AIDA aims to create technologies for aggregating and mapping different pieces of information derived automatically from multiple sources into a common semantic representation, or storyline, and then generating and exploring multiple hypotheses about the true nature of events, situations and trends of interest. The program also hopes to determine a level of confidence for each piece of information and for each hypothesis that is generated. AIDA does not take the human out of the sensemaking loop, but augments the ability of a human to keep track of multiple interpretations, thereby avoiding the trap of a single interpretation that could be wrong or influenced by disinformation.

An example of an existing modeling technology is ATHENA, developed by the Jet Propulsion Laboratory. The U.S. Army Training and Doctrine Command G27 Operational Environment Training Support Center has used ATHENA to support training and operations. The ATHENA simulation "enables decision makers to anticipate the impacts of social, economic, and political dynamics on a region by evaluating the full range of Political, Military, Economic, Social, Infrastructure, Information-Physical Environment and Time (PMESII-PT) Variables."[30] And, there are commercial technologies that are gaining attention and use in planning. The Senturian system is one example.[31] These capabilities are particularly important for advanced maneuver concepts, but all need further development to gain acceptance by the intended users. Critical to the use of technology in planning is to ensure the output of the technology is presented in a way that is meaningful to the user, in the factors that a commander and staff care about for decision-making.[32] Relevance to the user points to another lesson learned—optimizing the symbiosis of human and machine.

A symbiosis that harnesses the complementary powers of human and machine for effective planning

of advanced maneuver concepts is crucial. The machine generally excels in data, information, and knowledge processing tasks, freeing the human to concentrate on understanding and making decisions. Course of action analysis, or wargaming, is a good example of this human-machine symbiosis. The action-reaction-counteraction sequence in a wargame introduces points where the human and machine interact; the machine presents the results for the human to review, understand, and intervene as appropriate.[33] This ensures that the human user sees the "how" and "why," gaining the in-depth knowledge of the COAs and the range of possible outcomes that informs and improves decision-making. This is true for the physics-based outcomes but equally important for the HSCB model results. Technology for the planning of advanced maneuver concepts will advance with the evolution of human-machine symbiosis, where machines will not just be tools that execute pre-programmed instructions, but will function more as partners.

Conclusion

The challenges we have outlined are intended to encourage an objective assessment of the factors at work in tactical-level planning of maneuver concepts like MAN^N. This assessment can inform information technology development that will make real the potential in MAN^N, multi-domain battle, and cognitive maneuver.

Warfare continues its inexorable evolution as the tools used in its conduct continue their equally unstoppable growth. Widespread availability of militarily relevant technologies empowers nearly any group. As history makes clear, humans will continue to fight as groups on land, and will operate in multiple spheres that include human-centric dimensions in addition to space and time.[34] Our armed forces have adapted to this evolution well over the last decade plus of war. However, the experience of our forces will change over time, and new concepts like MAN^N, multi-domain battle, and cognitive maneuver will help provide continuity and an operational advantage in sustaining the ability to synchronize operations in all dimensions to defeat our adversaries. ■

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Notes

1. Brian M. Pierce and Col. (Ret.) James E. Zanol, "MANeuver in N-Dimensional Terrain (MAN^N): A Full Spectrum Maneuver Concept," Small Wars Journal, 24 January 2012, http://smallwarsjournal.com/jrnl/art/maneuver-in-n-dimensional-terrain-mann.

2. Joint Chiefs of Staff, *Joint Operating Environment 2035: The Joint Force in a Contested and Disordered World* (Washington, DC: Department of Defense, 14 July 2016), 4.

3. "Multi-Domain Battle: Combined Arms for the 21st Century" (white paper, U.S. Army and U.S. Marine Corps, 18 January 2017), accessed 27 February 2018, https://ccc.amedd.army.mil/PolicyPositions/Multi-Domain%20Battle%20-%20Combined%20Arms%20for%20the%2021st%20Century.pdf; "Cognitive Maneuver For the Contemporary and Future Strategic Operating Environment" (white paper, U.S. Army Special Operations Command [USASOC], 31 May 2016); "Expanding Maneuver in the Early 21st Century Security Environment" (white paper, USASOC, 12 January 2017), accessed 27 February 2018, http://www.soc.mil/USASOCTalks/Expandingmaneuver21Century.html.

4. "Cognitive Maneuver," USASOC white paper, 3. "Cognitive forms of maneuver are distinct combinations of shaping and influence actions with a unique set of characteristics that differ primarily in the relationship the maneuvering force has with actors in the environment. As with campaigns in physical domains, cognitive campaigns feature the combination of these same forms of maneuver but with an emphasis on the cognitive outcome relative to time."; "Multi-Domain Battle," U.S. Army and Marine Corps white paper, 6. Cognitive forms of maneuver are distinct combinations of shaping and influence actions with a unique set of characteristics that differ primarily in the relationship the maneuvering force has with actors in the environment. As with campaigns in physical domains, cognitive campaigns feature the combination of these same forms of maneuver but with an emphasis on the cognitive outcome relative to time.

5. "Multi-Domain Battle," U.S. Army and Marine Corps white paper, 6.

6. Army Doctrine Reference Publication 3-0, *Operations* (Washington, DC: U.S. Government Publishing Office [GPO], 11 November 2016), 4-6.

7. "Expanding Maneuver," USASOC white paper, 8.

8. Authors' notes, meeting with members of the Joint Planning Support Element, J7, Norfolk Naval Station, 11 April 2017; "MDMP (Military Decision Making Process) Study" (unpublished, 2015). Conducted in support of Defense Advanced Research Projects Agency (DARPA) program manager research, Brigade

Staff Operations, Leader Training Program, National Training Center, Fort Irwin, California. Observing six active brigades, the average time in position for executive officers was 5.75 months, for operations officers it was 2.67 months, and for intelligence officers it was 11 months.

9. "Multi-Domain Battle," U.S. Army and Marine Corps white paper, 9. Ultimately, Army formations and Marine air-ground task forces will be task organized to the lowest practical level with capabilities that enable multi-domain distributed or semi-independent operations minimizing the need for enablers from higher echelons of command.

10. Ibid., 11. Automated decision tools resident in command and control systems will analyze, filter, and report information helping commanders make informed decisions faster.

11. Susan K. Woodward, *Standing Up a More Capable Joint Task Force Headquarters* (Santa Monica, CA: RAND Corporation, 2011), 1.

12. "Expanding Maneuver," USASOC white paper, 8. "Many ideas have already been recognized. Some include organizational changes akin to a Directorate of Understanding or a dedicated center for cognitive maneuver operations. Some include institutional adaptations like reorganizing operations centers to function as a team of teams—physical maneuver team and cognitive maneuver team. Other ideas center on a recasting of operational design, to more deliberately layer in cognitive objectives as part of the schema for operational maneuvers."; "Joint Headquarters Organization, Staff Integration, and Battle Rhythm, Second Edition" (focus paper, Deployable Training Team, Joint Staff J7, July 2013), 2, 5, accessed 27 February 2018, www.jcs.mil/Portals/36/Documents/Doctrine/fp/fp_jthq_org.pdf. This document describes the use of boards, bureaus, centers, cells, and working groups and operational planning teams as effective organization techniques to overcome "stovepipes."

13. "MDMP Study" (unpublished). Observing six active brigades, standard abbreviated procedures included a commander-directed friendly course of action (COA), and most likely and most dangerous enemy COAs.

14. Authors' notes, meeting with members of the Joint Planning Support Element, J7.

15. Sydney J. Freeberg Jr., "Miserable, Disobedient & Victorious: Gen. Milley's Future U.S. Soldier," Breaking Defense, 5 October 2016, accessed 27 February 2018, https://breakingdefense.com/2016/10/miserable-disobedient-victorious-gen-milleys-future-us-soldier/. "Not only will units often be cut off physically, Milley said, but electronically as well. At times combat troops will be able to access satellite data, upload reports to their superiors, and call in precision strikes from Army missile batteries, Air Force planes, or Navy warships hundreds of miles away. At other times, however, thanks to hostile jamming and hacking, the airwaves will go dead and the screens will go dark—but soldiers can't hole up and wait for orders. Initiative, always an American strength, will take on a new importance."

16. Center for Army Lessons Learned (CALL), "Ten Fundamental Brigade Combat Team Skills Required to Win the First Fight," *CALL Newsletter 17-19*, August 2017, 4.

17. CALL, "Mission Command Training in Unified Land Operations, FY 16 Key Observations," *CALL Bulletin 17-05*, February 2017, 20.

18. "MDMP Study" (unpublished).

19. Robert Kohout (former DARPA program manager), comments, 13 July 2017.

20. *CALL Bulletin 17-05*, 6.

21. Kohout, review comments.

22. "MDMP Study" (unpublished).

23. *CALL Newsletter 17-19*, 5.

24. "MDMP Study" (unpublished). One brigade developed more than one course of action of the six brigades in the study.

25. *CALL Newsletter 17-19*, 7.

26. "MDMP Study" (unpublished). Of the six active brigades in the study, one conducted an effective wargame, evaluated by criteria listed in Field Manual 6-0, *Commander and Staff Organization and Operations* (Washington, DC: U.S. GPO, May 2014).

27. Elan Freedy et al., *Decision Infrastructure for Counterinsurgency Operational Planning (DICOP)* (Arlington, VA: Perceptronics Solutions, February 2011), accessed 27 February 2018, https://pdfs.semanticscholar.org/28ca/81273780c305972b255bccdd-0e9991f9d3f6.pdf.

28. Steve Jameson, "Causal Exploration of Complex Operational Environments," DARPA (website), accessed 27 February 2018, http://www.darpa.mil/program/causal-exploration.

29. Boyan Onyshkevych, "Active Interpretation of Disparate Alternatives (AIDA)," Defense Advanced Research Projects Agency, accessed 16 March 2018, https://www.darpa.mil/program/active-interpretation-of-disparate-alternatives.

30. "ATHENA: Decision Support Tool for the Operational Environment," G-27 OE Training Support Center, U.S. Army Training and Doctrine Command (website), accessed 27 February 2018, http://oetsc.tradoc.army.mil/#224.

31. "Senturian," Acertas (website), accessed 16 Jun 2017, http://www.acertas-analytics.com/senturion/.

32. James McDonough, systems engineer, BAE Corps, email to author, 17 May 2017. McDonough was the systems engineer for the DARPA Deep Green program.

33. Ibid.

34. H. R. McMaster, "Strategy, Policy and History," interview by Mark Moyar, *FPI Forum,* The Foreign Policy Initiative, 30 November 2016, 3, 6, accessed 27 February 2018, http://foreignpolicyi.org/2016forum/mcmaster.

A U.S. Marine guards Hill 80 on Edson's Ridge (also known as Bloody Ridge), Guadalcanal, in 1942. The view is toward the south, the direction from which the Japanese attacked during the "Battle of Bloody Ridge" in September 1942. (Photo courtesy of Wikimedia Commons)

Guadalcanal
A Case Study for Multi-Domain Battle

Chris Rein, PhD

Editor's note: The following is a chapter of the recently published monograph by Christopher M. Rein, "Multi-Domain Battle in the Southwest Pacific Theater of World War II," detailing precedents to multi-domain battle employed by allied forces against the Imperial Japanese armed forces in the Southwest Pacific Theater during World War II. The chapter has been slightly edited from the original to bring it into to conformity with Military Review *style.*

The battle for the Pacific island of Guadalcanal from August 1942 until January 1943 provides a clear historical example of the concept and benefits of fighting a battle simultaneously in multiple domains. While new domains, such as space and cyber, have emerged since the end of World War II, the capabilities and force-multipliers enabled by these domains, including information superiority, secure communications,

A U.S. Navy Douglas SBD-3 Dauntless flies over the aircraft carriers USS *Enterprise* (CV-6) (*foreground*) and USS *Saratoga* (CV-3) 19 December 1942 near Guadalcanal. The aircraft is likely on antisubmarine patrol. *Saratoga* is trailed by her plane guard destroyer. The radar array on the *Enterprise* has been obscured by a wartime censor. (Photo courtesy of U.S. Navy)
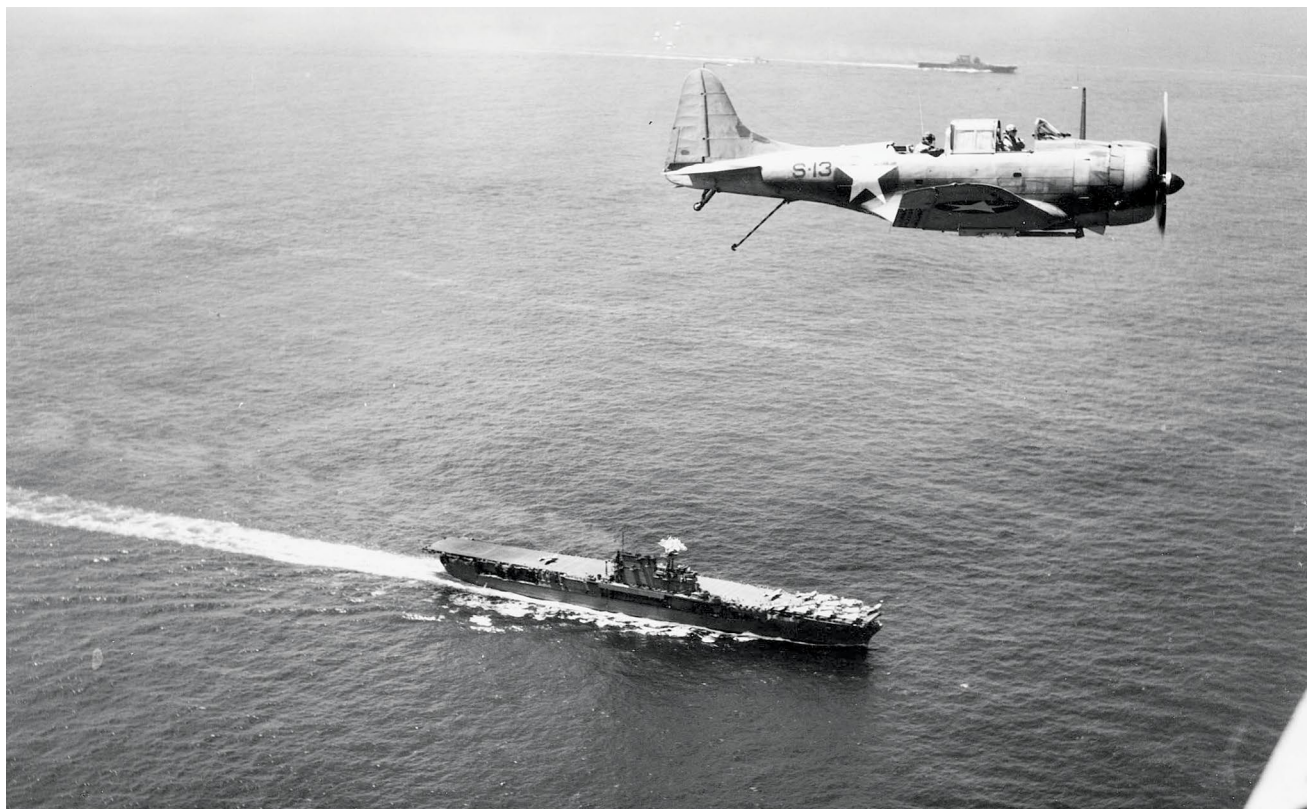
wide-area surveillance and economic and popular support for a fully-mobilized wartime economy all impacted the struggle for control of the island in 1942. Ground forces, including elements of the Marines and Army, eventually secured the island in early 1943, but their success depended heavily on direct air and naval support that ensured essential logistical support and effectively interdicted Japanese efforts to build combat power and sustain their forces. Farther afield, seaplane tenders conducted constant reconnaissance patrols to provide vital intelligence of Japanese fleet movements and intentions, heavy bombers raided Japanese bases such as Rabaul on the island of New Britain, and submarines interdicted the flow of raw materials into the Japanese economy, enabling the Allies to prevail in the contest for logistics and sustainment. While only one step in the long march to the liberation of the Philippines and the defeat of Imperial Japan, Guadalcanal was the pivotal attritional struggle that turned the tide and established the pattern of multi-domain cooperation that eventually led to Allied victory in World War II.

In the late spring of 1942, Japanese forces were ascendant across the Pacific. With the surrender of the American and Filipino forces on Bataan and Corregidor in April and May, Japan had largely completed the conquest of the "Southern Resources Area." They had pushed British naval forces back to the eastern coast of Africa after a successful carrier raid on Royal Navy bases on the island of Ceylon (Sri Lanka), just south of India, and American and Australian forces absorbed heavy air raids while clinging to New Guinea, the last barrier between the expanding Japanese empire and Australia itself. Only the naval battle in the Coral Sea in May, a tactical draw but a strategic victory in that it repelled an amphibious force destined for the Allied supply hub of Port Moresby, upset the unbroken string of Japanese successes thus far.

An event in late April would put the Japanese on a far more dangerous course. On 18 April, Lieutenant Colonel James H. "Jimmy" Doolittle led a force of sixteen AAF B-25 medium bombers off the deck of the USS *Hornet* and over the Japanese home islands before traveling on to Nationalist-held areas of China. The raid, an embarrassment to the Japanese military, convinced them that their

defensive barrier had to be expanded further, primarily by the capture of the Aleutian Islands off Alaska and Midway in the Central Pacific. The U.S. Navy, alerted by skilled cryptographers in the Pacific Fleet headquarters, accurately divined the Japanese intentions, enabling the Navy's carriers to effectively oppose the planned invasion of Midway. The resulting victory further demonstrated the value of accurate intelligence to military operations, no matter what technology enables its collection.

On 4 June 1942, flying from the besieged island of Midway, Major Lofton R. Henderson, commanding officer of VMSB-241, led sixteen Marine SBD dive bombers in an attack on the Japanese carrier force escorting the invasion force. The carrier's combat air patrol destroyed Henderson's plane and he posthumously received the Navy Cross for his efforts to disable the Japanese carriers. Though his squadron scored no hits, they did force the carriers to maneuver and contributed to a delay in the recovery, refueling, and rearming of their own aircraft. This and other attacks facilitated the destruction of all four Japanese carriers by a strike that arrived just over an hour later, when dive bombers from the U.S. carriers *Enterprise* and *Yorktown* found the decks of the Japanese flat-tops loaded with fuel and bomb-laden planes. The battle provided the U.S. Navy some freedom of action, as it leveled the carrier disparity in the Pacific, and enabled the Allies to assume the initiative in the theater. Without control of the skies over Midway, or the seas around it, the Japanese invasion force had to turn back, sparing the island's beleaguered defenders from an amphibious assault and preserving the airfield as a sentinel for the base at Pearl Harbor.[1]

Guadalcanal, near the southern end of the Solomon Island chain, measures roughly ninety miles by thirty miles. Samuel Eliot Morison, who both visited the island and later wrote the Navy's official history, described it as "fecaloid," which is an apt description of both its oblong shape and its composition. Lying just sixty miles south of the equator, its coastline features dense jungles and mangrove swamps which provided a number of obstacles to human habitation, not least the malaria-carrying mosquito. Inland, coral ridges pushed up from the ocean floor hosted dense stands of towering hardwoods that shielded the tangled jungle floor from observation, with the only clearings filled with patches of six-foot tall, razor-edged kunai grass. Habitation was densest along the coast where the few native villages and the colonizers' coconut plantations dotted the shoreline.

In April 1942, Japanese troops landed on Guadalcanal, and began construction on an airfield on the flat coastal plain near Lunga Point. Without heavy equipment, the work proceeded slowly, and was not unnoticed by the Allied reconnaissance aircraft based in the New Hebrides, now the island nation of Vanuatu. On 23 July, and again on 25 July, Army Air Forces B-17s conducted a photo reconnaissance of Guadalcanal, using Navy cameras operated by Marine photographers, and learned that Japanese troops had nearly completed the airfield.[2] The threat posed by Japanese land-based bombers based at Guadalcanal to shipping as far south as New Caledonia, and the new base's ability to deny access into the Solomons, spurred planners to begin preparations to retake the island and complete the unfinished airfield. The 1st Marine Division left San Francisco in June for New Zealand with two regiments, the First and Fifth Marines, but neither was combat-loaded. The division's third regiment, the Seventh Marines, was then garrisoning Samoa.

Initial plans called for a preparatory landing on Tulagi Island, twenty miles north of Lunga Point, to provide a secure anchorage, followed by the main assault on Guadalcanal itself. Planners did not expect the Japanese engineer, garrison, and communications troops to offer much resistance, but the threat of a strong naval and air response, followed by counter-landings from troops farther up the Solomons, meant that the airfield would have to be secured quickly in order to prepare for an all-around defense against air, ground, and naval attacks. Despite the rushed planning, the initial landings succeeded with little difficulty, as the Marines secured both Tulagi and the airfield, which they rechristened Henderson Field, in honor of Major Henderson's efforts at Midway. However, the landings triggered an aggressive response by Japanese air and naval forces, which threatened

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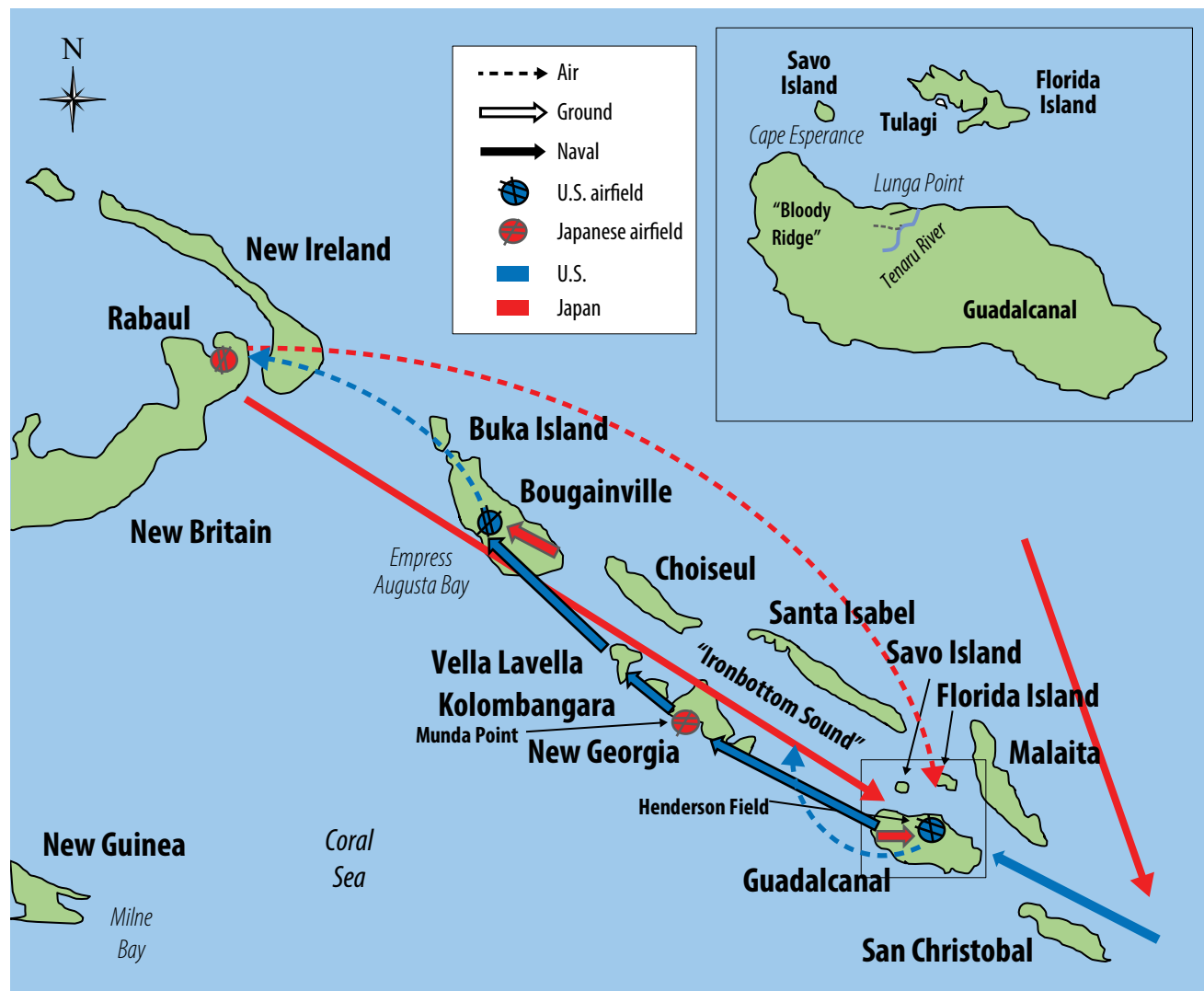
(Figure by Army University Press)

Operations on Guadalcanal and the Solomons

the vulnerable transports still unloading the Marines' supplies of ammunition, food, and heavy equipment.

Vice Admiral Frank "Jack" Fletcher, commanding the carrier covering force was nervous about risking his three remaining fleet carriers within the range of Japanese land-based aircraft and elected to withdraw on the evening of 7 August, leaving a small surface force of heavy cruisers to protect the transports still littering the beachhead. On the night of 8 August, the Japanese Navy sent the first of what would become regular runs down the "Slot" between the parallel chains of islands that make up the Solomons, which became known as "Ironbottom Sound" due to the number of ships sunk there. In the night battle off Savo Island, the U.S. Navy suffered one of the worst

defeats in its history, as seven Japanese heavy cruisers sank five Allied cruisers, leaving the transports virtually unprotected. Only Admiral Mikawa's early retirement, to clear the area before dawn when aircraft would surely be searching for him, saved the transports from destruction. The American submarine *S-44* extracted the Allies' only revenge by sinking a single cruiser. Without air or naval protection, the transports retired with almost half of the Marines' supplies still aboard, including valuable radar and radio equipment. As the Army's official history noted, "The departure of the Air Support and Amphibious Forces left the 1st Marine Division alone in the Guadalcanal-Tulagi area exposed to Japanese attacks, without air cover or naval surface support."[3]

Without air or naval support, the Marines were indeed on their own until resupply and reinforcement convoys could break through to the island. In the meantime, the garrison supplemented their rations with captured Japanese rice, and Navy Construction Battalions (Seabees) labored to complete Henderson Field in order to help defend the island by interdicting the flow of Japanese reinforcements and supplies. At the same time, the Japanese unsuccessfully attempted to cut the flow of supplies and reinforcements to the beleaguered garrison. The Americans, with control of the air, could operate safely during the day and brought up convoys from Noumea, New Caledonia, surprisingly unopposed by Japanese submarines, which doctrinally preferred to focus their efforts against combatant ships. But at night, when darkness grounded the aircraft, the Japanese, with their penchant for night fighting, owned the waters off Guadalcanal and rushed through convoys from their base at Rabaul on New Britain to land troops on Guadalcanal. This back and forth contest continued for months, as neither side could fully secure its lines of communication, leading to a lengthy, attritional campaign fought around the airfield's perimeter.

The Japanese struck the first blow when over 1,000 men of the 28th Infantry Regiment landed just east of the Marines' perimeter on 19 August. In what became known as the "Battle of the Tenaru," Marines entrenched behind the river easily contained what was to become the first of many counterattacks against the perimeter and virtually annihilated the entire attacking force. To this point, the underwhelming Japanese effort represented a flawed understanding of just how many American troops were on the island, and the hazards of imperfect intelligence. Japanese commanders initially thought the operation was simply a raid to destroy the airfield and did not really expect the Americans to try to hold it in strength. Now fully aware of the garrison's strength, the Japanese resolved to send in a much larger force in mid-September.

The next day, 20 August, Henderson Field opened for business by welcoming nineteen F4F Wildcats of VMF-223 and twelve SBD Dauntlesses of VMSB-232 flown in off the escort carrier *Long Island*. Unwilling to risk the slow, heavily-loaded transports in contested waters, the Navy pressed its fast destroyers into service to bring in aviation fuel, bombs, and the Marine squadrons' ground crews. Aerial resupply supplemented the effort, as twin-engined R4Ds (C-47s) of Marine Air

Group 25 brought in critical commodities and evacuated the most serious medical cases. "These planes made daily flights from Espiritu Santo to Guadalcanal, usually bringing in 3,000-pound cargo loads, and evacuating sixteen litter patients per trip."[4]

On 22 August, ships brought in the remainder of a third regiment for the 1st Marine Division, the Second Marines, to reinforce the battalion that had captured Tulagi. That same day the Army Air Forces made their first contribution when five P-400s (the export version of the P-39 Airacobra) of the 67th Fighter Squadron arrived, augmented by nine more on 27 August. The Navy's effort was not entirely planned, as dive bombers from the USS *Enterprise* arrived on 24 August after their carrier suffered heavy damage in the naval Battle of the Eastern Solomons. On 31 August they were joined by the *Saratoga*'s complement after that carrier suffered torpedo damage while patrolling south of the islands. This tri-service conglomeration operated as the "CACTUS Air Force" (CACTUS was the code name for Guadalcanal), all under the direction of Marine Air Wing One, commanded by the indomitable Marine BG Roy Geiger. As one historian put it, "Marine, Navy, and Army fliers flew on missions together, lived through bombing raids together, and many died together aloft or in foxholes."[5] The CACTUS Air Force provided a model for the modern employment of air power in a theater.

But heavy attrition threatened the survival of the CACTUS Air Force. After just four days, only three of the original P-400s remained. In addition, the aircraft lacked an oxygen system, limiting the fighters to operations at lower altitudes. As a result, their mission changed from air superiority to ground attack, thanks in part to the installed 37 mm cannon and six .50-caliber machine guns. Ironically, only the Marine Wildcats could reach the high altitudes where the Japanese twin-engined "Betty" bombers operated, with the result that, in a conflation of contemporary roles, Marine air performed the air superiority mission, while the Army Air Forces executed Close Air Support. The ubiquitous Marine and Navy dive bombers, which had sunk all four Japanese carriers at Midway, eclipsed the efforts of both. As the AAF's official history noted, "the dive bomber, despite its vulnerability, proved to be a deadly weapon against all types of ships within 200 miles of Henderson."[6]

The CACTUS Air Force came into operation at a critical time, as Japanese destroyers and transports

attempted to run in a reinforced regiment to wipe out the beachhead. These efforts precipitated the naval Battle of the Eastern Solomons on 24 August, which demonstrated that neither side yet controlled the seas around the islands. Air attacks that day prevented 1,500 Japanese troops from landing, and two days later dive bombers sank another transport with over 1,000 troops on board, and duplicated this effort by repelling another landing force embarked on destroyers two days later. Finally, on 1 September, the Japanese managed to sneak in a force of over 1,000 troops past a CACTUS Air Force weakened by daily air raids and attrition. Additional reinforcements ran down nightly in the fast destroyers of the "Tokyo Express," increasing this force to near 6,000 by mid-month, including the remainder of the Japanese 28th Infantry Regiment and the 124th Infantry of the 18th Division, all of which now posed an immediate threat to operations from Henderson Field. Fortunately, the hasty unloading had prevented the Japanese troops from bringing in any heavy weapons, and the Marines' advantage in artillery played a decisive role in the 12 to 14 September "Battle of Bloody Ridge," later renamed Edson's Ridge, for the commander of the Marines' raider battalion that held the ground during the fight. Despite being pushed back almost to the edge of the airfield, the outnumbered raiders held the perimeter and destroyed the attacking formation. The heavy fighting, combined with the high disease rates on the swampy, malarial island, depleted the Marines' ground strength, necessitating reinforcement (really replacement) on 18 September with arrival of the Seventh Marines. In addition to the combat losses, over 1,000 men had been evacuated due to debilitating disease. The reinforcement cost the Navy heavily, as on 15 September, the Japanese submarine *I-19* torpedoed and sank the carrier USS *Wasp* while it covered the Seventh Marines' troop convoy.

The most serious threat to control of Guadalcanal came in late October, when the Japanese sent most of two divisions, the 2nd and 38th, supported by heavy 150 mm guns to the islands. Daily bombing raids flown down from Rabaul contributed to increasing cases of combat fatigue among the island's flyers. The pilots flew multiple sorties each day in aircraft that mechanics were barely able to keep in flying condition, followed by restless nights interrupted by both mosquitoes and "Washing Machine Charley," a night-raiding Japanese biplane that circled the airfield and dropped anti-personnel bombs at random

intervals. Combat losses resulted in high attrition in the CACTUS Air Force. Most of both Japanese divisions broke through the cordon in late September and early October, but the troops had to haul their heavy equipment and supplies across miles of trackless jungle before they reached the perimeter around Henderson Field.

At the same time, the 1st Marine Division was gradually reaching the limits of its endurance, as the reinforcements had barely been able to replace steady losses, most from disease, among the regiments defending the perimeter. As a result, Major General Millard Harmon, commanding all the Army forces in the theater, ordered the commitment of elements of the "Americal Division" to reinforce the Marines. Formed from three "orphaned" infantry regiments left over from the triangularization of all infantry divisions just prior to the war and shipped as reinforcements to New Caledonia, the division took its name as an abbreviation for the "*Ameri*can-*Cale*donian Division," after the island where it had been officially formed. Its three regiments were the 132nd Infantry, formerly of the Illinois National Guard's 33rd Infantry Division, the 164th Infantry from North Dakota, formerly of the 34th ID, and the 182nd Infantry from Massachusetts, formerly attached to the 26th ID. Harmon sent the 164th first, raising Guadalcanal's troop strength to roughly 23,000 men, arriving just in time to help the Marines repel a major Japanese assault.

The convoy bringing the first Americal regiment to Guadalcanal triggered another naval battle, the 11 October Battle of Cape Esperance, when the covering force engaged a substantial Japanese flotilla attempting to bring in their own ground forces. The Allies outnumbered the Japanese in cruisers by a 4-3 margin and benefitted from increased use of radar to counter the Japanese advantage in night operations, fighting them to a draw. However, both forces achieved their primary objectives, which was to escort transports carrying ground forces to the island. Over 1,000 Japanese troops landed as the naval battle raged while the men of the 164th arrived safely two days later. An inability to resolve affairs on the water meant the attritional land battle continued.

Japanese warships welcomed the 164th to Guadalcanal with what become known simply as "The Bombardment." On the night of 13 October, two Japanese battleships escorted the nightly "Tokyo Express" but, to provide some measure of safety for future runs, broke off and bombarded Henderson Field with almost 1,000 14-inch
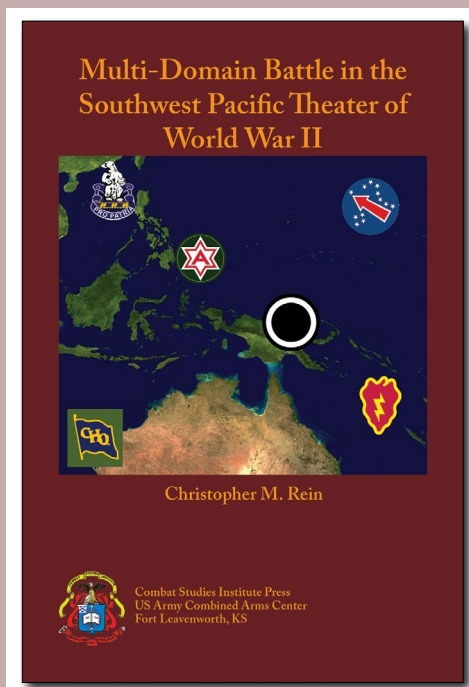
shells, knocking roughly half of the planes on the field out of commission and destroying virtually all of the CACTUS Air Force's fuel reserves, necessitating another emergency airlift by the C-47s loaded with twelve fuel drums each. For the next two nights, unopposed Japanese cruisers repeated the feat, preventing Allied aircraft from interfering with the landings. The shore bombardment of land-based aircraft was yet another creative use of cross-domain fires, whereby weapons systems designed to operate in one domain decisively influenced another. Throughout the campaign, the fortunes of the ground forces ebbed and flowed with the success or failures of supporting naval forces bringing in supplies and reinforcements. These convoys depended heavily on air protection, supplied by either carrier or ground-based aircraft. The Japanese use of heavy naval forces against land-based aircraft was an attempt to counter the Allied advantage of using their aircraft to control the maritime domain. The Marines' lack of shore-based coast artillery capable of reaching the Japanese warships prevented them from interfering with the shore bombardment or interdicting the Japanese transports, which subjected the air forces at Henderson Field to bombardment by land-based artillery as well. Each domain depended vitally on the other in order to achieve victory, as the Navy's official historian observed, "The Guadalcanal campaign is unique for variety and multiplicity of weapons employed and for coordination between sea power, ground power and air power."[7]

The Japanese 2nd Division finally launched their attack on the night of 24 October, again down the land feature known as Bloody Ridge, where it ran into LTC "Chesty" Puller's depleted First Battalion, Seventh Marines, supported by two battalions of the 164th Infantry. During the battle, riflemen of the Third Battalion of the 164th and the Marines of Puller's battalion of the Seventh fought intermingled, with men of both units often sharing the same fighting position. The Marines' experience in the previous attacks, bolstered by the 164th's manpower, all supported by artillery and ammunition run through the gauntlet of Japanese air and naval attacks on the island, proved decisive, as the attackers again suffered heavy casualties in unsophisticated frontal assaults.

While the land battle raged, the Imperial fleet again sortied in support and engaged a U.S. carrier force from 25 to 27 October in the air and sea "Battle of the Santa Cruz Islands." U.S. naval units included two new fast battleships, supporting two aircraft carriers with over 170 aircraft embarked, with another sixty available ashore. The Japanese sent four battleships and four carriers (including two smaller escort carriers),

WE RECOMMEND

Multi-Domain Battle in the Southwest Pacific Theater of World War II

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In 2016, Gen. David Perkins, then commander of U.S. Army Training and Doctrine Command, outlined a concept of future warfare that he termed multi-domain battle. The concept emphasized an expansion of the number of dimensions in which a conflict would be waged, adding the dimensions of space and cyberspace to the air, land, and sea dimensions of the prevailing model of warfare. It also emphasized that success in future conflict would very much depend on the ability of a force to closely synchronize offensive and defensive activities among those dimensions in a complementary manner that would optimize the effects of the combined efforts against an enemy. The multi-domain battle concept stimulated historical research into the roots and precedents upon which the multi-domain battle concept was built. In the monograph "Multi-Domain Battle in the Southwest Pacific Theater of World War II," scholar Christopher M. Rein illuminates historical precedents for increasingly synchronized employment of air, land, and sea capabilities during World War II in the evolution of Allied campaigns waged against Imperial Japanese forces in the Pacific. To view this monograph, please visit http://www.armyupress.army.mil/Portals/7/combat-studies-institute/csi-books/multi-domain-battle-in-the-southwest-pacific-theater-of-world-war-II.pdf.

with over 200 aircraft augmented by another 200 at the various land bases in the theater. In what became the U.S. Navy's costliest naval battle until Okinawa, the service lost the carrier *Hornet*, which, fortunately, was the last fleet carrier sunk in the war, and sustained heavy damage to the *Enterprise*, which made another carrier air wing available for the CACTUS Air Force. The 1st Marine Division still held the airfield on Guadalcanal, but it was exhausting itself in the process. As the Army's official history summed things up: "Thus far in the campaign, Allied air and naval forces had fought valiantly, but had not yet achieved the result which is a requisite to a successful landing on a hostile island — the destruction or effective interdiction of the enemy's sea and air potential to prevent him from reinforcing his troops on the island, and to prevent him from cutting the attacker's line of communication."[8]

The three months of fighting, including the major assault in October, threatened to sap the four Marine regiments of their offensive strength. In November, the American Division's remaining two regiments arrived on the island, as well the 147th Infantry Regiment of the 37th Division (Ohio National Guard). The Marines began sending the 2nd Marine Division, whose Eighth Marines arrived with the 147th Infantry on 4 November. These reinforcements permitted limited counterattacks from the perimeter which inflicted heavy casualties on the emaciated Japanese suffering in the jungle and provided greater security. With Hawaii now safe from attack, on 3 November Harmon formally requested that the islands' garrison, the 25th Infantry Division, move to Guadalcanal as well. The 25th had been alerted for movement on 14 October but did not receive formal orders from the Joint Chiefs until 30 November. The 25th augmented the American Division, which was already weakened from the grinding, attritional battles and filled sickbays with North Dakotans who succumbed rapidly to the tropical environment's enervating heat and deadly diseases. Constant reinforcement became necessary just to maintain strength: "Between 19 and 25 November 117 of the 164th had been killed, and 208 had been wounded. 325 had been evacuated from the island because of wounds or illness, and 300 more men, rendered ineffective by wounds, malaria, dysentery, or neuroses, were kept in the rear areas."[9]

After the unsuccessful October assault on Bloody Ridge, the Japanese began to doubt their ability to wrest control of the airfield from the Americans, and realized that they were now locked in a brutal attritional battle that was draining away air and naval strength in the Solomons. Unable to disengage, they continued to harass Guadalcanal with new attacks from the jungle, air raids, and sorties of the "Tokyo Express" down "Ironbottom Sound." The increasing U.S. naval strength in the Solomons made these nightly reinforcement and harassment runs even more hazardous. On the night of 12 November, two Japanese battleships again sortied down "The Slot" hoping to damage Henderson Field sufficiently to permit eleven large transports to bring over 7,000 troops into Guadalcanal. Alerted by ever-present aerial and submarine reconnaissance, ADM Halsey dispatched a strong cruiser force to halt the Japanese and escort American ground reinforcements. The resulting engagement demonstrated that the Americans had still not won control of the seas, as the five American cruisers all suffered heavy damage, with the *Atlanta* sunk and the damaged *Juneau* later torpedoed and lost. In exchange, the cruisers heavily damaged the Japanese battleship *Hiei*, which aircraft from CACTUS finished off the next morning. The battle prevented the Japanese transports from reaching the island, necessitating another attempt two nights later.

This time Halsey, tired of bringing "knives to a gun fight," sent in his two modern, fast battleships, the *Washington* and *South Dakota* to oppose the Japanese battlecruisers. *South Dakota* contributed little and suffered heavy damage, but *Washington*, in one of only two battleship actions in the war, sank the battleship *Kirishima*, sparing Henderson another bombardment like the one it received in October. By sinking a second Japanese battleship, the force had evened the score for the two U.S. battleships lost permanently as a result of the attack on Pearl Harbor. The next day, CACTUS Air Force planes found and sank all eleven transports, but several had already beached and began unloading, allowing 4,000 troops to reach shore, minus their heavy equipment. With the Navy now committed to protecting the airfield, Japanese hopes for another assault like the one in October were dashed, and the Battle of Guadalcanal had turned a corner. The inability to safely shepherd the eleven fully-loaded transports into Guadalcanal signaled the end of Japanese efforts to overrun Henderson Field or to neutralize it from the air or sea. Cutting their losses, they began construction on a new airfield at Munda Point on the island of New Georgia, to provide an additional obstacle between the Americans and Rabaul.

> " The inability to safely shepherd the eleven fully-loaded transports into Guadalcanal signaled the end of Japanese efforts to overrun Henderson Field or to neutralize it from the air or sea. "

Two weeks later at the Battle of Tassafronga, the Imperial Japanese Navy showed they still had some teeth, as destroyers equipped with the lethal "Long Lance" torpedoes savaged an American cruiser force, sinking one and damaging three more. American intelligence had remained woefully unaware of this weapon's capabilities, which far exceeded that of the faulty American torpedoes. With the ground reinforcements, the CACTUS Air Force also received additional support. By the time of the November battles, air reinforcements had arrived from Espiritu Santu, including the first long-range P-38s of the 339th Fighter Squadron, as well as three other full squadrons. The new aircraft, and the ability to produce them, highlighted the ability of industries protected from cyber espionage attack to develop new weapons, and for a public whose morale remained unaffected by intrusive information operations to support it. CACTUS now boasted a total of forty-one F4F Wildcats, thirty SBD Dauntlesses, nineteen TBF-1 Avengers, two remaining P-400s, plus the survivors of *Enterprise's* air wing, as well as the first coalition support when twelve Lockheed Hudsons from the Royal New Zealand Air Force's No. 3 Squadron arrived on 24 November. The force gained a longer range bombardment capability in late December with the AAF's first B-26s.[10]

The following month, lead elements of the 25th Division relieved the weary Marines. As Vandegrift's divisional headquarters now controlled two full divisions' worth of troops, the Army sent LTG Alexander Patch's new XIV Corps to direct the battle. When activated on 22 January 1943 with three full divisions, the corps controlled over 50,000 troops, a testament to the American ability to build up combat strength in theater, due largely to control of the air and the sea lines of communication. Patch's corps had the full Americal Division and benefitted from almost weekly arrivals along his now unhindered supply line. The 25th Division's 35th RCT arrived on 17 December, followed by the 27th on 1 January 1943 and the 2nd Marine Division's Sixth Marines on 4 January to augment the Second and Eighth Marines

already on the island. The same convoys bringing in the fresh soldiers evacuated the spent marines, with the Fifth Marines leaving on 9 December, the First Marines on 22 December, and the Seventh Marines on 5 January 1943.

Japanese planners realized they could no longer sustain their forces on Guadalcanal and began planning an evacuation. However, they would sell the real estate they held as dearly as they could, particularly the high ground around Mount Austen, which provided observation of Henderson Field and the new airstrips being carved out of the growing perimeter. Assigning the Americal Division to hold the perimeter itself, Patch launched a two-division assault against the Japanese forces to the west, with the 2nd Marine Division advancing along the coast and the 25th clearing Mount Austen and a hill complex, known as the "Galloping Horse" from its appearance on aerial photos, further inland. XIV Corps' assault received support from the CACTUS Air Force, now known as AirSols (Air Force, Solomons), under the direction of the 2nd Marine Air Wing. In mid-January, the AAF established 13th Air Force at Noumea, New Caledonia, to coordinate its growing commitment. The ad hoc formations thrown together during the crisis of the initial battle were finally being formalized, sorted out, and reinforced.

In an attack that began on 10 January, the 27th RCT cleared the Japanese defenders from the slopes, including a stubborn pocket known as the "Gifu" after the defenders' home prefecture in Japan. Moving on to the "Galloping Horse," the 25th found logistics, rather than the Japanese, to be their biggest obstacle. At one point, a water shortage, in the words of a platoon leader in the 27th Regiment, "led directly to the disintegration of the attack on 11 January," in part because, "the water which did start forward was usually consumed before it reached the front line companies."[11] As a student in the Infantry School in 1947, Captain Winston Olson recalled, "the intense tropical heat was taking a heavy toll. Canteens were empty and heat exhaustion was sweeping the battalion … the men lay prostrate due to the lack of water."[12] As late

as 2008, water shortages continued to hinder operations in places as far away as Wanat in Afghanistan.[13] Airdrops attempted to remedy the deficiency, even pressing the Air Force's heavy bombers into duty. "On 13 January one B-17 dropped 7,000 pounds in four flights, and two days later another dropped four tons. Rations stood the rough treatment fairly well; 85 percent of the food was usable, but only 15 percent of the ammunition could be used, and nearly all the 5-gallon water cans were ruined."[14]

Ground forces suffered fearfully throughout the campaign. Combat, disease, malnutrition, war neurosis, fungal infections, dysentery, and a host of other maladies crippled fighting strength. Again, the American ability to sustain and replace losses, and deny the same to the enemy, provided the margin of victory, giving the 25th ID an advantage it was able to exploit in the battle's final month. "The Japanese troops lacked food because air and naval power had almost completely isolated them from their bases."[15] As General Miyazaki declared: "The superiority and continuous activity of the American air force was responsible for our inability to carry out our plans. The superiority of American Army [sic] planes made the seas safe for American movement in any direction and at the same time immobilized the Japanese Army as if it were bound hand and foot."[16]

With the terrain features secured, the 25th ID and 2nd Marine Division pressed forward towards Cape Esperance on the island's western tip. Using small craft that snuck in under the cover of darkness, the Japanese evacuated their entire garrison of 11,000 troops on the nights of 1, 4, and 7 February. Operating on a logistical shoestring, the defenders could offer only token resistance, and the 25th's rapid advance earned the division the radio call-sign "Lightning," which would be later immortalized both on the division's patch flash and as the division commander's nickname, "Lightning Joe" Collins.

The Japanese experience on Guadalcanal demonstrates that an anti-access, area denial strategy can lead to attritional battles, and the side that can best sustain itself and replace its losses will ultimately prevail. The campaign cost the U.S. Navy two fleet carriers, the same number lost in the battles of Midway and Coral Sea combined. Both navies contributed heavily to the wrecks lining "Ironbottom Sound," with the U.S. Navy contributing over twenty major warships to the ghost fleet on the seafloor, alongside over a dozen from the Imperial Japanese Navy. Neither side could maintain more than a few hundred aircraft in theater. New arrivals quickly became casualties, either in air-to-air action, through mishaps, or by being destroyed on the ground. While the Marine infantryman became the iconic figure of the Battle for Guadalcanal, immortalized in works such as Eugene Sledge's *With the Old Breed* and Richard Tresgaskis' *Guadalcanal Diary*, his fate, and that of the soldiers of the Americal and 25th Divisions, often rested in the hands of the aviators, who suffered many of the same trials and tribulations on the ground, but faced additional perils in the air. Marine fighter and dive bomber squadrons formed the bulk of the "CACTUS Air Force" throughout its existence, and their efforts determined if the ground forces faced an overwhelming number of well-supplied attackers or the sick and diseased survivors of a harrowing trek through the tropical jungles and swamps. Control of each domain: land, sea, and air, coupled with information superiority, economic strength, and the ability to deploy and sustain it all provided the final margin of victory on Guadalcanal. ∎

Notes

1. For a full accounting of the battle, including a detailed timeline, see Jonathan Parshall and Anthony Tully, *Shattered Sword: The Untold Story of the Battle of Midway* (Washington, DC: Potomac, 2005).

2. Wesley Craven and James Cate, *The Army Air Forces in World War II*, vol. 4, *The Pacific: Guadalcanal to Saipan: August 1942 to July 1944* (Chicago: University of Chicago Press, 1950), 29.

3. John Miller Jr., *Guadalcanal: The First Offensive, United States Army in World War II: The War I the Pacific* (Washington, DC: Office of the Chief of Military History, 1949), 81.

4. Ibid., 87.

5. Samuel Eliot Morison, *History of United States Naval Operations in World War II*, vol. 5, *The Struggle for Guadalcanal, August 1942-February 1943* (Chicago: Little Brown, 1949), 75.

6. Craven and Cate, *The Army Air Forces in World War II*, 91.

7. Morison, *History of United States Naval Operations in World War II*, vol. 5, ix.

8. Miller, *Guadalcanal*, 169.

9. Ibid., 209.

10. Craven and Cate, *The Army Air Forces in World War II*, 59.

11. Captain Winston L. Olson, "The Operations of the 27th Infantry (25th Infantry Division) on Guadalcanal, Solomon Islands 10 January 1943 – 13 January 1943: Personal Experience of a Rifle Platoon Leader" (unpublished manuscript, Donovan Research Library, Fort Benning, Georgia, 1947–1948), 16, 19, 25, accessed 23 May 2017, https://www.benning.army.mil/library/content/Virtual/Donovanpapers/wwii/STUP2/OlsonWinstonL%20%20CPT.pdf.

12. Olson, "The Operations of the 27th Infantry," 16, 19, 25.

13. U.S. Army, Combat Studies Institute, *Wanat: Combat Action in Afghanistan, 2008* (Fort Leavenworth, KS: Combat Studies Institute, 2010), 91, 108–10, accessed 23 May 2017, http://usacac.army.mil/cac2/cgsc/carl/download/csipubs/Wanat.pdf.

14. Miller, *Guadalcanal*, 289.

15. Ibid., 230.

16. Ibid., 337.

Human Terrain System is Dead, Long Live … What?

Building and Sustaining Military Cultural Competence in the Aftermath of the Human Terrain System

Maj. Ben Connable, PhD, U.S. Marine Corps, Retired

Response to Maj. Ben Connable's "Human Terrain System is Dead, Long Live … What"

(*Military Review*, January-February 2018)

As a veteran of both the Human Terrain System (Forward Operating Base Salerno, AF 2008) and the Army's now also defunct Culture and Foreign Language Program (Maneuver Center of Excellence, Fort Benning 2010–12), I was glad to see Dr. Connable's conclusions concerning the need for organic cultural competence within the Army.

Current serving officers and enlisted men have a wealth of cultural knowledge, but the Army lacks a coherent structure and strategy to build cultural competence in new soldiers and a structure in which culturally competent operators can enhance our efforts around the world.

Culture is not only useful at the asymmetric warfare level and the conventional level but throughout the range of military operations and at the national strategic level also. To quote the demigod Clausewitz,

> The first, the supreme, the most far-reaching act of judgment that the statesman and Commander have to make is to establish … the kind of war on which they are embarking: neither mistaking it for, nor trying to turn it into, something that is alien to its nature. This is the first of all strategic questions and the most comprehensive.

Without a serious holistic understanding of a particular situation including cultural considerations, decision-makers will commit disastrous errors on a strategic scale, just as a squad leader can make everyone's situation worse by insulting indigenous peoples. I would suggest that had we understood the cultural dynamics between the Shia and Sunni, we would never have invaded Iraq, and Iran would never have been as influential as it is today.

Fine, but what do we do now? We should not try to rebuild another program "in flight" or managed by a private company like BAE. The Army War College, along with a small cadre of experts, should be tasked with conducting a series of workshops starting with Maj. Connable's dyads, with the goal of creating an organic Army Cultural Team, probably with a cadre of military and civilian experts and housed in Army Special Operations. This series of workshops might be modeled on the "Human Elements of Military Operations" workshop held in January 2015 at the War College. These workshops would be limited to fifteen participants including a representative of the Marine Corps. This effort will need to have a sponsor at the highest levels of the Army.

Ultimately, a model for a new socio-cultural-political-intelligence entity that can truly influence the military decision-making process at all levels could emerge, and the Army's culture gap problem be mitigated. ∎

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Review of
The Democratic Coup d'État

Robert F. Baumann, PhD

Soldiers stand guard 18 November 2017 as protesters gather on the road leading to State House in Harare, Zimbabwe. The protesters, with the support of the military, marched through Zimbabwe's capital to demand the departure of President Robert Mugabe, one of Africa's last remaining liberation leaders, after nearly four decades in power. (Photo by Ben Curtis, Associated Press)

Ozan Varol gets straight to the point in his latest work, *The Democratic Coup d'État*. He asserts in his opening, "Sometimes democracy is established through a military coup."[1] A self-proclaimed contrarian, Varol directly challenges conventional wisdom not only concerning the process by which democracies can be established but also on the critical role of the military in extralegal political transitions across the globe.[2]

Unencumbered by elaborate political theories or attempts at quantitative proofs, Varol depends on his extensive knowledge of history and international affairs, as well as a philosophical commitment to empirical reasoning, to pull together a persuasive argument that the way politics, coups, and revolutions unfold simply does not conform to prevailing legal and political thought in the West. In fact, Varol bluntly suggests that Western scholars and governmental officials tend to be blinded by romantic mythology that contends democratic transitions are led by the people taking to the streets, large mobilized groups of civilians yearning for liberty, free markets, and the rule of law. Though he acknowledges that popular peaceful uprisings have a role to play in many instances, Varol does not accept the proposition that this is the usual pattern for establishing democratic rule. As he explains, principled, persuasive leaders such as Nelson Mandela, Václav Havel, or Mahatma Gandhi are rare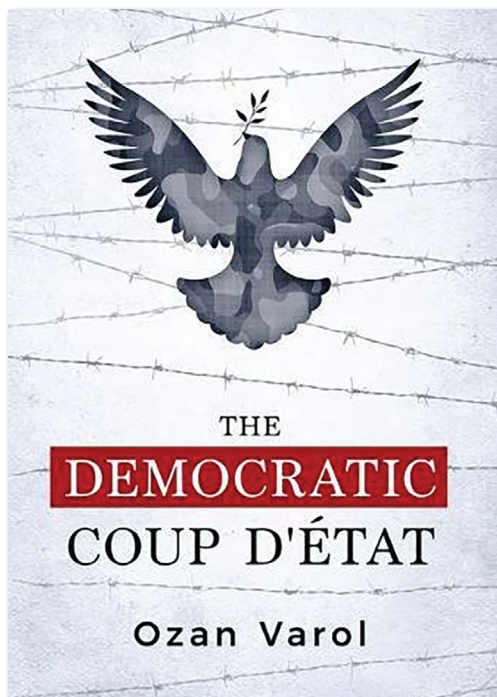. Varol is certainly not doctrinaire and claims that every case must be understood on its terms. Still, there are some discernible patterns, and those patterns are not to be found in the average political science class.

***The Democratic Coup d'État**, Ozan Varol, Cambridge University Press, 2017, 248 pages*

This essay addresses Varol's work in three parts. First, it considers Varol's main line of argument and some examples of evidence he uses to substantiate it. Second, it puts Varol's reasoning in comparative perspective through the introduction of additional case examples, including Russia, China, and the United States. Third, it concisely reviews some of the implications of Varol's claims about the relationship between systems of military recruitment and attitudes of armies toward democratic social movements.

Perhaps, given his unusual background, Varol is comfortable in cross-examining what he regards as conventional wisdom on the subject of coups and democratic transitions. Born in Turkey but educated in the United States, he began his remarkable career working as a rocket scientist for

Robert Mugabe, then president of Zimbabwe and chairman of the African Union on 10 May 2015. (Photo courtesy of Wikimedia Commons)

People wait in excitement 24 November 2017 for the inauguration ceremony to swear in former vice president Emmerson Mnangagwa as president of Zimbabwe in Harare, Zimbabwe. (Photo by Mike Hutchings, Reuters)

NASA before drifting into law and the theories of governance. Thus, he enthusiastically crosses disciplinary boundaries to construct an analysis that draws extensively from classical wisdom on politics and post-Cold War case studies. Moreover, he executes this ambitious project with a lively and readable argumentative style, exploiting frequent references to popular culture.

Varol focuses much of his discussion on the recent experience of the Arab Spring but also examines events in such disparate venues as Turkey, Mali, Serbia, Portugal, and Chile. To his credit, he does not neglect cases that do not comfortably fit his thesis. Indeed, at no time does he argue that military coups typically lead to democracy. On the contrary, he contends that military coups yielding a democratic result remain the exception rather than the rule. Military intervention is just as likely to end a democratic process as create one. Nevertheless, military coups do from time to time install democracy, and Varol sets out to examine why this should be so.

A principal reason is that armies are politically influential institutions that often serve as an instrument of change, a fact too often ignored in the scholarly literature due to a pervasive predisposition to ignore military affairs. Varol contends that militaries often side with the protesters and facilitate democratic transitions such as what occurred in Egypt and Tunisia during the Arab Spring. In Varol's view, the 2013 ouster of Egypt's Hosni Mubarak was, in reality, not so much due to massively popular protests—the favorite narrative of sympathetic scholars—as to a coup backed by the army. This interpretation was counterintuitive to many observers since the military coup was directed against a retired general. Varol notes with some amusement that the U.S. Department of State went to embarrassing lengths to avoid the use of the word "coup," since such a pronouncement would have legally required the United States to suspend military aid to Egypt. In any case, during his long presidency, Mubarak did not head a military regime; on the contrary, he based his own security state on special police forces to maintain order. Fatefully, he was no longer perceived as a champion of the interests of the military in Egypt.

The Egyptian case offers a particularly useful object lesson for understanding the place of militaries in periods of political upheaval. Varol asserts that dictators understand perhaps better than anyone that military institutions can be a force for change. In the average dictatorship, the military is often the only institution with the clout to challenge the ruler. Alex de Waal from the World Peace Foundation describes how various authoritarian regimes have "coup-proofed" their power by "distributing armed capacity among different elements of the army and security forces."[3] Since coups are almost by definition conspiratorial, the complexity of seizing power increases in direct proportion to the number of armed agencies.

For any military organization in such a context, the motives to promote change, including democratic change, need not be rooted in principles or ideology. On the contrary, militaries are apt to act in support of their corporate interests as measured in resources and influence. In good times, militaries tend to be reliable pillars of the status quo. Accordingly, militaries prefer political stability. When bad, corrupt, or dysfunctional governance threatens to result in societal upheaval and chaos, militaries may opt to weigh in on the side of those societal elements demanding change. Such was also the case when the Serbian military helped remove Slobodan Milosevic from power in 2000.

During a democratic coup, the coup makers might consider a range of options. What Varol terms "the golden parachute" can be a factor in decision-making. Military and democratically inclined civilian leaders have the opportunity to negotiate the terms of transfer in a manner satisfactory to both sides. Varol points to cases in which the military, for a set period, is guaranteed a role in governance during which it will incrementally relinquish specific powers. Meanwhile, civilian advocates of democracy can gain a period of stability with military backing. Both sides can benefit from the international legitimacy that such an approach can bring, such as access to foreign assistance. Varol notes transitions fitting this description include Portugal in the 1970s and Egypt in the 1980s and again in 2014. This does not suggest that coups d'état are an attractive option for managing change. Indeed, Varol notes that a "culture of coups" in a given country can be highly problematic and perpetuate instability.

A more recent instance in Zimbabwe is unfolding even as this article goes to publication. The thirty-seven-year reign of Robert Mugabe reached an endpoint in December 2017 with the active participation of the military forcing the dictator's removal. Observers referred to it as a "military-assisted transition" to avoid the attendant political complications of calling the event a coup. However, by Varol's own terminology, this could

be a democratic coup in the making, as a power-sharing agreement is already in place. In what could be construed as tacit recognition that the phenomenon of a democratic coup is possible, the well-respected Crisis Group proposed a series of steps such as a gradual return to civilian policing and transparent voter registration to help facilitate a democratic outcome.[4]

Of course, as Varol points out, militaries can also be the instrument of the suppression of democratic change. The crushing of the protests in Beijing's Tiananmen Square in 1989 illustrates this point. Still, it is unknown whether there were elements in the Chinese army that might have been sympathetic to the activists. The Chinese Communist Party leadership was careful to deploy units it considered least inclined to identify with the lives and concerns of the protesters, many of whom were university students. The selection of units stocked with poorly educated rural recruits was anything but a coincidence.

To further probe Varol's thesis about military behavior during moments of political upheaval, it is instructive to look closely at some additional case material. About two years after the crushing of democratic protest in Beijing, during the August 1991 putsch attempt, events in Russia would reveal an alternative scenario. There, Russian army units, and even elements of the KGB, refused to fire on their fellow citizens in the streets of Moscow. Despite a directive from the Ministry of Defense, quite a few senior Soviet officers stayed as far removed from events as possible, sometimes even by declining to answer the phone.[5] Amidst the drama, Boris Yeltsin seized center stage by backing the protesters and directly addressing soldiers near the parliament building, imploring them to stand with rather than against the people. This act spelled doom for the Soviet coup makers and propelled him to become the first president of the

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Portuguese soldiers display carnations 25 April 1974 after a successful military coup known as the "Carnation Revolution" in Lisbon, Portugal. The Portuguese people, celebrating the almost bloodless takeover, pinned carnations on the uniforms of the soldiers or placed the flowers into their gun barrels. (Photo courtesy of Centro de Documentação–Universidade de Coimbra)

Coup-Proof
Venezuela?

Editor's Note: Venezuela's recent history provides us with a notable example of how a dictator can thoroughly co-opt the military and other security forces to inoculate a regime against a military coup. Now-deceased dictator Hugo Chávez came to office in a democratic election in 1998, during which he promised to alleviate widespread poverty by establishing a socialist system that promised redistribution of confiscated wealth. Gradually pushing the country toward the adoption of a Cuban-style Marxist state, he garnered fanatical support among the impoverished segment of the Venezuelan populace by implementing large-scale social welfare programs that were paid for in part by the Venezuelan government's oil wealth, but also by nationalizing foreign holdings and redistributing confiscated assets. Once established firmly in power with a popular base of support mainly among the poorer classes, he used the opportunity to rewrite the constitution to strengthen his personal power over the government, remove anybody in the military officers' corps and judicial branches suspected of personal disloyalty to him, and appoint military cronies into key government positions not only in the military but also in other key positions overseeing the economy, irrespective of personal background or technical competence. As a result, prior to his death, Chávez successfully put in place a large network of loyal and thoroughly corrupt generals who today continue to use the military, large sectors of the economy, and administration of government programs primarily for personal gain. The generals and government officials in this network not only continue to use the military and domestic security forces to personally enrich themselves and their families but also have now broadened their reach by using their positions of authority to protect and advance the interests of drug cartels based in Colombia, other international criminal syndicates that specialize in international counterfeiting and human trafficking, and terrorist organizations with ties to the Middle East. This network of generals and the forces they control to eliminate political opponents has been mentored and greatly reinforced by an estimated fifteen thousand to thirty thousand Cuban intelligence operatives imported

Hugo Chávez speaking 18 April 2010. (Photo courtesy of Wikimedia Commons)

under the regime of Chávez, who are now deeply embedded in all aspects of the government security apparatus. As a result, the Cuban government now controls virtually every aspect of Venezuelan internal security including overseeing operations to eliminate the emergence of organized political opposition to the government. The conjunction of these factors, especially the dominant influence of Cuba on the government, is not well understood or appreciated by other nations concerned about antidemocratic developments in Venezuela. The Venezuelan kleptocracy is so well established that a successful military coup in Venezuela is extremely unlikely, whoever the titular head of the government is, and irrespective of the amount of suffering by the general populace of Venezuela. For articles providing insight into each facet of the domestic plight of Venezuela as described above, see *Military Review* Hot Spots at http://www.armyupress. army.mil/Special-Topics/World-Hot-Spots/Venezuela/.

Egyptian children hold national flags as they pose for pictures with soldiers on armored personnel carriers 3 July 2013 after the Egyptian army deployed dozens of armored vehicles near a gathering of Islamist President Mohamed Morsi's supporters in Cairo. (Photo by Khaled Desouki, Agence France Presse)

independent Russian government.[6] Although not one of Varol's chosen examples, this instance is extremely revealing of the choices available to military leaders during pivotal events.

In a particularly intriguing line of investigation, Varol considers institutional factors such as systems of recruitment that might sway decisions of senior military leaders in highly charged scenarios. For example, he maintains that as a rule conscript armies better reflect social demographics and are more likely to feel a connection to the population. Consequently, they may be more disposed to sympathize with protesters in the streets. Of course, as the Tiananmen Square case reveals, conscription alone does not tell us much about the way specific military units are constituted.

This critical proposition warrants deeper analysis than Varol offers. Perhaps one reason that Russian troops in Moscow readily sided with protesters in the streets stemmed from their political indoctrination and a strong association in the popular mind between the people and the army. The Soviet army had long-been presented to the public as a people's institution. This was in part due to the principle of universal

military service but also because of the army's history of defending the motherland during the Great Patriotic War.[7] As part of what was termed military-patriotic education, Soviet soldiers were taught to take their role as defenders of the people seriously. Since the rise of Vladimir Putin in Russia, there has been a vigorous return to a culture of extravagant praise for the army and Russian military history.[8] For Putin, this serves to both heighten patriotism and reassure the military that their interests will be respected.

In contrast to conscript armies, professional armies that normally rely heavily on long-serving volunteers often develop a certain psychological distance from the general population. In the United States, for example, it is not at all uncommon to hear the complaint that the public does not share or fully appreciate the sacrifices of

those in uniform. Moreover, as Varol notes, members of the military may draw unfavorable comparisons between the military and civilian society, which is often perceived by the former as less ethical, disciplined, and competent.

In this important regard, the professional, all-volunteer U.S. Armed Forces offer an instructive example, especially since it would not occur to most Americans that their military even belongs in this discussion. This is not to suggest that the American military in a hypothetical crisis necessarily would be more likely to react in an antidemocratic fashion than conscript counterparts somewhere else would be. Indeed, nearly all Americans would agree that their military institutions would be most unlikely to act in such a fashion. Still, toward the end of the Vietnam War, University of Chicago sociologist Morris Janowitz argued that the advent of an all-volunteer force would make the military less representative of society. To mitigate this risk, he urged that the Officer Candidate School and ROTC be expanded, and even advised that every West Point cadet should spend a year at a civilian university before graduation.[9]

In the American case, specific factors of tradition and culture are highly influential. The U.S. military personnel swear allegiance to the Constitution, which probably imposes a significant constraint on antidemocratic behaviors. Still, the constitution is a document that is often subject to interpretation, and it is not beyond the imagination that ambitious senior officers could bend that interpretation in some hypothetical scenario to personal or partisan advantage. Of course, it is also an article of faith in the American military that it must remain above politics, another hedge against irresponsible conduct. Unfortunately, this is also one specific ground on which some members of uniformed services view themselves as bound to a higher code of ethics than their elected representatives, hence in some way morally superior.

Although he does not delve too deeply into the problem of the makeup of specific militaries, Varol observes that the choice of who will serve inevitably matters in moments of societal crisis. He notes that in some countries army recruiting may skew in favor of the interests of an important ethnic or religious group. In such circumstances, they may be closely aligned with a power structure that probably does not favor democracy. Varol notes the role of the Alawites in support of the Assad regime in Syria to emphasize his claim.

To press this point a bit further, within any military, the selection of officers says much about the national power structure. In some countries, the officer corps may be drawn overwhelmingly from a specific social element. In the Imperial Russian Army, like most European armies of the eighteenth and nineteenth centuries, officers with few exceptions came from the nobility. In the age of empire, British officers purchased their commissions, a requirement that guaranteed a strong upper-class foundation. In twentieth-century multiethnic states, officer demographics often reflected the overrepresentation of a dominant group. This trend typically became even more pronounced at the most senior ranks. The officer corps in the Soviet army was far more Slavic than the population as a whole. In the former Yugoslavia, Serbs played a predominant role.

Again, Varol does not devote much attention to the Russians or the Americans, but a quick historical glance at their experiences is instructive in reinforcing his general point about the importance of military institutions. Influential officers in the Imperial Russian Army often intervened in politics and helped depose Tsars Peter III and Paul I for what they believed was the good of the country. The final such political intrusion before the 1917 revolution, the so-called Decembrist revolt in 1825, was actually aimed at establishing a constitutional monarchy and abolishing serfdom. Still, it is critical to remember that army units also put down the revolt. Thus, depending upon the situation, the army could be either the guardian of the status quo or an instigator of change.

Another important milestone in Russian military development was the establishment of a system of universal military service in 1874.[10] The author of this reform was the war minister, Dmitry Milyutin, who brilliantly understood that a conscription army is just as much a social as a military institution. Touching the lives of millions of young men, the army could help accomplish multiple goals of benefit to the state. In a vast, multiethnic empire with an appallingly low literacy rate of about 10 percent, Milyutin linked the length of required military service to one's level of education. The prospect of a shorter term of conscripted service induced many parents, heretofore indifferent to the presumed value of formal learning, to educate their sons. Meanwhile, regimental schools worked to promote literacy within the force. The law also attempted to limit the impact of conscription on individual families, critically important segments of the

American Militia Firing at the British Infantry from Behind a Split Rail Fence during the Battle of Guilford Courthouse, March 15, 1781 (1976), illustration, by Don Troiani. (Graphic courtesy of the National Park Service)

economy and strategically important professions such as education. In other words, Milyutin viewed the army as an agent of broader change. An American analog might be the employment of the military to promote racial desegregation beginning with the Truman administration.

Meanwhile, Milyutin also saw the army as a mechanism for indoctrinating patriotic citizens. (The Bolsheviks would later dub the army the schoolhouse of the revolution for its contribution to ideological education.) With the exception of indigenous populations in the recently subjugated outlying regions of the empire such as Turkestan, conscription embraced able-bodied males of all nationalities and ensured that units would be ethnically mixed. The system worked well enough that the new Soviet regime preserved much of it after 1917. During the revolution, the Red Army emphasized its role as an organization of the people. Meanwhile, Vladimir Lenin passed the role of internal security to the *Cheka*, the forerunner of the better-remembered KGB. Thus, the image of the army was not sullied by association with politically motivated arrests and purges. It is also

worth remembering that in its infancy the revolution was widely identified with the democratic aspirations of the working class and even promised self-determination to non-Russian nationalities. The fact that Soviet democracy was ultimately a sham was not the fault of the army.

The American experience, though highly divergent, reinforces the argument about armies and their modalities. As most Americans once learned in school, the idea of a standing professional army did not play well among most colonists who, based on experience with British "red coats," viewed such a force as a potential instrument of repression. Only the harsh experience of Revolutionary War, followed by an encore tutorial at the hands of the British who burned Washington during the War of 1812, led Congress to

grudgingly fund a modest standing force. Still, the idea that homegrown militias could manage most of the requirements of national defense did not fade quickly. Eventually, the two world wars cemented the idea that national conscription may at times be necessary, at least until the incredibly divisive Vietnam War made conscription untenable politically. With the advent of the all-volunteer force under President Richard Nixon, the American military charted a new course, finding that long-serving professionals were a great asset as the flood of new technologies required far more sophisticated methods of training and education within the force. Today, the United States operates with a military system that is amazingly capable and adaptive but also to a significant degree constitutes a society unto itself. Somewhat surprisingly, in light of Varol's thoughts about professional armies, domestic public support for, and even identification with the U.S. Armed Forces is high. Indeed, polling suggests that the military is perhaps the country's most widely trusted institution.[11] However, if American society ever did dissolve into chaos and dysfunction, would this not increase the probability that the military might have to be part of the solution?

Thus, it is worthwhile to consider some of the implicit issues that arise from Varol's discussion of armies. In 1990, professor Peter Maslowski, having just completed a one-year tour as a visiting professor of military history at the Command and General Staff College (CGSC), wrote an article for *Military Review* analyzing the dilemma posed by the tension between certain implicit military values, such as subordination and conformity, and the values of citizenship such as the right to dissent in the United States. Maslowski expressed profound concern that many officers in his experience regarded civilians and members of Congress with contempt, and displayed a depressing ignorance of American and military history.[12] Were Maslowski to return in 2018, he might come away with a more sanguine impression, perhaps because the current force is both more educated and more diverse than before. Generally speaking, now that the end of the Vietnam War is over four decades behind us, there is reason to believe (including polling data already noted) that civil-military relations are healthier today. For instance, there is now a significant emphasis on teaching principles of civil-military relations at CGSC.

This guidance is enshrined in official documents signed by senior general officers.[13]

Still, a professional military, having lived in a "bubble" for several generations, almost inevitably develops a separate corporate culture. Nevertheless, it is important to remember for this essay that, although Americans justifiably take for granted that their military will stand aside from political matters, this is not the way things work in most of the world.

In *Diplomacy*, Henry Kissinger comments, "Western-style democracy presupposes a consensus on values that sets limits to partisanship," whereas in most other places, "the political process is about domination, not alteration in office, which takes place, if at all, by coups rather than constitutional procedures."[14] He thereby implies another fundamental reason why the idea of a democratic coup need not be an oxymoron in all circumstances. As Varol cautions, in some times and circumstances, a coup may be the only means to effect a transition to a democratic form of governance. The military in such a setting can provide a stabilizing influence until civilian and democratic forces can organize and take the reins of power.

As for creating transitions to democracy, no one has yet found a foolproof approach. In her memoirs, former Secretary of State Madeleine Albright writes of the Clinton administration's ambitious efforts to promote democracy. During the heady 1990s, when liberal democracy seemed to be inexorably on the ascent, particularly in eastern Europe, the possibility of a seismic shift beckoned. An international conference on democracy attracted 107 participating states and produced a manifesto called the Warsaw Declaration. United Nations Secretary-General Kofi Annan proclaimed an aspirational future of a global community of democracies.[15] Since then, however, democracy has had its ups and downs, most notably in the very eastern European states that once held so much promise. Moreover, the unhappy truth is that holding elections has been exposed as a tentative, and often reversible, first step on the way to functioning democracy. Sometimes internationally sanctioned elections have installed in power the very elements they were intended to defeat. The early elections staged in Bosnia in 1996, which handed majorities to the same extremist parties that created the civil war, offer a cautionary example. In short, democracy itself can be troublesome if not grounded in a culture that accepts compromise and values tolerance.

This does not mean that Varol's views are not problematic. One can argue that most of the "democratic coups d'état" he cites did not lead to stable and lasting democracy, especially if measured by standards of the Western democracies. Also, acceptance of the possibility of a democratic coup could perhaps lend legitimacy to undemocratic coups. Varol would probably reply that reality is messy and good results are never guaranteed.

In sum, despite the occasional tendency to ramble, the virtue of Varol's analysis is that it offers a myriad of alternative scenarios based upon actual events in diverse regions of the world. The facts, he argues, reveal that theory has displaced reality in academic thinking about transitions to democracy.[16] In a vintage Clausewitzian way that openly disdains iron-clad principles of political or military behavior, Varol offers insights into what history suggests is possible and strongly discourages templated thinking. When it comes to

democracies, armies are neither intrinsically good nor evil. Their behavior depends on a complex web of considerations that are distinctive to every situation and not likely to be repeated except in a most general way. Varol offers a measured assessment that goes where the evidence, rather than any political or theoretical predisposition, takes him. There is nothing provisional about his conclusion, however. He asserts that scientific reasoning, based on empirical evidence, shows beyond doubt that democratic coups do occur and that armies are frequently critical actors in these transitions. ∎

Notes

1. Ozan Varol, *The Democratic Coup d'État* (New York: Oxford University Press, 2017), 1.

2. "About," Ozan Varol's website, accessed 18 January 2018, https://ozanvarol.com/about/.

3. Alex de Waal, *The Real Politics of the Horn of Africa: Money, War and the Business of Power* (Cambridge, UK: Polity Press, 2015), 45.

4. To some extent, this report might belie Ozan Varol's assertion that nobody agrees with him. "Zimbabwe's 'Military-Assisted Transition' and Prospects for Recovery," International Crisis Group, Briefing No. 134/Africa, 20 December 2017, accessed 23 January 2018, https://www.crisisgroup.org/africa/southern-africa/zimbabwe/b134-zimbabwes-military-assisted-transition-and-prospects-recovery.

5. This author spoke with one such officer two decades ago. The individual in question felt that the decision to take down the Gorbachev regime by traditional Soviet hardliners was likely to end badly but did not want to stick his neck out by openly violating a directive. A pragmatist, he waited for the course of events to reveal itself.

6. For a review of the events and their significance, see Martin Malia, *The Soviet Tragedy: A History of Socialism in Russia, 1917-1991* (New York: Simon and Schuster, 1991), 485–87; Timothy Colton, *Yeltsin: A Life* (New York: Basic Books, 2008), 196–204.

7. A splendid example for Russian readers is G. S. Es'kov and O. A. Bel'kov's *Ediny s narodom* [United with the people] (Moscow, 1989). Essentially a work of propaganda, it is a pretty typical example of Soviet-era writings on the subject.

8. Charles Clover, *Black Wind, White Snow: The Rise of Russia's New Nationalism* (New Haven, CT: Yale University Press, 2016), 184–85.

9. Morris Janowitz, "Armed Forces and Military Purpose," *Military Review* 52, no. 7 (July 1972): 20.

10. Robert Baumann, "Universal Service and Russia's Imperial Dilemma," *War and Society* 4, no. 2 (September 1986): 31–49.

11. See Brian Kennedy, "Most Americans Trust the Military and Scientists to Act in Public's Interest," Pew Research Center, 18 October 2016, accessed 10 January 2018, http://www.pewresearch.org/fact-tank/2016/10/18/most-americans-trust-the-military-and-scientists-to-act-in-the-publics-interest/. Interestingly, the same poll shows that the military is far more widely trusted than elected officials are.

12. Peter Maslowski, "Army Values and American Values," *Military Review* 70, no. 4 (April 1990): 17–22.

13. In a 3 March 2015 memorandum to the chairman of the Joint Chiefs of Staff, Gen. Martin Dempsey, professor Dick Kohn urged increased emphasis on the subordination of the military to civilian authority at intermediate service schools such as the Command and General Staff College (CGSC), as well as at the national war colleges. In a 15 March 2015 response, Dr. W. Chris King, the dean of CGSC, offered an extended reply demonstrating in detail that this need was already extensively addressed in the current college curricula.

14. Henry Kissinger, *Diplomacy* (New York: Simon and Schuster, 1994), 811.

15. Madeleine Albright, *Madam Secretary: A Memoir* (New York: Harper Perennial, 2003), 564–66.

16. In fact, this writer believes that the proliferation of theories, in not only the social sciences but also even in the humanities, has been a signature feature of scholarship during the past several decades. Not infrequently, politically agreeable theory has raced ahead of the evidence and hardened into orthodox dogma.

Martin Duque, Alaina Petty, and Peter Wang, three Junior Reserve Officers' Training Corps (JROTC) cadets were killed with fourteen of their classmates and teachers during the 14 February school shooting at Marjory Stoneman Douglas High School in Parkland, Florida.

The three cadets were awarded the ROTC Medal for Heroism by the Department of the Army during separate ceremonies, and members of the Florida National Guard attended their funerals.

Additionally, Wang was posthumously admitted to the U.S. Military Academy at West Point for his heroic actions. He was shot while holding a door to allow others to evacuate the building.

Retired Maj. Peter Mahmood, the senior instructor of the high school's JROTC program, shared his sentiments on their loss in a Facebook post: "It is with broken hearts that Stoneman Douglas JROTC shares the loss of our soaring eagles!" he wrote. "These young people were truly better citizens, and better people. We honor them, and will miss their courage, tenacity, and their smiles."

Duque and Petty were fourteen years old, and Wang was fifteen.

The Medal for Heroism is the highest Department of the Army medal that can be awarded exclusively to Army ROTC cadets. The criteria for this award is stated in Cadet Command Regulation 672-5-1, *Reserve Officers' Training Corps Decorations, Awards, and Honors*: "The achievement must result in an accomplishment so exceptional and outstanding as to clearly set the individual apart from fellow students or from other persons in similar circumstances. The performance must involve the acceptance of danger or extraordinary responsibilities, exemplifying praiseworthy fortitude and courage." ★

MEDAL FOR

Alaina Petty

Peter Wang

Martin Duque

HEROISM