



# MARINE CORPS **Gazette**

*Professional Journal of U.S. Marines*

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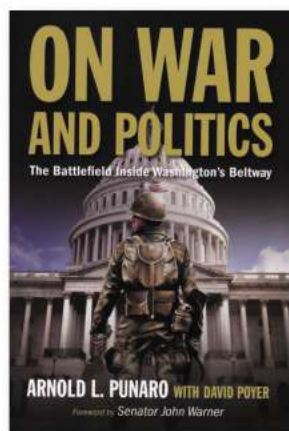


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*The Gunny Clauses wave to Marines, Sailors, and their family members during the 7th annual Winter Wonderland at MCAS Cherry Point. (Photo by Cpl Unique B. Roberts.)*

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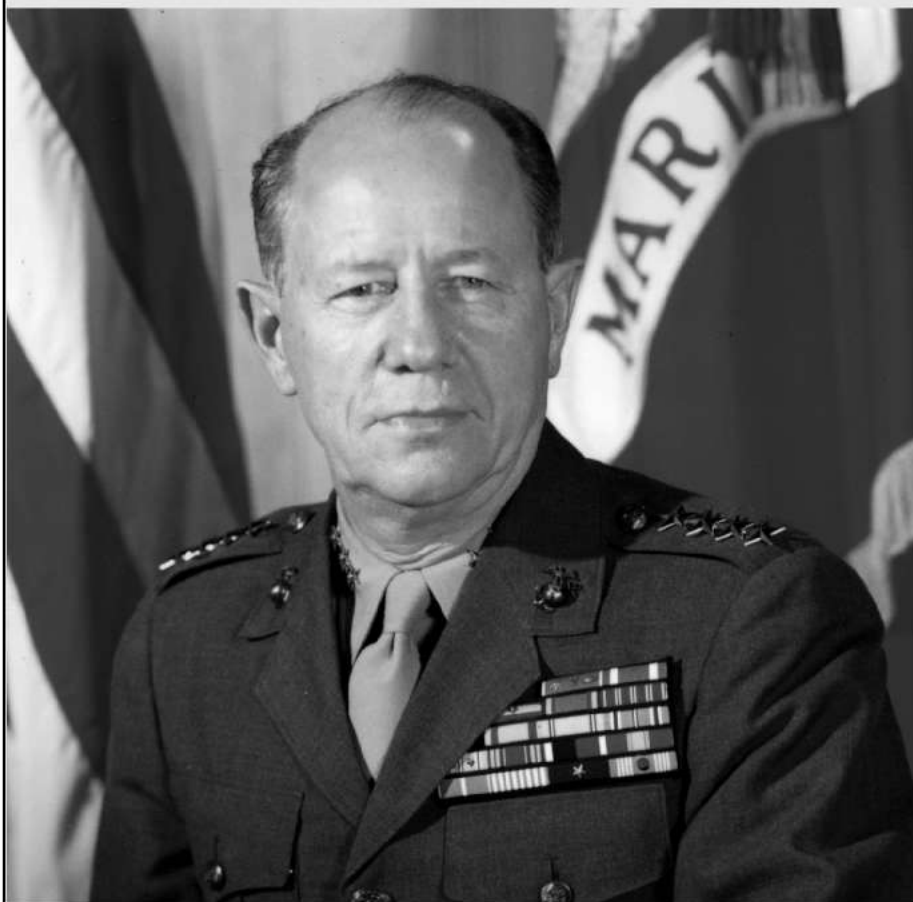
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# GEN ROBERT E. HOGABOOM LEADERSHIP WRITING CONTEST



**Gen Robert E. Hogaboom.**

The *Marine Corps Gazette* is proud to announce the commencement of its annual Gen Robert E. Hogaboom Leadership Writing Contest. The contest honors the essay that is the most original in its approach to the various aspects of leadership. Authors should not simply reiterate the 11 Principles of Leadership or the 14 Leadership Traits of an NCO addressed in the *Guidebook for Marines*. Authors must be willing to take an honest, realistic look at what leadership, either positive or negative, means to them and then articulate ways and methods of being an effective leader of Marines.

## Background

The contest is named for Gen Robert E. Hogaboom, USMC(Ret), who served the Corps for 34 years. Upon graduating from the Naval Academy in 1925, Gen Hogaboom saw service in Cuba, Nicaragua, and China. Following action in a number of key Pacific battles in World War II, he later served first as assistant division commander, then division commander, 1st Marine Division, in Korea in 1954–55. Gen Hogaboom retired in 1959 as a lieutenant general while serving as the Chief of Staff, Headquarters, U.S. Marine Corps, and was subsequently advanced to the rank of general.

Prizes include \$3,000 and an engraved plaque for first place; \$1,500 and an engraved plaque for second place; and \$500 for honorable mention. All entries are eligible for publication.

## Instructions

The contest is open to all Marines on active duty and to members of the Marine Corps Reserve. Electronically submitted entries are preferred. Attach the entry as a file and send to [gazette@mca-marines.org](mailto:gazette@mca-marines.org). A cover page should be included identifying the manuscript as a Gen Robert E. Hogaboom Leadership Writing Contest entry and include the title of the essay and the author's name. Repeat title on the first page, but author's name should not appear anywhere but on the cover page. Manuscripts are acceptable, but please include a disk in Microsoft Word format with the manuscript. The *Gazette* Editorial Advisory Panel will judge the contest during February and notify all entrants as to the outcome shortly thereafter. Multiple entries are allowed; however, only one entry per author will receive an award.

E-mail entries to: [gazette@mca-marines.org](mailto:gazette@mca-marines.org)

**DEADLINE:**  
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Mail entries to: **Marine Corps Gazette**  
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DECEMBER 2016

## Editorial: Have a Great Holiday Season!

To all Marines and friends of the Corps: Merry Christmas, Happy Holidays, and best wishes for the New Year! During this Holiday Season, please keep in your thoughts and prayers all of the Marines, Sailors, Soldiers, Coastguardsmen, and Airmen who will not be spending this happy time of year with their families.

The highlight of the December edition is this year's MajGen Richard Schulze Memorial Essay, "A Marine's Guide to North Korea," by Dr. Bruce Bechtol on page 8. The Korean War, fought from 25 June 1950 to 27 July 1953, resulted in a ceasefire that has left "The Land of the Morning Calm" in a state of armistice to this day. The Republic of Korea stands as one of the outposts of liberty on the mainland of Asia thanks to the blood and treasure of the U.S., our United Nations allies in that war, and the continued vigilance of our Korean partners. Today, a walk across Seoul from Itaewon to Hongik University to Insa-dong shows a thriving metropolis of 9.97 million people, all within range of North Korea's artillery. Dr. Bechtol, a veteran Marine, distinguished scholar of Korean studies, and author of numerous books on North Korea, provides an extremely relevant guide to understanding the constant cycle of escalating provocations and the underlying dynamics on the peninsula.

I also strongly recommend four more articles this month. First, on page 21, The Ellis Group continues their review of the Corps' maneuver warfare warfighting philosophy in "21st Century Combined Arms." Now and in the future, how will Marines employ emergent capabilities to put the enemy on "the horns of a dilemma" in five domains? This series of articles will be the "line of departure" for a broader collection of essays and commentary in the coming year regarding the Corps' adherence "to Maneuver Warfare principles in the conduct of training and operations" in support of the Commandant's *FRAGO 01/2016*.

Expanding the focus on the western Pacific and current MAGTF operations, the staff of the "Caltrap Nation"—the Third Marine Division—presents "Forward Deployed" on page 17. In our Aviation Ideas and Issue section, we have two articles that have already generated significant and often critical discussion on the web: Capt Cory D. Radcliffe's "Embrace UAS Guardian Angels Now" on page 45 and LtCol Kevin F. Murray's "Marine Aviation Readiness" on page 51. These articles highlight the capabilities and efficiencies of unmanned aviation systems in light of how we fight, how we train, and how we maintain our aircraft.

Finally, a very brief editorial comment: in the coming year, the Corps and the Nation will continue to face change and challenges. 2017 will mark the 100th anniversary of the United States' entry into the First World War and the beginning of our rise as a global power. However our Nation chooses to approach our role as a global power in the future, the Corps remains charged to be the Nation's expeditionary force-in-readiness. Readiness in a dynamic and uncertain environment requires intellectually active leaders. The *Marine Corps Gazette*, the professional journal of the Marine Corps, and the MCA&F, the professional association of all Marines, will continue to provide resources for these leaders and a forum for their ideas.

Christopher Woodbridge





**Maj John E. Kivelin III**



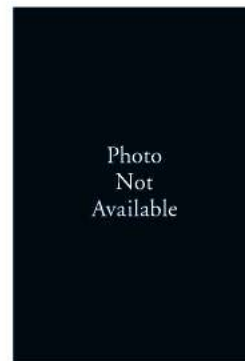
**Maj Travis C. Onischuk**



**Maj Kenneth del Mazo**



**Maj Craig Giorgis**



**Capt Ben Brewster**

## 2016 Ellis Essay Contest Winners Announced

The *Marine Corps Gazette* Editorial Advisory Panel completed their review and judging of the articles submitted for the 2016 LtCol Earl "Pete" Ellis Essay Contest in late October. In First Place is an article by Maj John E. Kivelin III and Travis C. Onischuk titled "On 21st Century Warfare." They will receive a plaque and \$3,000. Second Place is for the article "Long Live the King: EF 21's Call to Action for Marine Artillery." This article was written by Maj Kenneth del Mazo and Craig Giorgis. They will receive a plaque and \$1,500. Third Place went to Capt Ben Brewster for his article, "We've Been Here Before: A Vision for 21st Century MAGTF Relevance." Capt Brewster will receive a plaque and \$1,000.

## Reunions

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## New MCA&F President and CEO Selected



**LtGen William M. Faulkner.** (Photo by Adrian R. Rowan.)

LtGen William M. "Mark" Faulkner has been selected by the Marine Corps Association & Foundation Board of Directors as the next President and Chief Executive Officer of MCA&F. The current President and CEO, MajGen Edward G. Usher, will be retiring in February 2017, and LtGen Faulkner will assume his duties at that time.

The son of a Marine pilot, LtGen Faulkner was born in Cherry Point, NC. He was commissioned in 1983 and initially served as an infantry officer before making a lateral move into the logistics MOS.

His numerous staff tours include service as S-4, 1st MEB, and in the J4/Logistics Directorate at U.S. Central Command. He has also served as Logistics Operations Officer in the National Military Command Center and as Chief of Staff, 2d Marine Logistics Groups (Forward), LtGen Faulkner commanded MEU Service Support Group 26, Combat Logistics Regiment 27, and both the 2d Marine Logistics Group and 3d Marine Logistics Group. He has also served as the Vice Director, J-4, Joint Staff and as the Deputy Commandant for Installations and Logistics.

LtGen Faulkner has participated in Operations DESERT SHIELD/DESERT STORM, PROVIDE PROMISE, SOUTHERN WATCH, DESERT FOX, NOBLE RESPONSE, ENDURING FREEDOM, and IRAQI FREEDOM. His personal decorations include the Defense Superior Service Award, the Legion of Merit, the Bronze Star with Combat Distinguishing Device, the Defense Meritorious Service Medal, the Meritorious Service Medal (gold star in lieu of second award), the Joint Service Commendation Medal, the Navy Marine Corps Commendation Medal (gold star in lieu of second award), the Joint Service Achievement Medal, the Navy Marine Corps Achievement Medal (gold star in lieu of second award), and the Combat Action Ribbon.



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### Maneuver Warfare and Irregular Warfare

■ Kudos to The Ellis Group for an honest appraisal of the Corps' inability to institutionalize maneuver warfare (MW)! However, I would think we would reference our operations in Iraq and Afghanistan in the examples of this failure. I would submit that, in the losing of these two wars, there are ample examples of how we could have used MW—or perhaps the collective wisdom is that we won these two wars and there is nothing to learn from them? Remember, MW had its origins in the pain we experienced in losing the Vietnam War. Where is the pain associated with losing two wars? To assert that we kicked butt in battle against an inferior adversary does not mean those battles were effective in the outcome. In order to better justify the appraisal, I suggest that the Service host an Iraq and Afghanistan lessons encountered conference focused on MW. The forerunner of this effort began in 2013 with a Small Wars Center sponsored collection on infantry battalion commander leadership in COIN in OEF (MCCLLS 6 June 2013).

The Small Wars Center began to look at the lessons of Iraq and Afghanistan, but the project was not completed and the Corps dis-established the Small Wars Center—the only organization focused on irregular warfare and small wars, which both Iraq and Afghanistan were. MW was an initial element of the study against which we wanted feedback, however, there were zero lessons recorded by the Operating Forces and, as a result, we removed MW as a feedback item. That is an eye opener. We either fully understood and institutionalized MW in Iraq and Afghanistan to the degree that it was second nature, or we just muddled our way through and are too embarrassed to accept it.

We should be very interested in the application of MW in a small wars and irregular warfare. Future hybrid threats, examples of “fourth generation warfare,” are thoughts that must be explored. (Hybrid threat: “an adversary who simultaneously employs conventional, irregular [insurgency, instability, terrorism],

catastrophic [WMD] disruptive [Info/cyber], and criminal methods to achieve political objectives.)

Focus on people (manpower), ideas (how the people think, educate, and train) and equipment. The way ahead should address the personnel assignment and promotion policy that currently is out of synch with our MW philosophy. That is the elephant in the room that no CMC has chosen to address or reform. If it doesn't change, hang it up; we might as well revert to the second generation warfighting philosophy that conforms to the current personnel/assignment policies/model—and are therefore unable and unwilling to apply/implement MW. There are other topics we need to come to grips with instead of the articles on warfighting functions. Second, an article needs to address implementation of MW via education and training. Third, an article has to be on equipment. Warfighting functions (which are really current ops planning steps) will be taken care of by the Operating Forces and are not conducive to thinking ahead.

We say we train as we fight, but we don't. We fight as MAGTFs, but we don't train that way. We don't organize as MAGTFs 24-7. Just as we cannot hope to implement MW unless it is part of our daily routine, neither can we become an effective fighting force until we live “MAGTF-ery.” Reorganize the Corps as MAGTFs, which means we cadre the division, wings, and groups so that we contribute to fighting cohesion instead of just saying it.

Rethink the training philosophy of “we train as we fight.” In combat, “you will fight the way you have trained.” Why is it that a majority of casualties are taken in the first months of fighting? We are learning how to fight a thinking adversary and are un-learning all the PTP we received, that's why! Because we received very little contested free play training, we forget what it is like to think, plan, and operate in an uncertain and chaotic environment. Perhaps this is why we still have those who think physical abuse is the best means of making a Marine. A switch in the training philosophy will better align with MW

and at least be a token recognition that we better understand the relationship between training and combat. Education, training of the mind, is extremely more importance than training of the body.

The generals are responsible for any institutionalization that occurs or does not occur. They need to take this on. They should not be silent. They should not be focused on information, data, process, or daily minutia. In order to institutionalize MW perhaps we just need to tell the generals to use *MCDP 1* and *1-3* as a checklist! For example, if they read and understand and follow up with MW flavored guidance it will change the Corps! Imagine if the generals understood that contested free play exercises actually better approximate combat than the current ITX [integrated training exercise] which is focused only sequentially, (squad, platoon, company, battalion) integrating live fire with movement! The result certainly could not be any worse than results of past and current CAX/ITX exercises. If we are concerned about realism, then ITX would look like what combat looks like—gathering of information (sometimes by fighting for it) movement, live fire, movement, adversary reaction, violent action, stability operations etc. *all* the time. It is time to bring a halt to sequential, hierarchical training methodologies! It is not adult learning and it puts Marines in the wrong mindset.

Writing articles is good, there needs to be more of them (in my opinion, they should be mandated and an evaluated part of commander's PME), but only the actions taken in regard to organization, culture, training/education, and leadership roles will institutionalize MW thinking.

**Col Phil Smith, USMC(Ret)**

Letters of professional interest on any topic are welcomed by the *Gazette*. They should not exceed 200 words and should be DOUBLE SPACED.

Letters may be e-mailed to [gazette@mca-marines.org](mailto:gazette@mca-marines.org). Written letters are generally published 3 months after the article appeared.

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# A Marine's Guide to North Korea

**Brinkmanship, provocations, and advanced weapons development**

by Bruce E. Bechtol, Jr.

**N**orth Korea is a regime that has engaged in brinkmanship and promoted regional instability since the days of Kim Il-sung. This governmental policy was also carried on during the reign of his son, Kim Jong-il. But these days—since the end of 2011—things have changed. There have been questions asked by experienced

analysts regarding the stability of the Kim regime (now under the “3rd Kim”—Kim Jong-un), the many rogue state activities it has engaged in, and the status of the key pillars of power in the DPRK (Democratic People’s Republic of Korea) that have not been considered this tenuous since the 1950s when Kim Il-sung was still consolidating his power.

It will be the goal of this essay to conduct an analysis of the key issues in North Korea that are important to military professionals as they look to planning concerns, knowledge of social-political-military factors in the DPRK, and, of course, general issues that we should be concerned about for the future. In order to reach this goal, it will be necessary for an analysis of several key factors. Thus, we must look at three key issues and challenges involving North Korea, how these factors affect the way our views on what Pyongyang is accomplishing during the rule of Kim Jong-un, and why.

One of the key issues that has been a matter of concern for all nation states with interests in East Asia has been North Korea’s rapid development of several important weapons systems. While WMDs (weapons of mass destruction) and the platforms that carry them have been in the headlines—essentially since the 2012 Kim Jong-un regime’s nuclear tests of ballistic missiles capable of carrying nuclear warheads—there has also been development, testing, and sometimes deployment of conventional systems that have the potential to cause damage to American and South Korean forces during any conflict that would occur on the Peninsula, particularly in the early phases of a potential war. I will address these systems, and I will also address the WMD system’s development. Both conventional and unconventional force developments in North Korea show potential for real threats to the ROK-U.S. alliance that must be planned for and dealt with.

North Korea has engaged in brinkmanship and provocations since the very beginning of the regime. It is important

## MajGen Richard C. Schulze Memorial Essay

The MajGen Richard C. Schulze Memorial Essay honors the memory of the Marine Corps general officer for whom it is named. MajGen Schulze, a native of Oakland, CA, died in November 1983, two years after his retirement. An enlisted Marine at the time of his commissioning in 1951, he earned his B.A. in Far East history from Stanford University in 1954 and later earned an M.S. in public administration from George Washington University (1971).



He was a mortar section leader with the 1st Marines in Korea and commanded 3d Battalion, 3d Marines, in Vietnam. MajGen Schulze served as director of three different divisions within the Manpower Department at Headquarters. He also served as Inspector General of the Marine Corps and as CG, Marine Corps Recruit Depot San Diego. He was a frequent contributor to the *Gazette* and wrote with philosophical insight on many of the intractable problems confronting the Armed Forces—thus the naming of this annual essay in his honor is singularly appropriate.

The Schulze Memorial Essays have been published each year since 1984. They are made possible by the earnings of an endowment fund established by friends of MajGen Schulze. Essay authors are chosen by the Editorial Advisory Panel of the *Gazette*.

**>Dr. Bechtol is a professor of political science at Angelo State University, a retired Marine, and is the author or editor of six books on North Korea, most recently North Korea and Regional Security in the Kim Jong-un Era: A New International Security Dilemma.**





**Illustration of Kim Jong-un, current leader of North Korea.** (Image from Wikipedia.org.)

not only to describe these events but to differentiate between them. My definition of a provocation is an event intentionally initiated in order to inflict casualties on opposing forces. This is what has happened—repeatedly—during the reign of the Kim family regime. I will address how this has continued in a very compelling way under Kim Jong-un. Brinkmanship is a bit more ambiguous than provocations. In other words, brinkmanship can be something as simple as a long-range ballistic missile test, a necessary event in order to test a weapons system, yet something that can also be initiated at times of political opportunity.<sup>1</sup> I will address brinkmanship and provocations in detail in this essay.

As we have seen with the continued violent provocations, the ongoing and escalating brinkmanship (for example, as of the writing of this essay, there have been more than 30 ballistic missile launches in the Kim Jong-un regime, a significant increase from the rate of test launches under his father), and the development of several weapons systems that have the potential to threaten both the region and the United States, one cannot help but wonder what the motivations are for all of this activity. As such, the final issue that I will consider will be the reasons behind the Kim regime's stepped-up weapons development, constant moves that most consider brinkmanship, and continued policy of violent provocations that lead to increased tensions with Pyongyang's neighbor to the South. There are specific reasons for this activity, and understanding these reasons can lead to planning that will better contain a

rogue regime focused on raising tensions in the region and creating problems within the ROK-U.S. alliance.<sup>2</sup>

### Weapons Development in the Kim Jong-un Era

North Korea's nuclear weapons and its ballistic missile development programs are important. In fact, it is almost without exception that these are the developments (typically the testing of these systems) that garnish attention from both the world press and policy makers. Because these programs are important, and because Marine Corps units have the potential to be tasked with recovering WMD during time of war or a North Korean collapse, I will address these systems in this section. But I will also address some key examples of conventional weapons systems that North Korea has recently developed and tested. While many tend to think of the DPRK as a poor country with an army that is only a "Potemkin Village," this is not true, despite continuing anecdotal reports of malnourishment and corruption in the army.<sup>3</sup>

One of the reasons that North Korea continues to maintain and upgrade a large, conventional military force that augments its WMD forces is because it spends so much on its military. In fact, according to a State Department document entitled, "World Military Expenditures and Arms Transfers," North Korea spent 23.8 percent of its GDP (gross domestic product) on the military between 2002 and 2012. Military proliferation made up 10.2 percent of their GDP during the same time frame.<sup>4</sup> Both of these assessed figures place North Korea number one worldwide. It is important to keep in mind that much of North Korea's economy and its military expenditures are illicit, meaning the figures above are likely even much higher. According to the DOD document "Military and Security Developments Involving the Democratic People's Republic of Korea: 2015," preparing for war with the South and with the United States is a key goal for the DPRK. The document states in part,

North Korea uses reunification with South Korea as a key component of its national identity narrative to validate its strategy and policies, and to justify sacrifices demanded of the populace. However, North Korea's leaders almost certainly recognize that achieving reunification under North Korean control is, for the foreseeable future, unattainable.<sup>5</sup>

Thus, while North Korea is—at least for now—deterred by South Korea and its key ally, the United States, it continues to train for war, a prospect that remains a possibility even as the last Korean War seems a distant memory.

If one is to look at North Korea's ballistic missile capability, the first missile that comes to mind is often the Taepo Dong. During the Kim Jong-un era, the testing and development of this missile series has increased. During January 2016, the North Koreans once again successfully tested the Taepo Dong. While a successful test of a Taepo Dong is nothing new, there were some new developments that are of concern. The North Koreans built an underground railway near the launch pad, allowing preparation for launches to be more covert and shortening allied reaction time to missile launches. According to press briefings and other reports, the Taepo Dong also now has increased its range, at least potentially.



North Korea claims the missile is in actuality a satellite launch vehicle (SLV) they have named the Kwangmyongsong-4 (most analysts believe this is untrue and that the SLV is simply a test-bed for ICBM [intercontinental ballistic missiles] development). While improvements made to this system appear to be minor (at least to date), continued successful tests showcase the reliability of North Korea's capability to target the United States mainland with a ballistic missile.<sup>6</sup>

The Taepo Dong certainly presents a compelling example of a potential threat to the United States—especially given the repeated successful launches. But the Taepo Dong is a missile that takes days, perhaps weeks, to set up and launch, and thus is a threat that, in most cases, could be successfully dealt with by ballistic missile defense (BMD). The same cannot be said for a newly developed (in the past five years) ICBM that is launched from a transporter-erector-launcher (TEL), which is road-mobile and has the range to hit the west coast of the United States. As of the writing of this essay, this missile, known as the “KN-08,” has not been test launched. This missile, however, is probably one of the key missile systems that is part of a new brigade-sized unit formed within North Korea's Strategic Forces Corps (North Korea's corps-level unit that is comprised of its ballistic missile forces).<sup>7</sup>

To the surprise of many, North Korea recently publicly displayed what its propaganda services called as a nuclear warhead for missiles. In March 2016, according to the Commander of U.S. Northern Command, U.S. government officials assessed that North Korea can now range the United States with an ICBM. North Korea has also publicly tested (with pictures released to the press) the reentry vehicle nosecone for the KN-08 (pundits have for years argued that long-range North Korean missiles did not have atmospheric re-entry capability—an argument that is rapidly dying). Many analysts have confirmed, based on scientific evidence, that the publicly tested reentry vehicle and the publicly revealed nuclear warhead appear to be legitimate aspects of systems that are now more advanced than most would have predicted even last year. What made the engine tests of 2016 the most troubling is that the engine appears to be based on a new 80-ton rocket booster built in collaboration with the Iranians (one can expect this new component to be proliferated to Iran in the future if this has not happened already).<sup>8</sup> During a parade in 2015, North Korea showed off what at first appeared to be a modified KN-08. While it remains unclear in unclassified channels, the missile displayed in the parade probably has capabilities advanced beyond the KN-08, and the Pentagon has reportedly designated this version of a road-mobile ICBM the “KN-14.”<sup>9</sup>

While North Korea is developing a plethora of new systems, it has not been idle in the continued testing of its already developed, deployed, and proliferated systems. North Korea conducted Scud missile launches during March 2016.<sup>10</sup> During the same month, the DPRK test-launched the No Dong missile system (successfully) several times.<sup>11</sup> Perhaps the most compelling launch of the No Dong during 2016 was in August, when the North Koreans launched one of the missiles straight into Japan's economic exclusion zone (EEZ).<sup>12</sup> The

move by North Korea (which has also test-launched ballistic missiles that have flown over Japan) has prompted talk in Japan of bringing the Terminal High Altitude Air Defense (THAAD) system there as an improvement to their BMD.<sup>13</sup>

North Korea continues to show that it has missiles capable of targeting a variety of targets—including key nodes in the Pacific. One such missile, called the “Musudan” by the West, was test launched by the Iranians during 2006 (the North Koreans proliferated 18 Musudan systems to Iran during the fall of 2005), but Pyongyang had previously never launched the missile from their own landmass.<sup>14</sup> The North Koreans finally chose to test the Musudan from their own soil in 2016. They conducted a number of launches and eventually proved the capabilities of the missile. All did not go well at first—during an early launch, the missile reportedly exploded on the launch pad and killed or injured a number of North Koreans. While further tests did not have results as disastrous, none of the early launches during April 2016 were in any way successful.<sup>15</sup>

North Korea continued their test launches of the Musudan in June 2016—this proved to be a different story. The North Koreans launched two missiles, with the first missile apparently not flying as was hoped (or it was a decoy), while the second missile apparently flew exactly as planned. Not only did the second missile fly an unusual and successful flight, it revealed new technical data regarding North Korean capabilities. The successfully launched Musudan missile soared to an altitude of more than 1,400 kilometers into the air. It may have been launched in such a manner to avoid flying over Japan. By launching it on the trajectory that they did, the North Koreans proved that if launched on a more leveled out trajectory, the missile probably has the range to target Guam (3,500 to 4,000 kilometers). They also proved that the missile clearly has a sophisticated atmospheric re-entry capability. But there were also important—and unexpected—details that came to light out of the successful launch as well. The missile appears to have grid fins, which would be a unique DPRK design. Some analysts have also assessed that the missile may be equipped with new engines. Analysis of the speed and altitude of the missile showed that it likely can avoid targeting by South Korea's Patriot PAC-2 and even PAC-3 systems.<sup>16</sup> For those who doubt North Korea's ability to successfully launch ballistic missiles, it should be pointed out that they went from a missile exploding on the launch pad to proving the same missile can fly its claimed range and also has successful atmospheric re-entry capability, all in two months.

Thus far we have addressed a variety of land based ballistic missiles. But North Korea is also in the later stages of development of a submarine launched ballistic missile (SLBM) and, perhaps as importantly, the accompanying blue-water submarine that carries it. North Korea is testing both of these systems and has already built at least one submarine. Based on reports thus far, the submarine may be a variant of the old (1960s technology) Soviet, GOLF-class submarines. The GOLF-class sub has an endurance time of 70 days and could potentially sail to Hawaii and back.<sup>17</sup> North Korea has been testing both the submarine and the SLBM that goes



with it since at least 2014. The North Koreans started off launching an SLBM from an underwater barge. They then reached the point where they were launching the missile from the actual submarine while it was submerged. Thus, what we are watching is the dual development and testing of a blue-water submarine that can actually make deployments throughout the Pacific (a first for North Korea), along with the same process for an SLBM that can potentially carry a nuclear weapon and threaten Hawaii when fired from the submarine. Initial test launches of the SLBM did not go well and apparently caused damage to the sail of the submarine. As they advanced the system, however, the missile was successfully launched from underwater and flew several miles. In late August, 2016, the North Koreans made a huge advancement by successfully conducting a test launch of the SLBM. The missile was launched from the submerged submarine near the east coast of North Korea. It flew 310 miles (500 kilometers) and landed in the Japanese air defense identification zone (ADIZ). Based on this launch and other tests, the missile appears to be very similar to the Chinese JL-1 (CSS-N-3) system. It appears to be a solid-fueled, two-stage missile, capable of ranges far beyond what it showed in August 2016 (the missile was launched at a very high trajectory, leading analysts to believe it could fly much farther).<sup>18</sup> Once the North Koreans have successfully completed testing and deploying the system—something that appears to be happening much faster than most analysts predicted—it will be a significant challenge for the United States to track, posing new challenges to the United States.<sup>19</sup>

Ballistic missiles are an important part of North Korea's threatening nuclear arsenal. But artillery has always been a key focus of the DPRK's armed forces. This has not changed in the Kim Jong-un era. Changes in the bunkers of artillery units deployed near the DMZ were revealed in open sources during 2015. ROK and/or American units will now find it more difficult to conduct counterbattery fire against their positions. According to ROK military sources quoted in the press,

Previously, the South Korean military had an operational strategy to smash North Korea's howitzers within three minutes upon the launch of the North's attacks before the howitzers withdrew to the bunkers. But the recent change of the bunkers' entries may extend the time needed for the allies to bomb the howitzers, which can reach South Korea's entire capital area.<sup>20</sup>

North Korea has done more than simply change the deployment of its artillery systems. It has also been developing and testing new artillery systems. Among the most important new developments is a 300mm MRL (multiple rocket launcher) system that the North Koreans have tested numerous times since 2014. The system appears most similar to the Russian BM-30 300mm MRL system (Smerch) or possibly a Chinese system of related design. Based on what has been seen in testing, the system can range targets 60 miles south of Seoul. The North Koreans have tested the new 300mm system using underground penetration shells and fragmentation-mine shells. Between 2014 and 2016, it has been tested numerous times. Photos taken of recent testing show that each launcher

has eight rockets and also reveal tubes that are divided into two sets of four per each launcher.<sup>21</sup>

While North Korea has been developing new artillery systems, it has not been silent over the past year (2016) in conducting exercises. North Korea conducted a coastal artillery drill along the Northern Limit Line (the de facto "maritime DMZ" along the west coast border area between the two Koreas) during February 2016. The exercise was conducted so close to sovereign ROK territory that residents on Baeknyeong Island reported hearing "booms" from the gunfire, with many stating that they could even see muzzle flashes from their homes and businesses. One month later, the DPRK conducted what was widely reported as its largest known long-range artillery exercise (these are the systems that potentially threaten Seoul and adjoining areas). Photos taken during the exercise and released to the open press showed several dozen of these long-range systems firing in unison.<sup>22</sup>

Capabilities that can be said to have truly picked up steam during the Kim Jong-un regime are diverse and interesting. Among these capabilities is the primitive—yet effective—cyber-warfare threat that has developed in recent years. This capability is said to be operated primarily by Bureau 121 within the Reconnaissance General Bureau and is rumored to have a strength of around 6,000 personnel. Because of the relatively easy, indoor nature of these operations (also often operated outside of North Korea, from terminals in China or Japan), children of the elite in the DPRK are often the ones to fill these positions. This unit (and other lesser units in North Korea) have targeted large business conglomerates, governmental agencies, and even newspapers and television stations. The attacks have even targeted senior South Korean official's phones; perhaps as importantly, these cyber-attacks have also targeted American-based entities and citizens. Of course the best known cyber-attack against American-based entities was the Sony incident in which Sony's files and records were hacked during 2014, likely because Kim Jong-un was angry about the movie "The Interview." In fact, the Commander, American Cyber Command stated in 2016 that North Korean cyber capabilities "pose a serious challenge to the United States." During the summer of 2016, North Korean hackers were able to break into the networks of two major South Korean conglomerates, stealing thousands of defense related documents, including important documents with information about the F-15 aircraft.<sup>23</sup>

While cyber warfare is a legitimate, proven threat, this is not the only capability that North Korea has used to target electronic nodes. Over the past five years, North Korea has repeatedly targeted both maritime and airborne targets in South Korea with a GPS jamming system. What we have seen repeatedly—in blocks of time that typically cover several days—is targeted jamming operations that typically focus on Incheon airport aircraft as well as ships and boats operating off the west coast of the Korean Peninsula. The most recent spate of GPS jamming operations occurred during March and April 2016, when these operations once again affected hundreds of ships, boats, and planes. South Korea took formal complaints regarding the North Korean GPS jamming opera-



tions to the UN.<sup>24</sup> One should keep in mind that these GPS jamming operations targeted the types of ships and aircraft that would potentially be involved in a non-combatant evacuation operation—a key concern for wartime or contingency operations on the Korean Peninsula.

In the previous sections, I have described development and testing of several important weapons systems, and while this is not a description of all of the systems under development in the DPRK, it certainly highlights many of the key new military threats that concern military planners and policy makers. Of course, of all of the threats that North Korea poses, the one that is most compelling is Pyongyang's nuclear weaponization development. This has been ongoing since the early 1990s, and the program has increased in both sophistication and complexity to what we see in January, 2016, which is when North Korea's fourth nuclear test occurred. Pyongyang claimed the test conducted in January 2016 was of a hydrogen device. Most analysts have assessed that the evidence did not support North Korea's claim, though it may have been a different device from the first three tests (or not). According to a report issued by the Korea Institute for Defense Analyses,

Judging by the seismic data, the yield of the nuclear explosion was similar to that of the third test carried out in 2013, a far cry from the power of a hydrogen bomb, which ranges from hundreds of kilotons to tens of megatons. Therefore, it is highly likely that this test was not a hydrogen bomb test or even a failed one, contrary to what the North says. Another possibility is that North Korea tested a boosted fission weapon, using deuterium and tritium, which is a technology essential for increasing its yield and reducing the size of a nuclear warhead in order to allow such a warhead to be mounted on a missile, in addition to being an intermediate process in the development of a hydrogen bomb.<sup>25</sup>

North Korea conducted its fifth nuclear test on 9 September 2016. There are many things that are important about the test. It was easily the largest test of a nuclear device by the North Koreans. Many analysts initially assessed the test to be around 10 kilotons in strength, while others have assessed that the yield may have been as high as 12 kilotons. If fired on a major city like Seoul or Tokyo by a ballistic missile, such a weapon could potentially kill up to 200,000 people. Also important regarding the test are the claims Pyongyang made that the weapon they tested is designed to be put on a ballistic missile capable of striking its enemies.<sup>26</sup>

One way or the other, it is clear that North Korea's nuclear program continues to move forward, as does the quest to mount a nuclear warhead on a ballistic missile.

### Brinkmanship and Provocations in the Kim Jong-un Era

There is, in my view, a big difference between brinkmanship and provocation. Brinkmanship is typically an act that is designed to create tensions in the region or draw attention to North Korea's military might, such as a nuclear weapons test or a large exercise near the DMZ. But violent provocations are acts designed to inflict casualties. In my studies, I have found that North Korea's violent provocations all have four

things in common. As I have discussed in previous studies, these four commonalities are: 1) they are intentionally initiated at moments when they have the likelihood of garnering the greatest attention on the regional and perhaps even the world stage; 2) they initially appear to be incidents that are relatively small, easily contained, and quickly "resolved;" 3) they involve continuously changing tactics and techniques; and 4) North Korea denies responsibility for the event.<sup>27</sup>

Perhaps the most important thing to note about violent provocations in the Kim Jong-un era is that the "third Kim" has chosen to carry on the policy of his father, which is to say that he intends to continue the policy of carrying out violent provocations from time to time in order to foster fear in South Korea, to attempt to drive a wedge into the ROK-U.S. alliance, and to uphold the image of North Korea's military prowess. As those who study the Korean Peninsula know well, there were several violent provocations during the Kim Jong-il era, with the most compelling being in 2010 when a North Korean submarine sank a South Korean Corvette (killing half the crew) and, months later, when North Korean 122mm MRLs fired on sovereign ROK territory (an island) killing two South Korean Marines and two South Korean civilians. Nineteen people were also injured in that attack.<sup>29</sup>

It took five years for the North Koreans to once again come up with a violent provocation, one that met the four criteria discussed earlier in this section. Two South Korean soldiers were on patrol 1,440 feet south of the military demarcation



Kim Jong-il. (Image from Wimpedia.org (Wikipedia commons).)



line on 4 August 2015. On that day, both soldiers stepped on North Korean “wooden box” mines. The soldiers were badly wounded, with one needing to have one of his feet amputated, and the other having parts of both of his legs amputated.<sup>28</sup> The mines were clearly south of the DMZ demarcation line. In other words, DPRK soldiers (likely special operations forces personnel) conducted a mission into the DMZ, planted the mines, and then successfully got back out—all without being detected and without any injuries. The violent provocation created an uproar in South Korea and showed that North Korea under Kim Jong-un clearly intends to continue the policy of conducting violent provocations meant to inflict casualties on the South.<sup>30</sup>

In reaction to the North Korean covert attack, South Korea resumed broadcasting propaganda into North Korea via loudspeakers near the DMZ. Pyongyang publicly responded that they would “attack” the loudspeakers. South Korea did not end the broadcasts. On 20 August 2015, the North Koreans fired several rounds of what at the time appeared to be small caliber artillery at targets in South Korea. ROK forces immediately reacted with artillery fire into North Korea, a quick and well-organized response. Following the exchange of fire back and forth across the DMZ, the North Koreans called for talks—there was no North Korean counterattack once the South Koreans showed they would respond quickly and authoritatively to any attack.<sup>31</sup> Thus, the “friction” quickly ended. In the future, South Korean troops who patrol on missions along the DMZ will wear mine-proof boots and carry special mine detectors in measures now taken to improve the safety of troops placed in harm’s way.<sup>32</sup>

### Motivations Behind the Brinkmanship, Provocations, and Weapons Development

With all of the stepped up development of weapons, the intentional brinkmanship to create tensions on the Korean Peninsula, and the ongoing violent provocations, one has to wonder what the motivation would be. There is no doubt that the weapons development is going at a faster pace than even under Kim Jong-un’s father, both in the number of military systems and the speed with which they are being rushed into development. But at the same time, there is no doubt that the government in North Korea is more unstable than it has been in over 60 years, when Kim Il-sung was consolidating his power.<sup>33</sup> Thus, we must turn to that instability and Kim’s efforts to consolidate power as the key reasons for what is going on now with the military forces.

Since 2012, the results of Kim Jong-un’s power consolidation has been purges. By 2015, it had become obvious that this showed no signs of ending, suggesting that his power was not yet consolidated (nor is it now). But also by 2015, it had become obvious that even though purges were occurring throughout the power structure, the military was taking the heaviest blow.<sup>34</sup> Much of what has occurred in the military appears to be intentional “divide and conquer” that has always existed. In other words, tension and competition exists between operatives (including generals) from the General Political Bureau (which answers to the party, not the military



**Kim Il-sung, the first leader of North Korea.** (Image by Wikimedia.org (Wikipedia commons).)

chain of command) and the traditional “fighting officers.” While this division has always existed (the General Political Bureau essentially spies on officers and unit commanders for the party), reports suggest that Kim Jong-un has exacerbated this already uncomfortable relationship in order to consolidate his power in the military.<sup>35</sup> Dr. Andrei Lankov, a professor at Kookmin University in Seoul, stated in an interview with *Radio Free Asia* that by 2015 Kim Jong-un was purging security officials on a scale not seen in North Korea since the 1960s. Lankov’s reasoning for the rational behind the purges was that Kim Jong-un wanted a “docile and obedient military.”<sup>36</sup> During July 2015, the National Intelligence Service in South Korea gave a briefing to the National Assembly that was later briefed to the press, assessing that “about 20 to 30 percent of senior party officials and more than 40 percent of senior military officers have been replaced.”<sup>37</sup> High-level officials continued continue to be executed as we move through 2016.<sup>38</sup>

The reactions to these massive purges—particularly in the military—have been predictable. What we have seen is increases in the defection rate amongst high-level officials.<sup>39</sup> If one is to conduct analysis on recent events, however, the reasons for the ongoing activity are obvious. Kim Jong-un is faced with a military that he obviously is not fully in control of yet. How does he control it? The solution is simple—with both the carrot and the stick. In other words, we have seen



massive purges throughout the power infrastructure in North Korea but at much higher rates within the military. Thus, the purges and the extreme punishment have been “the stick.” The carrot has been rapid development of a plethora of military systems, from artillery to nuclear weapons. Those who remain loyal to Kim will be leaders in a military that will focus on continuing to be a threatening, well-armed entity that maintains the status and power of the regime. Because of these factors (the fact that Kim is still developing his power base in the military and that his *modus operandi* appears to be the use of both the carrot and the stick), we are likely to continue to see continued development, testing, deployment, and proliferation of advanced systems, continued military training that is meant to increase tensions on the Peninsula, and violent provocations when the North Koreans feel the time is best to implement them.

### Conclusions

There is no doubt that North Korea is a country struggling simply to feed its people and to keep even the most basic needs of its cities satisfied (such as its long inoperable electric grid). But this is where we must think outside of the box as we analyze this nation state many analysts predicted would fall immediately (or soon thereafter) after Kim Il-sung's death in 1994. North Korea has an economy that is a basket case largely because of the high prioritization of its military (which takes away from everything else). Pyongyang continues to develop systems that can threaten not only the region but the also the United States. Its conventional weapons development will have an impact on any military forces involved in either a conventional conflict or a contingency operation, and the same applies to North Korea's WMD programs. One of the biggest challenges for allied forces, either in a war or in a contingency operation (such as collapse), will be recovering North Korea's WMD, which continues to be a major challenge for military planners.

We are thus left with a dual-headed threat as we look at North Korea. We see a country that is unstable and has been since the death of Kim Jong-il. We see the most instability within the military institutions, where Kim Jong-un continues to make strides to consolidate his power, but simply has not completed the task yet. So, we are faced with the many challenges that will exist if (when) American forces assist the South Korean military in the case of a North Korean collapse scenario and the contingency operation that will ensue as a result. At the same time, we are faced with an aggressive, asymmetrically equipped North Korean military led by an unpredictable strongman and armed with weapons that would inflict hundreds of thousands of casualties just in the first 48 hours of any conflict. It is this two-headed threat that is being planned—and trained—for in military exercises today. Those who would downplay the North Korean threat would be wise to carefully examine developments over the past four years.

### Notes

1. For an excellent example of analysis regarding North Korea's politi-

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11. See Lolita C Baldor, “Seoul: North Korea Fires Ballistic Missile Into Sea,” *Associated Press*, (17 March 2016), accessed at <http://www.oregister.com>; see also Jun Ji-hye, “N. Korea Fires Two Mid-Range Missiles,” *Korea Times*, (21 March 2016), accessed at <http://www.koreatimes.co.kr>.

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13. Yu Yong-weon, “Japan Eyes Deploying THAAD Battery,” *Chosun Ilbo*, (11 August 2016), accessed at <http://english.chosun.com>.



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# Forward Deployed

The Caltrap Division  
by the Staff, 3d MarDiv

Pictures line the command deck passageway, their nameplates reading as a “Who’s Who” of the Marine Corps’ most revered and proven leaders. Erskine, Shoup, Walt, Krulak, Cushman, Davis, and Wilson; these generals’ stoic reflections challenge us to recall our institution’s warfighting heritage and forewarn us to keep a weather eye out. This is 3d MarDiv, in Okinawa, Japan, where Marines and Sailors are poised and ready, steadily preparing, and standing ready for the call into the ever evolving chess match of the Western Pacific. The 3d MarDiv stands uniquely positioned on the very ground our Corps’ forefathers bought with unparalleled sacrifice.

The past has given way to a new context. Though the armistice on the Korean peninsula holds, the actions of Kim Jung-un have ushered in a new era of tension and uncertainty. The emerging challenge, driven by multinational holdings in the resource rich region, harbors the potential for a new era of tensions long anticipated by beltway think tank and Defense Department strategists. An entire MEF sits at the crossroads of the Pacific Command theater, patiently studying, adapting, and calculating the optimal posture and potential employment of its elements should the tension snap. At the forward edge of this brewing tempest stands the GCE of the III MEF, the men and women of the 3d MarDiv.

What follows is a summary of the many recognized and developing attributes of what a tour in the Division offers, both professionally and personally. The 3d MarDiv is storied, its alumni having stormed the beaches of Iwo Jima and Guam, deployed to the Republic of Vietnam, and participated throughout Iraq and Afghanistan. Service in the Caltrap Division<sup>1</sup> has always been one



*Marines rappelling at le Shima training facility. (Photo by Cpl Janessa Pon.)*

of prestige, and the current course of history and the prevailing preeminence of the Pacific region are positioning it once again to be the choice duty assignment for those who, by their nature as U.S. Marines, “march to the sound of the guns.”

## Strategic Setting

The Indo-Asia Pacific operating environment<sup>2</sup> is the most complex on the planet. It is a vast, maritime environment containing the majority of the world’s population, spread across thousands of islands and littorals; trillions of dollars in the trade crossing its seas; and four of the United States’ closest allies. Throughout the region, real potential exists for major theater war involving multiple Western and Asian countries, state-on-state conflict, violent extremism, transnational crime, and every possible humanitarian crisis. Yet, amidst these highly dynamic variables, a

few defining ripples persist: the increasingly caustic threat from North Korea and the emerging challenges presented by China’s aggressive military actions to control the South and East China Seas. Both countries are redefining their regimes, at odds with international law and norms, and are continuing to threaten regional and global security.

North Korean rhetoric and aggression on the Korean peninsula has never been as intense as it is presently, with artillery exchanges with the Republic of Korea, a continuous series of ballistic missile launches toward Japan, and escalating nuclear tests. Each international sanction imposed on Kim Jung-un is met with defiance, and patience on the peninsula is wearing thin. Accordingly, a large-scale conflict could be only a miscalculation away.

Meanwhile, the South and East China Seas continue to evolve into maritime garrisons. China and others



continue to create and improve military outposts throughout the South China Sea while investing in amphibious capacity. The South China Sea is a top national security concern, as \$5.3 trillion of world commerce and \$1.2 trillion of U.S. commerce transits here annually. Defying an International Court of Arbitration ruling, Chinese warships, coast guard ships, and maritime militia patrol in ever increasing numbers continue to harass fisherman, challenge nations' sovereignty, impede freedom of navigation, and block access to global commons. International military air operations over the South and East China seas are increasing as China threatens to enforce illegal air defense identification zones. Present day allies, including some former adversaries, increasingly look to the U.S.—particularly the Marine Corps—to partner with and develop their defense capability to defend their interests against this emerging and increasingly complex problem set.

## Training into the Future

Marines stationed in Okinawa enjoy regular, first-hand experience in distributed operations and, by the nature of the theater, continually expand and experiment with naval integration. Pursuing the Commandant's direction in his "Advance to Contact" FRAGO to be more "agile, flexible and adaptable," 3d MarDiv's infantry battalions spend over 50 percent of their time deployed off Okinawa. In addition to Camp Fuji, Japan, and various locations in Korea, the Division's forces deploy to Australia, New Zealand, Thailand, the Philippines, Malaysia, Singapore, Cambodia, Brunei, Fiji, New Caledonia, Mongolia, and Guam with more opportunities opening up in Indonesia and Vietnam. Because of our reputation for success and our noted professionalism, ally and partner nations are consistently seeking the opportunity to train and operate with Marines at all levels, from staff command post exercises to live fire and maneuver ranges.

The 3d MarDiv staff maximizes its training opportunities by shaping named exercises into mission rehearsals, pushing the staff and tactical units to evolve to meet the emerging threats.



**Marines conduct vertical assault training on Ie Shima training facility.** (Photo by Sgt Royce Dorman.)

Unlike the conflicts of the past decade, in which staffs operated from built-up safe havens with robust infrastructure, the Western Pacific requires more austere accommodations, operating with reduced and degraded communications, nimble command and control nodes, stretched logistical lines, and small units supporting unique and mobile capabilities. The Division forces have also exercised the mandate to operationalize non-standard

shipping, deploying and operating small units aboard numerous Military Sealift Command platforms—T-EPF (expeditionary fast transport ships), TAK (MPF container ships), and TAK-E (dry cargo ships) platforms, specifically. Finally, in order to support its warfighting capability, the staffs of the Division and its subordinate commands are adept in Maritime Prepositioning Force (MPF) employment, integrating MPF ships into



**The Jungle Warfare Training Center is composed of some of the most difficult terrain imaginable.** (Photo by Cpl Janessa Pon.)





*The USNS Millinocket (T-EPF 3) in Okinawa. (Photo by MCS1 Doug Harvey.)*

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***Through deployment via strategic airlift, use of amphibious and Maritime Sealift Command shipping assets, and opportune or contracted vessels, a distributed force continually operates as far north as Korea and as far south as Australia.***

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*A CH-53E prepares to land on the USNS Sacagawea (T-AKE 2). (Photo by MCS1 Lance Burleson.)*

operational maneuver as forces shift from one nation or land mass to another.

Due to its location and mission set, the Marines of the Division have the opportunity to lead in blue-green integration, large-scale conventional operations such as division-level amphibious operations, development of transformative concepts including expeditionary advance base operations as highlighted in *Expeditionary Force 21*,<sup>3</sup> and security cooperation with our key international allies and partners. Okinawa also is home to the Marine Corps' only Jungle Warfighting Training School, which offers premier training in the most difficult fighting terrain in the world. There is no better location to learn about the roots and fundamentals of our Corps and lead its future transformation than here.

### ***Sustaining into the Future***

Logistics is integrated across all operations in the Pacific theater. The forward deployment of the Marine units on Okinawa engages real-world strategic mobility for every major training evolution. Through deployment via strategic airlift, use of amphibious and Maritime Sealift Command shipping assets, and opportune or contracted vessels, a distributed force continually operates as far north as Korea and as far south as Australia.

The distributed nature of 3d MarDiv stretches every functional logistics component, not just strategic mobility. Deploying battalions and smaller-sized units throughout this distributed environment provide challenges and experiences for logisticians and maintainers of all grades, from supplying ammunition and operational rations to ensuring the smooth delivery of parts through a supply chain stretching all the way back to the continental U.S. These challenges are viewed by the Marines and Sailors of 3d MarDiv, and the III MEF as a whole, as cutting edge opportunities through which new and evolving approaches to ground logistics support can be developed. These new and evolving concepts of support are not just tied to the Pacific theater in theater security and cooperation operations but are





**Cultural programs like this tea ceremony help immerse Marines and their dependents in host-nation culture.** (Photo by Cpl Janessa Pon.)

proofs of concept for how we will support the Marine Corps of the future.

Finally, given that the Pacific theater's most likely contingency is humanitarian assistance and disaster relief response, our logistics forces stand as the region's bid for success in its time of need. These logistics warriors are able to provide unique capabilities during these responses, such as transportation, power, medical, and engineering support, to peoples and countries that are desperate for help. These operations assist our allies and partners during times of great need and also offer a tremendous training ground to hone and develop the subject matter expertise in these critical low density skill sets that keep the 3d MarDiv ready to address our Nation's enemies in the Pacific theater.

### Life in the Asia-Pacific

For single Marines and families alike, Okinawa is the best kept secret in the Marine Corps. The rich Okinawan culture, military history, mountainous jungle landscape, beautiful beaches, and renovated on-base facilities make Okinawa a genuine island adventure. From exploring ancient castle ruins to hiking beneath waterfalls, the on-island options for recreation are seemingly endless. Being forward deployed, Okinawa-based families routinely enjoy

Space-A and commercial travel to exotic locales throughout the region with top destinations being Indonesia, Bali, China, Vietnam, Korea, Australia, and mainland Japan.

The Department of Defense Education Activity (DODEA) Schools in Okinawa received one of the highest possible rankings across DODEA, with students earning top honors in science, technology, engineering, and mathematics (STEM courses), reading, and music. Furthermore, according to the Military Installations Department of Defense Dependents Schools (DODDS) assessment, teacher-to-pupil ratios on Okinawa annually exceed that of their stateside counterparts. One of the most unique programs in DODDS is the host-nation culture program which provides Japanese culture and language activities, helping students enjoy and appreciate living overseas and the opportunity to explore a unique and captivating people. Youth sports and activities abound with year-round options for kids to play and coach, including participation in the Far East Competitions where student athletes and scholars participate in competition with their counterparts throughout the Western Pacific.

Though getting to Okinawa is one of the hardest permanent changes of

station to make, once aboard, the opportunities for cultural enrichment, outdoor adventures, water sports, travel, and being part of a complex, important mission are worth the upfront effort. With recent improvements to the sponsorship program, much of the previously perceived stress is eliminated through personal contact with a Marine and family already on island.

### Join the Best and Brightest

The halls of the Division headquarters are marked with the Marines who carried the Caltrap legacy to where it is today—43 Medal of Honor recipients, including our most recent awardee, Cpl Dakota Meyer. Now, the 3d MarDiv looks toward its future. As the force of choice in the Pacific theater, the Division and its subordinate units' staffs are constantly evolving to meet the many emerging and historical threats present in this theater by taking the lead in blue-green integration and training to be a lean and agile force that is ready to "Fight Tonight." The 3d MarDiv also remains dedicated to acting as the region's bid for success in any humanitarian assistance and disaster relief response, utilizing its superior logistical capabilities and continuing to establish relationships with its military allies and partners throughout the Western Pacific. At the forefront of it all are the forward deployed men and women of the Caltrap nation, the best and brightest.

### Notes

1. The caltrap was a medieval defensive weapon used against cavalry and infantry. During the wars of the Middle Ages, defenders scattered large numbers of caltraps on the ground in front of an approaching enemy. The four-pronged, forged-in-iron caltrap was designed so that, no matter which way it landed when thrown on the ground, one point always pointed upward with three supporting it.
2. Indo-Asia Pacific operating environment includes the South and East China Seas and countries from North Korea to Australia, to India and extends across the Pacific to Hawaii.
3. Headquarters Marine Corps, *Expeditionary Force 21*, (Washington, DC: March 2014).





# 21st Century Combined Arms

Maximizing combat power, flexibility, and responsiveness

by The Ellis Group

The Marine Corps is a combined arms organization, but it has not always been so. After the amphibious advanced base force exercise on Culebra, Puerto Rico, in 1914, it was clear that the institution's new mission would require it.<sup>1</sup> LtCol Earl "Pete" Ellis, who observed the Culebra experiment, proposed a more balanced combined arms force in *Advance Base Operations in Micronesia*, his strategic net assessment of potential war in the Pacific.<sup>2</sup> From 1935 to 1941, the Navy and Marine Corps experimented with different ways to employ such a force during amphibious operations. In a series of seven Fleet Landing Exercises (FLEX), the Marine Corps, under Commandant LtGen Thomas Holcomb, refined its force structure and mix of weapon systems.<sup>3</sup> These

exercises not only led to advances in naval ship-to-shore capabilities, but also allowed the Marine Corps to refine first its brigades and finally its divisions into combined arms forces. These efforts transformed a Marine Corps built for the Age of Sail into the modernized expeditionary force it remains today.

The combined arms approach is how the Marine Corps executes maneuver warfare. Rapid, flexible, and opportunistic maneuver can only be accomplished by a combined arms force, and diversity of means maximizes combat power, flexibility, and responsiveness. *MCDP 1, Warfighting*, describes it simply as, "The full integration of arms in such a way that to counteract one, the enemy must become more vulnerable to another."<sup>4</sup> Increasingly though, *full* is the operative word; the MAGTF must

employ not just direct and indirect fires but all of its assets to achieve combined arms dilemmas. Mastery of combined arms fueled the Marine Corps' success in the 20th century, but today there exists far more combat arms capabilities. Therefore, our view of combined arms must expand in equal measure with the expanding capabilities of the MAGTF. Indeed, the Marine Corps operating concept states that,

The 21st Century MAGTF executes maneuver warfare through a combined arms approach that embraces information warfare as indispensable for achieving complementary effects across five domains—air, land, sea, space, and cyberspace.<sup>5</sup>

The Marine Corps will have to conduct combined arms across five domains: air, land, sea, space, and cyberspace. To do so, our understanding of combined arms must be expanded for the current strategic environment.

## Combined Arms in History

To understand combined arms warfare, we first have to understand its origins. Although there is evidence that earlier civilizations, such as the Assyrians, managed to integrate multiple arms within their military forces, the initial development of an integrated approach is clearest in Ancient Greece. Warfare in ancient Greece was in constant flux, a product of continual tactical competition and the resultant adaptation. In the years after the Trojan War, two major powers dominated Aegean politics: Sparta, which focused on land power, and Athens, which focused on sea power.

This situation prevailed during the Persian Wars. Despite Hollywood de-



Exercises should include a focus on cyber and electronic warfare and information support operations. (Photo by Sgt Tia Dufour.)



pictions, the Greeks were just barely able to hold off Persian power only because Persia did not have the logistics to support longer efforts. It was the destruction of much of the Persian fleet at Salamis in 480 BC that forced a Persian withdrawal and allowed a combined Greek army to defeat the rear party left in Greece at Plataea the following year.

In the aftermath of the Persian defeat, Sparta and Athens turned on each other. During the Peloponnesian War, Athens had to confront Sparta on land. To defeat the superior Spartan hoplites, the Athenians combined irregular warfare tactics and its stronger navy during the amphibious Pylos and Sphacteria campaign on the Peloponnesian Coast in 425 BC. Despite this defeat, the Spartans eventually succeeded in winning the war by developing its own navy and defeating the Athenian fleet at Aegospotami.

Despite being the now dominant Greek power, the Spartans ran into further trouble when they were defeated by Thebes under a general named Epaminondas. Epaminondas defeated the Spartan army by creating asymmetry of mass; at the Battle of Leuctra in 371 BC, the left wing of the Theban phalanx was weighted as a main effort. The best Theban troops were arranged 50 ranks deep instead of the traditional 8 ranks deep. Theban allied troops on the right wing, as a supporting effort, were instructed to withdraw slowly as the Spartans opposite them advanced. The



**Combined arms means more than the synergy of direct and indirect fires and maneuver.** (Photo by LCpl Jesus Sepulveda Torre.)

withdrawal drew the Spartans forward, exposing their flank to the weighted Theban main effort. The Spartan Army suffered so many casualties that their supremacy in Greece was broken, and they never recovered.

This action and reaction of inter-Greek warfare was interrupted by the first regional power to integrate all the arms of warfare rather than just strengthening one arm to defeat another. The Macedonian Army under Philip IV was professionalized, trained, and improved. Rather than just improve one arm, however, Philip improved them all. The Macedonian phalanx was equipped with longer spears (18 feet versus 8 to 10 feet), and their light troops were trained alongside the hoplites and the cavalry.

Integrated training of hoplites, peltasts (skirmishers armed with light javelins), and cavalrymen produced a combined arms force that melded the mass of the phalanx, the standoff firepower of the peltasts, and the mobility and shock of the cavalry.

The result of this revolution is clear in the historical record of Philip's son, Alexander the Great. Alexander had little trouble conquering both Thebes and Athens. Sparta was so irrelevant after their earlier defeats that Alexander did not even bother with them. When Alexander invaded Persia, their masses of troops were not just held off by Alexander's troops but rapidly shattered by his combined arms assault. Importantly, neither Phillip nor Alexander invented a single new capability or method, they were just the first to combine existing methods in a way that each complemented and supported the other.

With this Macedonian army, Alexander conquered the known world. He was only stopped by his own troops who, having conquered everything and everyone, only wanted to go home. The Romans would later institutionalize a modular, combined arms approach and would go on to even greater conquests, but, for a brief moment, Alexander was unstoppable.

Information warfare too has been integrated with maneuver for centuries. During Saladin's campaigns to seize power in the Middle East in 1174



**Aviation assets will play a critical role in getting Marines to the battle.** (Photo by Sgt Adwin Esters.)



he repeatedly presented himself as acting in the interest of the previous ruler, then an 11-year-old boy based in Aleppo. Thinking Saladin an ally, cities opened their gates to his army. In this way, Saladin seized Damascus, Homs, and Hama in Syria with a tiny force and very little bloodshed.<sup>6</sup>

### 20th Century Combined Arms

It's unnecessary here to further trace combined arms warfare through all of history. The approach truly came into its own and solidified in the 20th century. It revolved around the firepower of modern artillery and aviation, the mobility and protection of tanks, and the maneuverability of motorized and mechanized infantry forces. At the end of World War I, the Germans cracked the code of the static trench defense line. A combination of well-planned fire support, storm troop tactics, and well-chosen attacks on narrow frontages burst French and English lines wide open. The Germans, however, were unable to logistically sustain those offensives, allowing French, English, and American troops to shift troops and halt the offensive.

In the course of the 20th century, rapid-fire artillery, heavy machine guns, tanks, tank destroyers, fixed-wing and rotary-wing attack aviation were all introduced and relegated to separate, homogenous units.<sup>7</sup> In every case, such an arrangement failed. New battlefield capabilities only reach their potential once they are integrated into a cohesive whole.

The Germans had gotten maneuver and fire support right but failed to put as much intellectual resources into studying the logistics piece. In World War II, however, they added enough follow-on troops to keep the offensives going, chose points of infiltration opposite railheads, and designed motorized logistics trains attached to panzer divisions, better at supporting assaulting forces than horse-drawn logistics (which were still used). Motor transport allowed infantry to keep up and support the tanks of panzer units. By 1939, they mastered sustaining such offensives, and the French defense in depth system cracked and broke.



**Marine infantry may not always be the main effort.** (Photo by Sgt Rebecca Floto.)

Their success, however, was the result of more than just the integration of artillery, aviation, tanks, and infantry. Such integration depended first on the ability to keep every arm supplied with fuel, ammunition, and other supplies. Secondly, rapid combinations of various combat arms could only be achieved with a decentralized command and control system (C<sup>2</sup>) based on mission tactics, commander's intent, and opportunistic exploitation, known as

*auftragstaktik*. Even before World War II ended, other militaries began more or less adopting such methods. The prosecution of the Persian Gulf War in 1991, for example, was designed around the same concepts as the initial German offensive during World War I in France.

What makes combined arms so potent is not the physical employment of multiple arms on the battlefield but the mental stasis or collapse caused by the victim's inability to effectively respond



**Artillery remains our best resource for massed, concentrated fire support.** (Photo by SSgt Artur Shvartsberg.)



to the dilemma posed by combined arms. A great example of the mental effect caused by an innovative application of combined arms is the jumping barrage used by the Israeli Defense Force in 1967. Israeli ground troops were attacking an Egyptian fixed defensive position in the Sinai. When the Israelis began to take incoming fire from the Egyptians, they stopped. Every artillery gun available, over 100, was tasked with firing a single volley at a single target located on the Egyptian line. At preplanned intervals, each gun would shift to a new target and then, occasionally, shift back to its original target. After ten minutes of such volleys, Egyptian troops refused to leave their bunkers even after the firing had stopped. The mental effect of the seem-

intended cognitive effect. Combined arms is not just about creating a dilemma for the enemy but also about weaving various combat arms together in such a way that the enemy cannot mentally cope with such dilemmas. The ability to execute combined arms, not just physically but also cognitively as the above example demonstrates, is the key to combined arms in the cognitive effect on the enemy.

### 21st Century Combined Arms

It is vital that the Marine Corps achieve a tight level of integration combining the physical and cognitive effects, kinetic and non-kinetic, lethal and non-lethal, among all combat arms: information, cyber, and electronic warfare as well as maneuver, artillery, and

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***Combined arms across five dimensions means using all available means to confront the enemy with multifaceted, reinforcing, and rapidly-shifting dilemmas at the tactical, operational, and strategic levels in order to shatter his cohesion, corrupt his decisionmaking, and increase his friction.***

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ingly chaotic barrage induced inaction on the front line troops and overloaded the Egyptian C<sup>2</sup> network with multiple confusing and conflicting reports of incoming fire. The Israeli ground troops then advanced on the Egyptian positions unopposed and shattered the defensive line.<sup>8</sup>

This is just one innovative application of combined arms, but it offers a number of lessons. First, the combination of multiple arms—in this case artillery, infantry, and attack aviation that destroyed the Egyptian artillery positions prior to the barrage—was greater than the sum of its parts. Second, the mental effects caused by the artillery fire were more decisive than the few casualties it caused. Third, the jumping barrage achieved mass by concentrating effects in time; the artillery targets were deliberately dispersed rather than concentrated. Even so, it achieved the

aviation. Fortunately, there are more options than were available to the Israelis in 1967. But, there are also new challenges.

In order to place the enemy in a combined arms dilemma, the MAGTF must have a feel for the enemy, his intentions, and the operating environment. In maneuver warfare terms, we must identify the enemy's surfaces and gaps while preventing the enemy from ascertaining ours. Warfare in the 21st century demands that we view surfaces and gaps not solely as hard and soft points in the enemy's lines but across the domains of air, land, sea, space, and cyberspace, to include the electromagnetic spectrum.

### Five Dimensional Combined Arms

To that end, the Marine Corps employs force with organic or supporting arms down to the lowest level, but

future fights demand an expansion of the arms available to those units at the tactical edge. Combined arms across five dimensions means using all available means to confront the enemy with multi-faceted, reinforcing, and rapidly-shifting dilemmas at the tactical, operational, and strategic levels in order to shatter his cohesion, corrupt his decisionmaking, and increase his friction.

- Multifaceted
  - The classic example of combining direct and indirect kinetic lethal fires to present the enemy with a dilemma holds true but is no longer sufficient. Most enemy forces will have multiple options, not just two. Multiple enemy courses of action must be confronted with multiple friendly capabilities so that his reaction, any reaction, will expose a critical vulnerability to a friendly capability.
- Reinforcing
  - Combined arms dilemmas must be created in depth. Enemies can choose a course of action, come what may, and "push through" a dilemma presented by one of our arms. If this is the case, his reward must be another layer of dilemma presented by still another capability.
- Rapidly shifting
  - The MAGTF cannot present a dilemma to an enemy and then wait to see the effect. The MAGTF must be able to adroitly shift multiple dilemmas so that the enemy is not just confronted with a pattern of dilemmas but a kaleidoscope thereof. By the time he has gained situational awareness, the situation has already changed. Rapidly shifting from maneuver to maneuver contributes to both combat power and combined arms dilemmas.

Multifaceted, reinforcing, and rapidly shifting combined arms operations require the ability to fight for and generate intelligence to identify surfaces and gaps while simultaneously protecting friendly surfaces and gaps in order to drive maneuver. Moreover, five dimensional combined arms must be performed simultaneously at the tactical,



operational, and strategic levels. This means that individual enemy units are vulnerable to multiple MAGTF capabilities, the enemy's campaign plan is in disarray or puts them at a disadvantage, and the very act of confronting Marine Corps forces threatens their political ends. The Marine Corps as an institution is not structured and trained to operate on multiple levels and in multiple dimensions simultaneously, but future warfare demands it.

*Surprise and deception.* Surprise and deception have played large roles in warfare as the story of the Trojan Horse attests. No amount of advanced technology has diminished its importance. In fact, its importance has increased. During World War II, the Red Army planned surprise and military deception efforts—referred to as *maskirovka*—for campaigns on a routine basis.<sup>9</sup> That Soviet tradition has survived as Russian Federation forces continue it in Ukraine today. Of course, Western militaries have their own traditions of military deception, such as Operation FORTITUDE, the effort to deceive Nazi Germany as to the location of the Allied landings in France in 1944. However, after decades of technological overmatch, the U.S. military pays less attention to surprise and deception. This is unfortunate, as a British study of 158 land campaigns since 1914 found that achieving initial surprise in a tactical engagement has the same success rate as possessing a 2,000:1 numerical superiority over the enemy.<sup>10</sup>

Although the two concepts frequently go hand in hand, they are not the same thing. Military deception can contribute to achieving surprise, but it can also achieve other effects. Deception efforts can divert enemy troops and resources to defend against attacks that will never take place, for instance, or it can force enemies to react thereby exposing them to detection by electronic signature or to fire support agencies. While these skills have atrophied as the Marine Corps has enjoyed air supremacy and technical overmatch in recent conflicts, Marine Corps history offers many examples of successful military deception. The most famous of which occurred during the Persian Gulf conflict. Coalition

planners ensured that the Iraqi forces knew that II MEF was on its way to the region and that it was intended to stage an amphibious assault. This led the Iraqi forces to defend the coastline with fully two infantry and one armored divisions, taking those divisions out of the fight entirely.<sup>11</sup> The use of an off-shore MEU to neutralize enemy forces achieved deception but without surprise as an ambush would, for example.

A combined arms approach is about the cognitive effect of forcing the enemy into a dilemma that he cannot overcome or ignore. The enemy is psychologically paralyzed by a dilemma where even inaction is deadly. Surprise and deception are thus powerful weapons that enable such an approach.

*Reconnaissance/counterreconnaissance.* In order to place the enemy in a combined arms dilemma that achieves surprise and deception, the MAGTF commander must have a feel for the enemy, his intentions, and the operating environment. Reconnaissance units, motorized and not, that mirror infantry units with additional training were sufficient for the 20th century but will not remain so.

In recent years, capabilities like unmanned aircraft systems and satellite imaging have offered unmatched surveillance capabilities, but the Operating Forces have grown dependent on them. The air supremacy needed for persistent ISR (intelligence, surveillance, and reconnaissance) coverage can no longer be assumed and, even were it to be achieved, will not be sufficient against capable enemies. Ground reconnaissance forces are necessary to augment aerial surveillance to acquire granular detail that surveillance cannot ascertain.

This means that the MAGTF will have to generate the capability that gathers battlespace information about the enemy forces, the human and geographic terrain, the electromagnetic spectrum, and gathers intelligence via various means, especially signals and human intelligence. All of these contribute to the MAGTF commander's *fingerspitzengefühl*, or "finger feeling:" his feel for the battle as it unfolds. A robust reconnaissance capability is

necessary to establish it. Simultaneously, relevant information about the MAGTF has to be protected, enemy reconnaissance units screened and blocked, and misinformation will need to be injected into the enemy's situational awareness.

*Information warfare.* Surprise and deception are increasingly difficult in the densely populated urbanized littoral regions reinforced by a global digital media environment, but the proliferation of the global Internet has also elevated information warfare. Every major adversary that the United States may face in the foreseeable future puts information warfare in the front and center of their operations. Much like the proliferation of usable gunpowder in the late Middle Ages transformed every level of warfare, so too is the proliferation of Information Age technology and communication suffusing warfare at every level. The global digital media environment is a reality and will not suddenly disappear. Warfare now takes place on a global stage, and every operation must be evaluated through the lenses of different audiences: enemy, friendly, domestic, and international.

While this will impact how we operate, it also offers additional opportunities for combined arms. Information can be used to deceive, demoralize, and even disable enemy units and capabilities, contributing to the creation of dilemmas.

*Electronic warfare (EW).* Electronic warfare has been a battlefield capability since the first use of radios to communicate. Telephone lines and radio transmissions were tapped as early as World War I to gather intelligence, and jamming was possible by World War II. Just as electronics have advanced since then, so has the importance and ubiquity of electronic warfare.

The ubiquity of electronic warfare has major implications when it comes to defensive measures. Signature management will need to become as continuous and as well understood as camouflage. In fact, the most important part of camouflage will be mitigation of electromagnetic signature at every level. Simultaneously, the Marine Corps



must better integrate EW in order to identify and the target the enemy. The signature battle has both offensive and defensive aspects.

EW also has great offensive potential. Most enemy reactions to any other combat arm will create a signature, even if the enemy can only send a situation report. Once that signature is detected, it can be targeted. Additionally, EW itself can be used to disrupt or disable enemy C<sup>2</sup> nodes, making it an important part of the suppression of enemy air defenses as well as other enemy capabilities. EW, therefore, must be fully integrate into our combined arms construct so as to take advantage of enemy vulnerabilities, gain intelligence, and deliver an appropriate response.

The essence of combined arms is the use of every available means at the disposal of the MAGTF to achieve an advantage over the enemy. Since various arms have various and complementary strengths and weaknesses, the ability to employ them simultaneously and in a mutually reinforcing manner will be the key to success. However, the use of multiple arms magnifies the friction of the organization employing them. Clausewitz, of course, teaches that a military force must overcome friction in order to operate, and our force structure should be organized in such a way as to minimize that inherent friction. But John Boyd teaches that we must not just overcome our own friction, we must inflict friction on the enemy.

**Cyber warfare.** Cyber capabilities are not just a means for information warfare but offer opportunities for espionage and intelligence gathering, military deception, and battlefield effects like the turning off of power grids or direct manipulation of enemy C<sup>2</sup> networks and systems. In 2015, a cyberattack by a Russian hacking team on a power grid in Ukraine turned off the electricity of 225,000 customers.<sup>12</sup> This same type of attack could be used on the battlefield, shutting down C<sup>2</sup> networks and lighting, forcing an opponent to fight in darkness and without communications. Cyber warfare will allow us to magnify the fog, friction, and chaos of battle in a way that is detrimental to our enemy and his cognitive ability to fight.



**Along with cyberattack, electronic warfare will require special attention.** (Photo by Sgt Neysa Huertas Quinones.)

**Artillery.** While emergent capabilities will be vital, traditional supporting arms will still have a place and innovative ways of employing them will be needed. Surface delivered, kinetic, and lethal indirect fire capabilities will continue to be a strong base of combined arms, especially when sheer volume of fire is needed. The sustained suppressive and fixing effects of artillery is still unmatched by any other combat arm. Surface fires will, however, need to be employed with creativity and care. As dependent as fire support coordination is on radio and digital communications, the electromagnetic signature of artillery units especially is now a serious vulnerability. Artillery will need to be employed in a much more physically distributed manner and fast, easy displacement of platforms is of primary concern; counter fire is no longer a possibility but a likelihood. Large coordination centers that are only moved with difficulty will not be a realistic option. The ideal future surface-to-surface fires capability will require dispersed delivery and converged effects (although this does not necessarily mean converged fire as the jumping barrage example shows).

Therefore, the agility of artillery systems—i.e., the ability to emplace and displace quickly and fire from any point

on the battlefield—will be far more valuable than its firepower per round or even its range. This places a premium on automated and self-propelled platforms. As maneuver formations operate in a more distributed manner, artillery units will need to be even more capable of direct support of smaller and smaller units which presents both logistic and force protection challenges. Lastly, fire support coordination measures must be decentralized and delegated to the absolute lowest level. Lengthy approval processes are a luxury that is no longer possible. This is not to say that coordination to prevent friendly and civilian casualties can be ignored. Rather, junior leaders must be empowered with training, authority, and commander's intent in order to achieve speed, precision, and accuracy.

**Maneuver.** The purpose of any combined arms approach is to facilitate maneuver that shatters the enemy's cohesion. As an infantry-centric force, Marine infantry will remain at the core of our tactics. In recent years, the Marine Corps infantry squad has become the focus of operations, and the Marine Corps operating concept reflects this trend. The character of recent infantry combat, however, has been almost entirely reactive. To restore proactivity and effectively retain tempo in the 21st cen-



tury, the ability to conduct combined arms must be resident in the squad itself as well as at higher echelons. Personal weapons systems with sufficient range and with high explosive lethality to affect enemy units out to at least 800 meters will be required.

Additionally, maneuver units will continue to require organic mortar systems to provide an intimate and responsive fire support capability. While artillery will continue to be an ideal weapons system when mass is required, infantry mortar systems need to be able to provide rapid precision fires at the bleeding edge of maneuver operations.

**Aviation.** The unmitigated air supremacy enjoyed by American aviation

both fire support teams and fire support coordination centers. Munitions with greater range and net-enabled terminal guidance will prove useful but will necessitate additional training of fire supporters at every level, especially joint terminal attack controllers. The geometry of fire support coordination will be an order of magnitude more complex than in recent years.

While the role of aviation in combined arms may prove more difficult to employ in future fights, its importance will not be diminished. Indeed, as electronic warfare capabilities are increasingly employed by aircraft, aviation will increase in both flexibility and importance.

tion and information warfare a main effort, the Marine Corps must break its habitual views on the main effort in order to retain initiative and flexibility. Of course, as an infantry-centric force, infantry units will still frequently be the main effort but not always. Marine Corps commanders will frequently need to employ more creative plans, especially in shaping phases. This is not to say that there will not be a decisive phase where an assault is the main effort and enemy forces are destroyed, but that the shifting of main efforts must be an engrained habit and not a rarely used option.

As noted above, surprise and military deception are now of the utmost importance. These efforts cannot be left to information warfare subject matter experts; they must be front and center during the planning process. Both concepts feature prominently in both Marine Corps history and in *MCDP 1*, but little attention has been paid to them in recent years due to the nature of counterinsurgency operations in Iraq and Afghanistan. This is a muscle the Marine Corps must get used to flexing again.

None of these efforts can be successfully pursued without flexible and responsive expeditionary logistics. Prosecuting combined arms across five dimensions will strain legacy logistics systems and methods. Catastrophic failure in this realm will put Marine forces in their own dilemma.

Lastly, our tradition of decentralized C<sup>2</sup> based on mission tactics and commander's intent is more important than ever before. It is vital to Marine Corps' operations across the entire organization but especially so when it comes to executing modern combined arms warfare. Five dimension combined arms requires coordination, and coordination requires communications. At the same time, electromagnetic signatures caused by modern communications devices must be mitigated as much as possible. How will the Marine Corps achieve the level of coordination and communication necessary for combined arms while simultaneously mitigating the electromagnetic signature of units? We already know the

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***As adversaries increasingly make military deception and information warfare a main effort, the Marine Corps must break its habitual views on the main effort in order to retain initiative and flexibility.***

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units in recent conflicts can no longer be assumed. Foreign professional militaries now employ organic air defense systems as low as the battalion level in response to the traditional dominance of American airpower. Aviation units thus must be prepared to create local air superiority on a temporary basis and to exploit local air freedom of movement generated by other combat arms. Suppression of enemy air defense missions will become routine rather than rare. Even beyond the threat of enemy action on the ground, Marine Corps aviation units will continue to be tasked by joint forces to assist in the defense of naval assets and expeditionary advanced bases. This has major implications for the employment of both manned and unmanned aviation systems. At times, other combat arms will have to shift to compensate for a lack of local air superiority or higher priority tasking of aviation assets.

The advent of advanced aerial-delivered munitions will drastically increase the complexity of fire support coordination and thus increase the burden on

#### **Implications**

The implications of the expanding character of combined arms are many but none more important than the need to fuse more forms of combat arms support. The nature of combined arms has not changed; it is still about the mutual and reinforcing effect of numerous capabilities. Its character though is employing information, cyber, and electronic warfare with new and innovative application of artillery and aviation fires in support of maneuver. Fire support coordination at every level is focused on the coordination of maneuver, artillery, and aviation but must now include more capabilities. As the use of these combat arms fuses, so too must structure: organizational stovepipes between fires and information, cyber, and electronic warfare must be broken in the same manner as an fire support coordination center integrates maneuver, artillery, and aviation.

Another implication is that designation of infantry units as the main effort will no longer be the rule. As adversaries increasingly make military decep-



answer—decentralize the C<sup>2</sup> of various arms as much as possible and at the lowest level possible. Centralized processes can no longer be tolerated and must instead be rooted out and redesigned. Commanders who cannot or will not effectively lead in accordance with our maneuver warfare philosophy similarly cannot be tolerated.

### Conclusion

The Marine Corps expects that domain and technological dominance on the part of our military forces can no longer be assumed. Future adversaries will have capabilities on par with or nearly on par with our own. It also cannot be assumed that a return to peer adversaries will automatically mean a return to 20th century combined arms maneuver. It's unclear exactly what future tactics will look like, but they will surely not look like past tactics. Russia and China are already integrating advanced capabilities, especially cyber and electronic warfare, into tactical level



**CAS and aerially delivered munitions will increase fire support complexity.** (Photo by Cpl Brian Burdett.)


organizations and operations. Even non-state actors like Hezbollah and ISIS have gained advanced weaponry, leverage modern information technology, and have demonstrated the ability to take on conventional, professional militaries in Lebanon, Syria, and Iraq. The race to dominance on future battlefields is a race to integrate the new and the traditional in a synergistic fashion aimed not at the physical destruction of enemy forces but at their cognitive ability to operate as a cohesive unit. The combined arms approach, as an integral part of maneuver warfare, allows us to creatively combine the capabilities of the entire MAGTF and joint partners into a cohesive whole in a way that adversaries will be unable to match.

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# Naval Command and Control

## Rethinking CATF-CLF C<sup>2</sup>

by Maj Kevin J. Stepp

In his landmark book, *Fleet Tactics and Coastal Combat*, Capt Wayne P. Hughes, USN (Ret.) wrote that command and control (C<sup>2</sup>) transforms the potential to deliver force into reality, and as such C<sup>2</sup> methods are of fundamental importance.<sup>1</sup> Changes in threats and the increasing lethality of littoral defenses facing the current and future maritime force require a reexamination of even time-tested C<sup>2</sup> methods.<sup>2</sup> A careful reexamination of current C<sup>2</sup> methodology may reveal inadequacies that, if resolved, can ensure all available combat potential assembled in the maritime force is transformed into reality against our adversaries. The increasingly dynamic character of conflict requires additive and new combinations of force integration. Success in contested littoral regions requires close integration among the joint force.<sup>3</sup>

In support of amphibious operations, the existence of two distinct C<sup>2</sup> methods hinders the closest integration between the naval and embarked assets resident in an assembled maritime force. The time-tested CATF-CLF (commander amphibious task force-commander landing force) C<sup>2</sup> method falls short when considering contemporary anti-access/area denial capable adversaries. A new functional C<sup>2</sup> method for amphibious operations must be employed to realize the greatest effect from the assets and capabilities resident in a maritime force when operating in a contested maritime area of operations. The underlying question is this: What C<sup>2</sup> methodology best achieves the required levels of integration between Navy and Marine Corps forces when preparing for amphibious operations in a contested environment? The strengths

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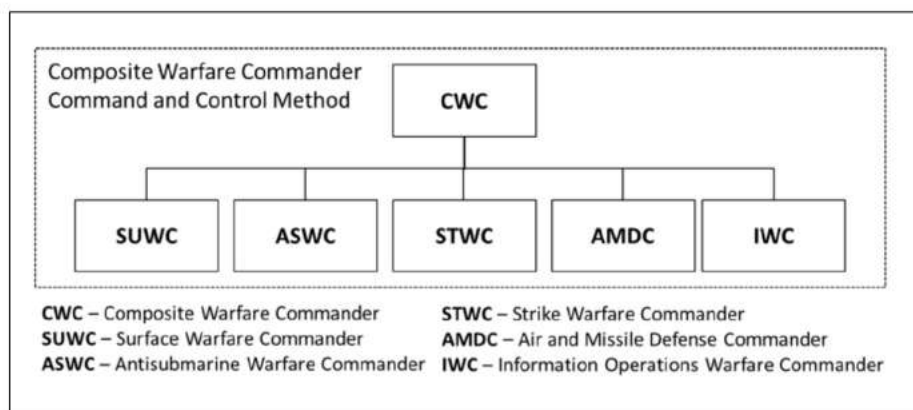


Figure 1. Notional CWC construct.

of the CATF-CLF method can be leveraged into a more unified C<sup>2</sup> framework. During amphibious operations, composite warfare doctrine, rather than the CATF-CLF C<sup>2</sup> methodology, is better suited to achieve the closest integration among the entire complement of assets in the maritime force.

### About Composite Warfare Doctrine

Composite warfare doctrine is the principal functional C<sup>2</sup> method employed by naval task forces and should be familiar to all Marines. Composite warfare doctrine provides the framework for the task organization and resource allocation for the entire complement of assets contained in the naval task force. Within the composite warfare doctrinal framework, per *Naval Warfighting Publication 3-56, Compos-*

*ite Warfare Doctrine*, naval task forces are organized along functional warfare domains under functional warfare commanders.<sup>4</sup> The five primary functional commanders are the surface warfare commander, the antisubmarine warfare commander, strike warfare commander, air and missile defense commander, and information operations warfare commander. These functional warfare commanders are considered co-equal commanders and advisers to the task force's single command authority, the composite warfare commander (CWC). Figure 1 depicts a notional composite warfare C<sup>2</sup> construct. This framework is similar to the command relationship shared by the CATF and CLF—that being their functional responsibility as co-equal commanders and advisers to the amphibious force's single authority,



the commander of the amphibious force (CAF).

When considering joint warfare, per *JP 3-32, Command and Control of Joint Maritime Operations*, composite warfare doctrine also serves as the primary C<sup>2</sup> method for joint maritime forces. Task organization of forces into functional warfare domains provides the commander of an assembled maritime force, and specifically the joint force maritime component commander (JFMCC), with a common, uniform C<sup>2</sup> framework for maritime force of varying sizes. In addition to supporting maritime forces of varying size, composite warfare doctrine tailors to maritime forces varying in scope. Contemporary maritime forces are composed often with a variety of platforms; many of which are multi-purpose. These multi-purpose platforms demonstrate capability to support activities in disparate warfare domains. Cruisers, for example, can simultaneously conduct activities in the surface, anti-submarine, and air and missile defense warfare domains. Because the maritime domain includes the surface, subsurface, air space, landmass, and cyber and space regions that can be influenced from the sea, a JFMCC's responsibilities lie in simultaneously operating in multiple domains. Composite warfare doctrine's functional warfare framework creates divisions of labor within the maritime force. This functional framework provides the JFMCC with functional expertise in each of the primary warfare domains and with a mechanism to allocate resources in accordance with assessed threats or changing priorities. In a dynamic maritime area of operations, composite warfare doctrine's functional framework, assembling the necessary co-equal functional commanders, from the joint arena, into a common, uniform C<sup>2</sup> framework, enables the JFMCC to simultaneously conduct activities in multiple disparate domains.

Composite warfare doctrine's functional C<sup>2</sup> method provides the JFMCC with a method to develop a combination of options with platforms from disparate warfare domains toward maritime objectives or threats. Composite warfare doctrine places the entire

complement of assets and capabilities in the maritime force in operational control (OPCON) of the JFMCC.<sup>5</sup> This command relationship between the JFMCC and the functional warfare commanders allows the JFMCC to fluidly reallocate assets and capabilities between functional commanders. With the entire complement of assets resident in the maritime force OPCON to the JFMCC, fluid reallocation allows for a greater variety of options and combinations of force employment against adversaries. Greater availability from a larger pool of assets and capabilities provides new combinations, compositions, and options of force employment in the maritime area of operations. For example, when considering the ability to influence operations ashore during amphibious operations, the JFMCC, within the composite warfare construct, can leverage the unified complement of surface, subsurface, aviation, embarked landing forces, and cyber assets to create multi-axis, multi-domain attacks on an adversary's coastal defenses and anti-access/area-denial (A2/AD) infrastructure.

### Integration

In the traditional construct for amphibious operations, two distinct C<sup>2</sup> methods are employed, hindering an optimal degree of integration within a maritime force composed of a naval task force and an embarked landing force.

Per *JP 3-32*, composite warfare doctrine provides for the defense of the amphibious task force, while the CATF-CLF method exclusively supports employment of the landing force during various types of amphibious operations.<sup>6</sup> In support of amphibious operations, Figure 2 depicts how the CATF-CLF C<sup>2</sup> method would be employed alongside the construct defined by composite warfare doctrine. Within this construct, the embarked landing force's contributions to the maritime force are excluded because the CLF retains operational control of the embarked landing force. The existence of these two distinct C<sup>2</sup> methods during amphibious operations intends to preserve for the JFMCC the maximum degree of combat power for operations ashore. However, the potential contributions from the embarked landing force to larger maritime mission are nullified by the seam created between the two distinct C<sup>2</sup> methods and thus distinct command relationships.

The increasing lethality of threats against maritime forces requires a C<sup>2</sup> method supporting a higher degree of integration for the entire complement of assembled maritime assets. If the joint maritime forces' success in the contested littoral regions requires the closest integration of the entire complement of assets in the maritime domain, the landing force's potential contributions to the entire maritime force are not facilitated

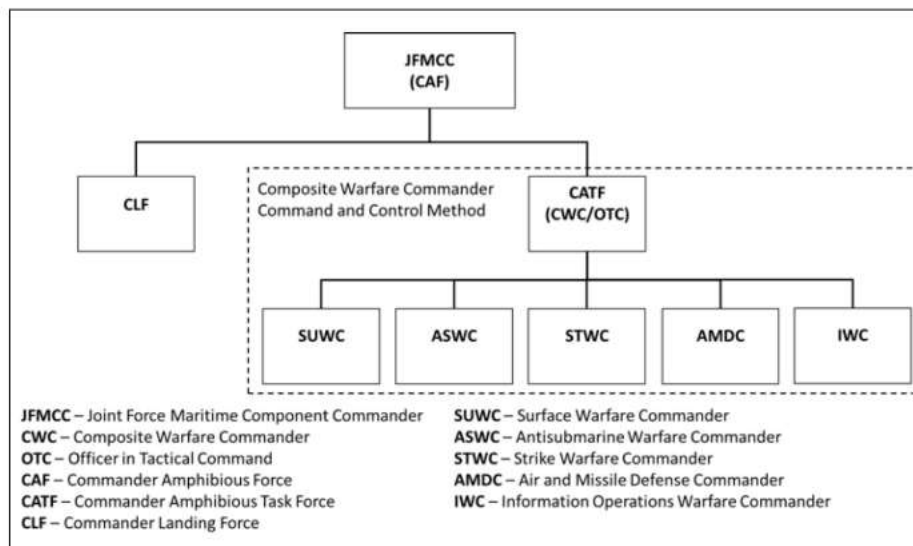


Figure 2. Notional CWC and CATF-CLF construct for an amphibious force.





**Amphibious ships are integrated with surface combatants to augment defensive capability.**  
(Photo by PO3 Andre Richard.)

by continuing to employ two separate and distinct C<sup>2</sup> methods. Establishing a common, unifying framework for the entire complement of assets and capabilities in the maritime force will dissolve seams created the two distinct C<sup>2</sup> methods yielding closer integration and manifestation of combat power that is greater than the sum of the parts.

## Scalability

Though CATF-CLF framework intends to support amphibious forces of various sizes, in practice, it does not scale up as effectively as the CWC framework. In 2014, the United States Marine Corps conducted more than 30 amphibious operations.<sup>7</sup> These operations were most frequently conducted by ARG/MEU teams. Exercises like BOLD ALLIGATOR seek to train, develop, and ultimately re-establish the ability to conduct large-scale amphibious assaults, specifically brigade-sized, and provide an opportunity to examine C<sup>2</sup> methods during these types of amphibious operations. During BOLD ALLIGATOR, when assembling the maritime force to operate in a contested littoral region, surface combatants integrate with the amphibious ships and an embarked landing force to augment the amphibious ships' defensive capabilities, thus providing for the protection

of the maritime force and augmenting the maritime force's capability to provide supporting fires for the landing force.<sup>8</sup> The presence of surface combatants impose upon the CAF and the JFMCC additional responsibilities that may include functional activities supporting surface warfare, anti-submarine warfare, and potentially even theater or regional air and missile defense.<sup>9</sup> Fundamentally, as the size of the amphibious force increases so too do the requirements to C<sup>2</sup> a greater number of functional responsibilities.

In contemporary A2/AD maritime environment, effective action in the disparate surface, subsurface, air, and land warfare domains become essential. In the case of BOLD ALLIGATOR, though surface combatants impose responsibilities upon the JFMCC, they also provide capability. To support these responsibilities and leverage these additive capabilities, the functional C<sup>2</sup> method supporting amphibious operations in contested littoral regions must scale to support multi-domain action. After-action reports from BOLD ALLIGATOR have shown that the traditional CATF-CLF command relationships shared by the ESG (expeditionary strike group) and MEB are quickly overwhelmed by the composition of an amphibious task force integrated with surface combat-

ants.<sup>10</sup> This is because the integrated task force is a qualitatively different force which is focused on more than simply employing the landing force. In this type of maritime area of operations, with this size force, the functional responsibilities assumed by the maritime force commander expand beyond the framework provided by the CATF-CLF method. The division of labor inherent in composite warfare doctrine construct provides expertise in a warfare domain that maybe unfamiliar to the JFMCC, and the co-equal functional commanders, with their task organized forces, can simultaneously—and with unity of effort—conduct the necessary activities. Though the CATF-CLF framework becomes overwhelmed by the increased scope of functional responsibilities, composite warfare doctrine's expanded scope through functional warfare commanders provides a C<sup>2</sup> method that can both scale to support amphibious forces of varying size and better support simultaneity and unity of effort for contemporary maritime forces that is particularly essential during amphibious operations, inherently complex as they are. Composite warfare doctrine's functional warfare framework better supports the increased array of activities required by the JFMCC in the case of large-scale amphibious operations and when commanding and controlling maritime forces in a contested maritime environment.

One could argue that though composite warfare doctrine provides a better-integrated and more scalable framework for the JFMCC, the CATF-CLF framework remains optimal for amphibious operations. In a dynamic maritime environment, where the closest integration of naval assets and landing forces must be achieved, and with the challenges of planning a cross-domain transition, the CATF-CLF framework provides the JFMCC with two commanders sharing a common understanding of the amphibious problem set. Traditionally, these commanders demonstrate a high degree of expertise in planning and force employment during amphibious operations. While the CWC method provides a right-sized functional warfare commander framework, the CATF's



and CLF's shared expertise provide the JFMCC with an understanding the nuances and dynamics that create effective action in the transitive domain of the littoral.

While the CATF-CLF relationship that may only show efficacy at only the MEU/ARG level, it is also the C<sup>2</sup> method that supported the large scale landings during World War II—operations like HUSKY (1943), OVERLORD (1944), and the Invasion of Leyte (1944). The CATF-CLF relationship steered during these operations supported landings of hundreds of thousands of personnel and equipment, far out-scaling any single amphibious operation in the previous course of human history. If the CATF-CLF relationship proved successful during operations one hundred times the magnitude of present day operations, the C<sup>2</sup> method scalability is demonstrated to be more than sufficient for echelons greater than the ARG/MEU, such as brigade-sized landings. In light of its enduring applicability and time-tested success, the C<sup>2</sup> method prescribed by the CATF-CLF framework must be retained in support of amphibious operations.

However, though the CATF-CLF functional C<sup>2</sup> method has demonstrated a time-tested efficacy against the amphibious problem set, the threats posed

by contemporary adversaries warrant a different approach. The JFMCC's responsibilities lie in simultaneously conducting multiple missions and synchronizing activities in synchronizing activities in multiple warfare domains.<sup>11</sup> Threats to the maritime force may require a JFMCC to simultaneously operate in any of the five functional domains in defense of the task force. For offensive action against complex threats, a JFMCC's ability to develop a combination of multi-axis, multi-domain attacks leveraging the unified complement of assets in the maritime force may prove essential. The CATF-CLF C<sup>2</sup> method provides co-equal planning for commanders from only two disparate warfare domains. A single CATF may not be able to simultaneously focus on employing the naval assets in support of landing an embarked force, while at the same time defending against subsurface and ballistic missile threats. Contemporary threats have yielded for the JFMCC responsibilities in complex warfare domains, often both defensive and offensive, that must both be sequenced and at times conducted simultaneously for amphibious operations to succeed. A division of labor between functional commanders with refined functional expertise becomes necessary.

## Recommendations

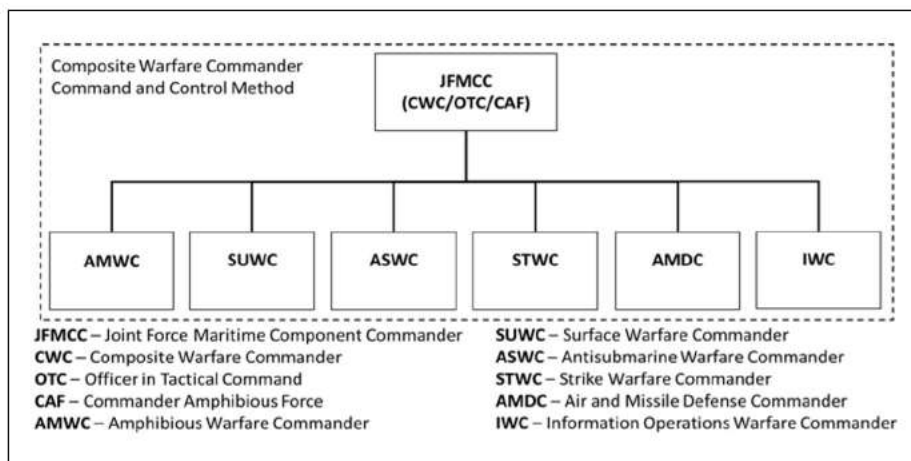
Any proposed optimal method of C<sup>2</sup> for maritime forces during amphibious operations should leverage the time-tested principles of the traditional CATF-CLF relationship yet harness the potential contributions to activities in other functional warfare domains. Employing the CATF-CLF framework alongside composite warfare doctrine's framework inherently excludes the contributions of the embarked landing force toward the actions of the entire maritime force. The CATF-CLF framework also lacks the ability to scale to the requirements and threats present in a maritime area of operations. The C<sup>2</sup> method best suited for amphibious operations will meld the strongest attributed of the CATF-CLF framework with the CWC framework. Incorporation of the CATF-CLF framework into the CWC would provide the JFMCC with the ability to allocate resources across the entire maritime area of operations resulting in greater force integration and scalability. Additionally, the JFMCC would gain the ability to capitalize on new innovations and methods of employment for the assets and capabilities resident in the entire complement of the maritime force. Fundamentally, the embarked landing force becomes additive to the maritime force rather than a simple resident within the maritime force.

The addition of the CLF serving as a primary functional warfare commander within the CWC construct will leverage the strengths of the CATF-CLF method into a more integrated C<sup>2</sup> framework for the JFMCC. One proposed title for the CLF is amphibious warfare commander (AMWC). The AMWC, focusing on the landward domain of the littoral region, will serve as the JFMCC's principle advisor how best to exploit the capabilities of the landing forces—very much like the existing responsibilities of the CLF. Rather than placing the expertise of the CLF in a C<sup>2</sup> structure distinct from the rest of the maritime force, the CLF will be a co-equal with the adjacent functional warfare commanders. As such, the expertise of the CLF, in the AMWC role, will contribute to the common shared understanding of the problem in the



**Exercises like BOLD ALLIGATOR provide us with the ability to examine and test scaling C<sup>2</sup> methodology. (Photo by CW02 Izzel Sanchez.)**





**Figure 3. CWC with an incorporated AMWC.**

maritime area of operations with the adjacent functional warfare commanders. Figure 3 displays the proposed C<sup>2</sup> construct with an integrated AMWC.

This is not a new proposal, but one that should be reinvigorated in light of increasing complexity of contemporary threats to maritime forces. New technologies, innovations, and operational concepts require functional C<sup>2</sup> relationships in the amphibious force that create the greatest additive effect for the JFMCC. Soon embarkation and deployment of the F-35 Lightning II as part of amphibious forces will manifest scenarios where this multi-purpose platform, capable of contributing to objectives in multiple warfare domains, may fail to realize its optimal combat potential if “preserved” by the CLF solely for operations ashore. This is one case where assets from an embarked landing force could contribute to multiple aspects of operations conducted by the maritime force. What was potentially excluded by distinction in command relationships and C<sup>2</sup> methods becomes available to the JFMCC for a greater array of maritime activities. A greater degree of mutual support amongst the entire complement of assets in the maritime force becomes realized.

An increased degree of mutual support between the landing force and the naval task force would extend the JFMCC’s maritime domain awareness. The littoral domain becomes seamless influenced by the entire complement of assets available to the JFMCC within the amphibious force. As previously

discussed, the integration of surface combatants can aid the JFMCC’s ability to support landing of large-scale forces and the subsequent conduct of opera-

## Greater integration can extend the reach of naval task forces in support of the landing force ...

tions against defended shores. Greater integration can extend the reach of naval task forces in support of the landing force beyond the tactical high-water mark and can also provide better defense

of the naval task force. As a naval task force approaches the land, attacks from landbased points of origin can threaten the task force.<sup>12</sup> Forces launched from seabases or operating ashore can identify and reduce threats to the naval task force providing for a better defense of the maritime force. To support offensive action, a landing force’s organic radars, sensors, and C4ISR (command, control, communications, computers, intelligence, surveillance, and reconnaissance) platforms and infrastructure, like manned and unmanned assets or groundbased air defense radars, can extend the range of the maritime force’s battlespace, influence, and littoral situational awareness. The increased mutual support from the assets and capabilities resident in the maritime force augment the JFMCC’s capability, awareness, and

influence, while at the same time increasing cross-domain synergy.

The benefits of increased cross-domain synergy beg research into new methods of employment and integration



**Integration of more support forces can extend naval force projection and support for the landing force. (Photo by PO1 Ace Rheume.)**





**When executed properly, amphibious exercises help reinforce the strength of naval task forces.** (Photo by LCpl April Price.)

for the amphibious force's complement of assets. Planners in the Navy and Marine Corps should expect embarkation of the F-35 Lightning II to support more than close air support taskings and, as such, should be prepared to employ it toward its greatest effect. In some cases, this may result in embarked aviation assets supporting missions not directly tied to the landing force but rather conducting, shaping, or supporting activities toward the benefit of the maritime force's operational objectives. Concepts of employment for aviation C<sup>2</sup> nodes should consider enhancing awareness of the entire maritime domain, rather than only the landward portions. With respect to naval and joint maritime task forces, the concepts associated with seabasing and distributed lethality should consider development of multi-mission platforms capable of contributing more shared and complementary rather than single-mission capabilities to the amphibious force. For example, anti-ship cruise missile or vertical launch systems could be integrated into future amphibious shipping assets. As L-class ships close with an adversarial coastline, they could extend the reach of the maritime force across the landmass and, provide a greater distribution of platforms in the maritime force that could support offensive strike against land, sea, and airborne threats. Ultimately, this article's proposed C<sup>2</sup> method for amphibious operations provides the op-

portunity to realize the optimal effect from the entire complement of assets resident in maritime forces. This C<sup>2</sup> method also creates space to institute new operational concepts, develop new methods of force employment, and integrate future capabilities that are newly emerging or that have yet to be seen in the Navy-Marine Corps Team and, moreover, in the joint maritime force.

### Summary

While the CATF-CLF C<sup>2</sup> method has successfully supported scores of amphibious operations in years past, the C<sup>2</sup> framework defined by composite warfare doctrine provides the optimal C<sup>2</sup> method for the JFMCC during amphibious operations. The character of the threat in the maritime area of operations of today and tomorrow requires a C<sup>2</sup> method to support a higher degree of force integration that can scale to task forces of varying sizes and compositions while supporting new methods of employment and operational concepts. Establishing the CLF as an AMWC within the composite warfare doctrine construct as a primary functional warfare commander will optimize the command relationships and C<sup>2</sup> framework for amphibious operations. The CWC construct provides the best mechanism for the JFMCC to more effectively integrate forces with disparate functional responsibilities and to develop new methods of force employment to produce

greater efficacy for today's amphibious operations and against tomorrow's adversaries.

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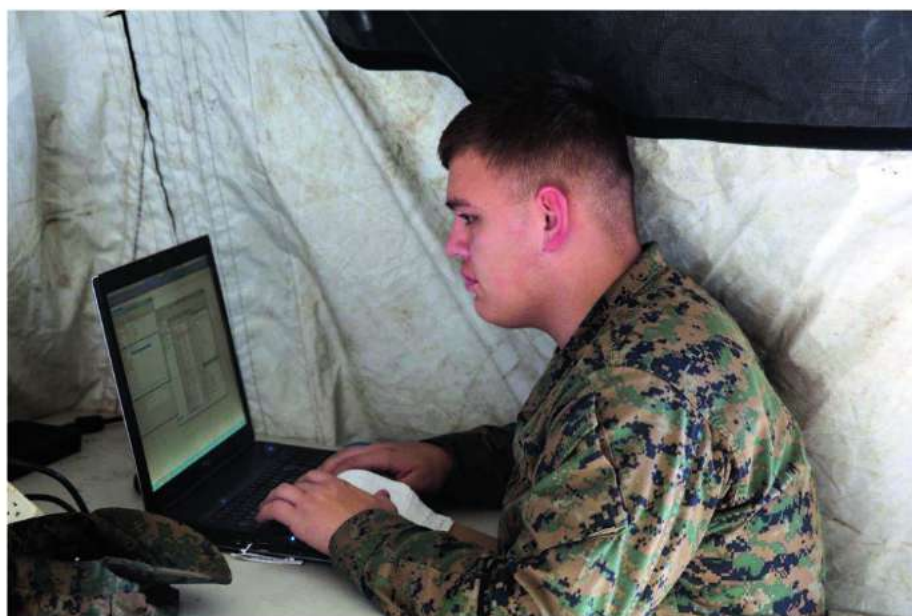
# The Real Cyber Paradigm

Exploiting excess capacity

by LtCol Brian E. Russell

**A**round noon on 30 November 1951, Cpl Myron J. Smith and PFC Billy E. Johnson crossed 500 yards of frozen ground under enemy fire east of the Chosin reservoir in order to retrieve a damaged radio set.<sup>1</sup> They successfully recovered it and then spent the next four hours, with bare hands in below freezing weather, repairing their own damaged radio with components from the recovered set. Without these Marines' ability to reconfigure their equipment in the midst of battle, their supported unit, Task Force (TF) Faith, would have been unable to breakout from the onslaught of multiple Chinese divisions the following day. Smith and Johnson's Air Naval Gunfire Liaison Company (ANGLICO) team was the only means of communicating with the Marine Corsair sorties so vital to punching a hole in the Chinese lines. As the Marine Corps considers organizational design changes to succeed in the operational environments of the future, we must ensure our Marines can operate with the same kind of improvisation and adaptation shown by Cpl Smith and PFC Johnson over 60 years ago. Unfortunately, so much of the discussion surrounding force change is focused on increased cyber and electronic warfare capabilities, and because of their technical complexity, there is a danger of these niche tool sets remaining off limits to most Marines. Given the very nature of the future operating environment that portends prolific mobile communications, Internet of things, and automated dual-use technologies

*>LtCol Russell, a field artillery officer, wrote this article while a student in National Defense University's inaugural Cyber Strategy Program. He is currently assigned to the J-3 (Operations), United States Cyber Command, Fort Meade, MD.*



*The cyber domain includes our C<sup>2</sup> systems and tactical radios, just to name a few areas of concern for commanders. If it's electronic and transmits, it's cyber. (Photo by Cpl Paul S. Martinez.)*

available to enemies and populations in the battle space, we risk putting our Marines at a distinct disadvantage if we do not prepare them to be just as adaptable in this new domain. In this article, I offer an expanded, and perhaps different, view of the cyber environment each of our Marines needs to understand and be comfortable operating in

as they face our Nation's adversaries. The cyber domain is growing and will provide a significant amount of "excess capacity" for our Marines to exploit in achieving operational effects, but only if we enable them to access that capacity. Based on this paradigm shift, I also make several recommendations for leaders across the Marine Corps to



make cyber-agile Marines a reality for our Service.

### The Real Cyber Paradigm Shift: Excess Capacity

Since the creation of cyberspace as an operational domain akin to the traditional land, sea, air, and space domains, each military Service, including the Marine Corps, has worked to establish doctrine, forces, and concepts to operate in this “new” environment. Historically, for those unfamiliar with this newcomer domain, the exclusive realm of communications and intelligence professionals, cyberspace operations may seem to require radically new ways of approaching or conducting military operations, a paradigm shift of sorts. But after studying the domain for close to eight months now in the inaugural Cyberspace Strategy Program at National Defense University, I am not so sure this is the case. The creation of U.S. Marine Corps Forces Cyber (MARFORCYBER) to provide specially trained forces to defend our own networks while attacking those of our adversaries and establishing coordination cells in our MAGTF command elements to better synchronize effects in and through cyberspace were all necessary and appropriate actions for our initial foray into this new environment. But, once you see cyberspace as a domain and understand how your network or an adversary’s network can be used to impose its will on the other, new organizations and capabilities do not necessarily translate into a new “theory or a group of ideas about how something should be done, made or thought about.”<sup>2</sup> I find that our philosophy of war (*MCDP 1, Warfighting* [Washington, DC: HQMC, 1997]) is still well suited for competition in the cyber domain as long as we give all Marines access and authority to operate in that space.

This is the real paradigm shift that needs to occur—recognition that all Marines in some form or fashion are becoming cyber operators, not just the ones assigned to MARFORCYBER or running the networks in the G-6/S-6 (communications). I base this assessment on two major forces shaping the

future operating environment, one that is changing global society as a whole and the other that more specifically shapes the DOD for the next decade or more. In the former, I concur with the view that global society is moving from an organizational construct dominated largely by competitive markets to a multi-organizational networked model based on the capabilities of the Internet (see Figure 1). The premise behind this theory is the new organizational model (paradigm), constructed around a revolutionary information technology, always finds better ways of supporting societal interaction needs (trade, security, etc.) than the previous model (paradigm).<sup>3</sup> A quick look around our own society shows this to be the case as quick start companies like Uber and Airbnb begin to threaten older paradigm market organizations like taxi companies and hotel chains, respectively. Companies like these upstarts are successful because they use cyberspace to find, advertise, and trade *excess capacity* in commodities (empty car seats and rooms) faster and more conveniently than more traditional companies bound by fixed infrastructure and processes. Robin Chase labels this phenomenon as “Peers, Inc.,”<sup>4</sup> people using information technology platforms developed and

fielded by corporations to exploit some form of excess capacity. It does not take a far stretch of the imagination to see the Islamic State of Iraq and the Levant (ISIL) has taken a Peers, Inc. approach in achieving its strategic objectives: using commercial information technology to recruit disenfranchised population groups (excess capacity) and then commanding and controlling those fighters across the globe. Adoption of this new paradigm is a significant part of ISIL’s asymmetric advantage, and with exponential growth in cyberspace expected to continue for some time, there is no reason to doubt future adversaries will adopt similar approaches. Unfortunately, current policy, training, and authority restrict most Marines from operating in a similar manner to reduce this asymmetric advantage.

### Excess Capacity Is the Future

Without modifying existing practices, our Marines will continue to be cyberspace aliens, and in the worst-case impediments, because of the second force shaping the future operating environment: the DOD’s Third Offset Strategy. The essence of this strategy is cyber (both networked information and human-machine relationships): leveraging commercial sector developments

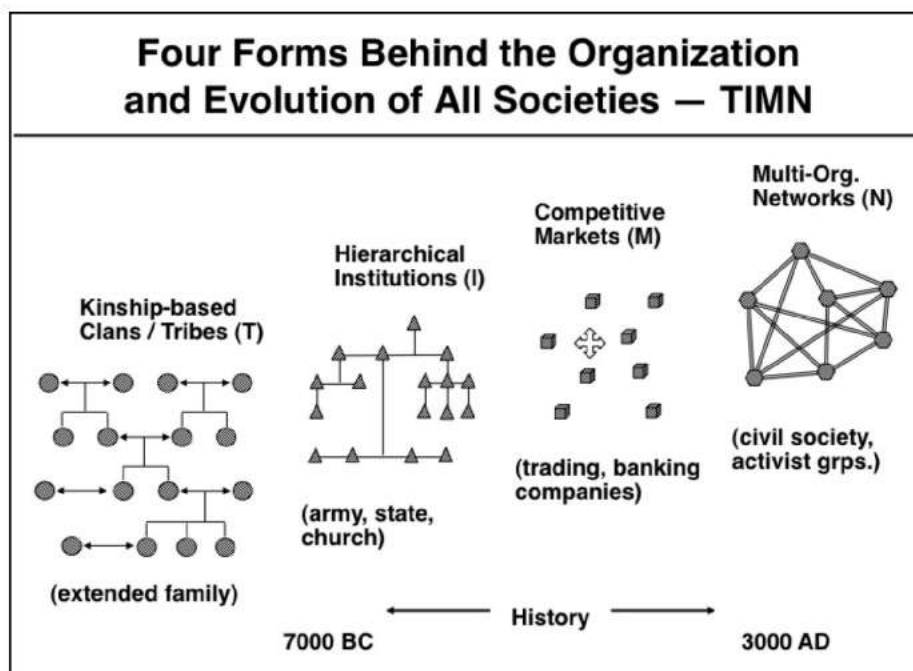


Figure 1.



in artificial intelligence, robotics, and other information technology to make humans perform better, both physically and mentally. This means there is a lot of excess cyber capacity (technology capabilities) being fielded across the joint force in future years and ways of using these tools that we are not even aware of yet. But we will only be able to exploit this excess capacity if we authorize *all* of our Marines to improvise and adapt in this space, not just the select few assigned to a cyber-component or in a coordination cell in our headquarters. My own field artillery community is no stranger to this approach as I remember our adoption of the Enhanced Position Location Reporting Systems (EPLRS) radios for our digital fires nets over a decade ago. Originally fielded to provide on the move location information for our forces and headquarters, we quickly found the EPLRS UHF band provided *excess capacity* (bandwidth) for digital fires transmissions that were much more reliable than our doctrinal VHF nets. Initial work on third offset capabilities in the Defense Advanced Research Projects Agency (DARPA), like the RadioMap and SquadX projects,<sup>5</sup> shows that the future is ripe with excess capacity, but is the Marine Corps ready to exploit it?

Unfortunately, my own recent experience in the Operating Forces tells me we are not in a position to take full advantage of the excess capacity cyber paradigm. A good example is the Marine Corps' tepid acceptance of the Kinetic Integrated Low-cost SoftWare Integrated Tactical Combat Handheld (KILSWITCH) application for CAS coordination. An extension of the electronic kneeboard program for aviators and eventually adopted under DARPA's Persistent Close Air Support (PCAS) program, KILSWITCH took commercially available tablets and embedded a peer-developed targeting application that performed better in terms of functionality, ease of use, and portability than the program of record equipment ... a true Peers, Inc. approach to developing a warfighting capability. Yet, when I attempted to acquire this capability for each of the joint terminal attack controllers (JTACs) in my com-



**Cyber operations may require a radically new approach to conducting military operations.**  
(Photo by Cpl Zachary M. Ford.)

mand so they could perform better, I ran into significant organizational resistance (table of equipment modification and/or requirements generation policies, processes, and timeframes) in purchasing readily available commercial tablets and using the free software (excess capacity).

This resistance paled in comparison to my efforts to employ KILSWITCH-enabled tablets on a tactical network for training and experimentation purposes. I was keen to get my Marines excited about the potential of digital fires again, even the much maligned digital CAS training and readiness standard, because digital transmissions (short) increase survivability against near-peer adversaries (e.g., Russia, China) with advanced electronic warfare capabilities. Even though the technical capability existed to connect the tablets with my organic command and control (C<sup>2</sup>) systems over a tactical network enabled by the PRC-117G radio, I could not get the authority to operate (ATO) these devices. The PRC-117G radio is a current day poster child of excess capacity when it comes to the electromagnetic spectrum given its inherent ability to transmit across multiple frequency bands and waveforms. Its ANW2 (IP [Internet protocol]-based) waveform has already been adopted by the fires

community for digital fires nets much like the adoption of EPLRS so many years ago. But its true potential is also limited by the lack of training radio operators receive in MOS schools to employ its full capability and our spectrum management processes that still limit units to fixed frequency bands. The Third Offset Strategy is going to offer more and more capabilities like KILSWITCH and the PRC-117G for our Marines, but if we do not take a hard look at our policies and approaches to training, we run the risk of stifling innovation and true operational advances, a Marine Corps version of Peers, Inc., in the cyber domain.<sup>6</sup>

## Getting Our Hands on Cyber Excess Capacity

The advantage of embracing the excess capacity cyber paradigm is the Marine Corps does not need to make radical structure adjustments to attain its own version of *Peers, Inc.* Our Commandant is willing to sacrifice structure in some areas to gain increased capabilities for the future, particularly cyber,<sup>7</sup> but that may be achievable with the structure we already have. Increasing awareness of the excess capacity paradigm, modifying training approaches, and increasing authorities for cyber "operations" to the lowest levels in the



Marine Corps will go a much longer way to achieving operational excellence in the future operating environment than creating more niche occupational fields and organizations dedicated to cyber and electronic warfare, especially if they cannot be generated in sufficient quantity to provide these capabilities to the company level or lower.

### **Every Marine a Rifleman (and Cyber Operator)**

The current state of cyber awareness training for our Marines is woefully inadequate for the real cyber environment described in this article. An annual, online, three-hour course focused on garrison network security in which most, if not all, cyber threats get outsourced to the help desk is not the right way to prepare our Marines to operate in the cyber domain. We need to build their awareness now that the cyber domain includes their C<sup>2</sup> systems, tactical radios (especially software defined radios like the PRC-117G), vehicles, aircraft, power-generation equipment, and an increasing number of weapon systems. If it is electronic and it transmits, then it is part of the cyber environment and can be both a vulnerability *and* an opportunity for exploitation. While I personally disdain the term “cyber security” because it is so prevalent, yet describes just a portion of the entire cyber enterprise and is defensively oriented, it will remain an important consideration with ever-increasing cyber tools in the battlespace. But instead of taking a defensive approach to this problem, I would immediately reinstate the Combat Hunter program across the Marine Corps starting at entry-level and continuing throughout the training and education continuum. Not only does Combat Hunter provide increased awareness and resilience in the physical realm (both combat and garrison) but is exceptionally suited to the cyber domain. Detecting cyber threats is largely based on understanding your baseline environment so you can quickly detect the anomaly in that environment in order to raise awareness of it across the unit and take appropriate action against it. Interestingly enough, the director of the National Security Agency’s Tai-

lored Access Operations (TAO) branch, recognized as the premier global cyber exploitation capability, describes this approach as the tactic his team uses against his targets: understand the cyber environment of interest and wait for that target environment to expose a vulnerability.<sup>8</sup> Given the tendency of those errors to be human induced, it is only prudent to increase our Marines awareness now of the growing capacity in cyber domain, train them to recognize threats, and make them confident enough to hunt them directly in the environment rather than calling the help desk.

### **Train Like You (Should) Fight**

Part of increased cyber awareness training must also include additional emphasis on the human aspects of cyberspace. The term cyber tends to generate visions of smartphones, server farms,

routers, and the other physical elements of the Internet. But the reason humans continue to be the greatest vulnerability (and opportunity for us) in cyberspace is because behind every keyboard or piece of malicious code is a human being trying to impose his will on us in or through this new domain. This is not a “virtual” world like we thought Ender was fighting in for so much of *Ender’s Game*. Instead, there are real Formics (enemies) in cyberspace, and Ender was only successful against them by training against real, adaptive threats. Force-on-force training has always had value for Marine Corps units, but the expanding use of cyberspace for military advantage on current and future battlefields means it is even more important now to train against a living, breathing adversary employing cyber capabilities.

While the Marine Corps’ efforts to establish a cyber range is a step in the



**Marines must be prepared to succeed in all operating environments, including cyberspace.**  
(Photo by Cpl David Staten.)



right direction, based on the growing cyber environment we see in our future, every range we use should incorporate some form of cyber competition. If turning the Integrated Training Exercise into a true force-on-force endeavor is a bridge too far based on operational tempo and training objective pressures, the Marine Corps should at a minimum invest a portion of its role player or exercise support budget to provide a realistic cyber threat capability that can give the training force something to target and defend against with its full range of capability. We should always remember that cyber threats can also be defeated with kinetic weapons (often our excess capacity advantage) as ISIL leadership discovered when the coalition successfully bombed its cyber director last September.<sup>9</sup> In addition, for smaller training venues and units, the Marine Corps should petition for congressional authority to spend funds on commercial off-the-shelf cyber capacity tools, either to employ or give to an opposing force unit to determine how to counter them. With so much of the Third Offset Strategy relying on commercial development of better cyber capabilities, I am uncertain our current acquisition authorities and requirements processes can keep pace with the rate of technological advances that can benefit our forces. The Infantry Officer Course's experiments with anti-drone tactics<sup>10</sup> and commercial off-the-shelf protocol exploitation tools<sup>11</sup> during recent TALON REACH exercises are a good example of bringing commercial excess capacity into a training venue to replicate the current operating environment but needs to be expanded across the entire force.

## (Cyber) Trust Tactics

Because excess cyber capability is already expanding across our adversary's forces, attacking our enemies in and through the cyber domain is a necessary approach in modern warfare. Yet, currently, the ability to employ offensive cyber capabilities in the United States military is reserved for specialized forces under the strictest authorities for employment. While an in-depth analysis of the reasons for this current reality is beyond the scope of this article, I do



**The security of future communications networks depends on cyber superiority in the field.**  
(Photo by Cpl Briana Birl)

want to challenge its base assumption. As a good friend of mine has often told me—someone who is a plank owner of U.S. Cyberspace Command—just because we don't have the authority to shoot artillery into North Korea today does not mean we do not train for that possibility. And I find it interesting, if not an inescapable coincidence, that so much of our training against national adversaries like North Korea occurs in a simulated (i.e., cyber) environment. With that in mind, the Marine Corps should immediately analyze its existing simulation equipment, C<sup>2</sup> systems, and current information technology infrastructure in order to craft something akin to cyber "safe zones" where units at all levels can exercise in the cyber domain. It is not difficult to establish cyber-training environments given appropriate information technology hardware, and the Marine Corps is already positioned for this capability with systems like the Deployable Virtual Training Environment (DVTE). DVTE can operate on closed training networks and interfaces with existing C<sup>2</sup> systems. Incorporating cyber capabilities into the existing efforts to link greater numbers of MAGTF simulators is a worthwhile investment to provide our forces a real depth of experience in the new domain.

This latter point is particularly important because experience and familiarity with manipulating information systems and networks must also extend to our combat equipment and systems as soon as possible. The movement towards open architecture C<sup>2</sup> systems is a needed and welcome move by our Service,<sup>12</sup> but I fear the utility of such systems will be restricted by Service policies that retain the authorization for modification of those systems at the Service level. Do we have the courage to authorize Operating Force commands to develop and employ applications and tools for their own C<sup>2</sup> systems to successfully maneuver in cyberspace? One of the greatest arguments against cyberspace as a domain is its man-made nature and hence its malleability. Instead of viewing this as a weakness, let's recognize the advantage this gives us in tailoring the terrain to our advantage. Do we have the wherewithal to let Operating Force Marines use fielded information technology systems, like the thousands of computers sitting on office desks across the Corps and unused for up to 12 hours a day, to establish virtual networks, conduct penetration testing, and employ other internal defense measures for a more active defense of the domain? I would trust local commanders and network professionals to ensure such



operations remain confined to the host network, but something tells me we are more comfortable ensuring all computer systems across the Marine Corps stay in the cyber equivalent of condition 4. Retaining the ability to really operate in cyberspace at the Service level or in specialized commands runs counter to our philosophy of maneuver warfare and is the cyber equivalent of telling a commander to secure a piece of ground without the ability to modify the terrain, employ obstacles, or patrol against active threats.

There are broader implications for not embracing this new paradigm and giving our Marines the freedom to operate in this new domain. We risk alienating an entire generation of Information Age Marines who we say in one breath are the brightest our Corps has ever seen yet prevent them from exercising initiative in a field in which they are entirely comfortable (cyber natives). I am convinced to this day some of the Marines in my former command could have easily designed a smartphone or tablet application to track maintenance and supply management for my unit. And that application would have been intuitive to *all* Marines in the unit (hence, would have encouraged its use) and provided me better, real time asset visibility than the program of record system. We already have a kind of personnel “excess capacity” in the ranks; those who understand the cyber environment and are eager to make their commands better, but we don’t let these Marines modify or enhance any of our information technology platforms. Letting Marines get into the systems to see what they can do (i.e., hacking) will also go a long way toward generating some trust in the equipment that under Third Offset Strategy objectives, such as enhanced combat teaming and human-machine interfaces, they will be forced to entrust their lives to.<sup>13</sup> This concept of cyber foraging, or “living off the land” in the cyber domain,<sup>14</sup> seems to be an incredibly familiar and relevant concept for an expeditionary organization like the Marine Corps and likely represents how our Service can differentiate itself from the others in this field. Unfortunately, if Cpl Smith and PFC Johnson had a

broken radio today and attempted to fix it on their own, they’d be told to instead evacuate it for maintenance or wait for the field service representative to arrive to troubleshoot it—so much for improvise and adapt. Those who just read that statement and thought “but that was combat,” are stuck in the old paradigm. Cyber is a 24-hour-a-day enterprise, and we are in a daily fight right now with adversaries across the full range of cyberspace operations. Organizations like ISIL are dominat-

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### ***We risk alienating an entire generation of Information Age Marines ...***

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ing the narrative through social media and nations like China, who employ upward of 100,000 hackers in its new Strategic Support Force,<sup>15</sup> are shaping the information environment right now. It is well time we prepare as many of our Marines as possible to employ their trademark initiative and creativity (core attributes of hackers as well ... hmm) against these significant threats.

#### **How to Get There: Bridging the Cyber Gap**

In the near term, the changes I recommend in this article should be implemented and led by the Marines who are charting the course for us in this new domain, ones with U.S. Cyber Command or MARFORCYBER experience. At this point, some readers may believe I am advocating for giving every Marine the cyber equivalent of nuclear launch codes, but that is likely a response born from media hype and Hollywood simplification of what is (and is not) possible in the cyber domain. The bulk of doctrinal cyberspace operations remain highly classified, and until we get broader exposure to these capabilities we will need to rely on Marines with the full range of knowledge of what is in the realm of the possible but also the legal, technical, and intelligence considerations of

how to smartly petition for the authority to achieve those possibilities. Marine Corps units conducting close network access and exploitation operations at the tactical level is a far cry from the cyber operations conducted against strategic targets of significant consequence and can be realized now if we assign our MARFORCYBER Marines back into key Operating Force billets where they can help bridge this gap.

This is why I deliberately chose the example of two tactical air control party (TACP) Marines to open this discussion because I believe there is an applicable model with the assignment of naval aviators to Marine ground units that began as we looked to maximize the new air domain in support of operations decades ago. Forward air controllers (FACs) bring the knowledge in their domain of experience to provide effects that support a ground commander’s scheme of maneuver, and the same can be accomplished with the cyber domain. Where it used to be “heresy” in this Service to suggest a non-aviator could provide terminal control of aviation fires, today, both officer and enlisted ground Marines serve as joint terminal attack controllers (JTACs), and we train junior Marines (joint fires observers) to employ those same fires with a FAC/JTAC looking over their proverbial shoulder (Type II CAS). There is no reason to believe cyber fires could not be employed in the same way with a certified cyber operator at the battalion or company level directing the actions of junior Marines. Capt Stamford, the officer in charge of TF Faith’s TACP knew when the time was right to “hack” into the damaged radio equipment and directed Cpl Smith and PFC Johnson accordingly.

The benefit of this approach is twofold. Marine Corps commanders and their staffs receive better understanding of the cyber domain and can see a more tangible application of cyber effects. Cyber operators, in turn, remain close to their Marine Corps roots, the thing that makes them unique amongst all other national cyber forces, and can continue to innovate in the space. This relationship could have an enormous, positive impact on retaining Marines in this developing career field, since many



***"Many of the Army soldiers openly said that without the remaining Marine ANGLICO TACP led by Captain Stamford, attached to the 1st Battalion, 32d Infantry, they could not have lasted beyond the second day." 16***

who leave the Corps after an initial tour in a cyber command cite the inability to "push the envelope" in this new domain with traditional Marine Corps units as a significant factor in their decision to end their service. To properly manage this talent, the Marine Corps should assign Marines with the requisite cyber experience or tour an additional MOS and assign them to billets in regimental/group level or lower Operating Force units where they can advise and mentor Marines who have not benefitted from more direct exposure to the cyber domain. This proposed assignment process would be similar to MARSOC's special operations capabilities specialist model in which combat support Marines assigned to that command get an additional MOS to reflect their special operations training and qualifications, so when they complete their follow-on Operating Forces tour, they can return for an assignment of greater responsibility in MARSOC. If the Marine Corps is not ready to establish a permanent occupational field for our cyber warriors, this approach would give them greater confidence in a viable career path and opportunities for advancement with their primary MOS peers.

### Conclusion

Cpl Smith, PFC Johnson, and the men of the 1-32 trusted their lives to the AN/FRC-1 high frequency radio they were able to successfully repair on that second day of TF Faith's fateful breakout from the grip of overwhelming Chinese forces. Their fate was predicated on two Marines' ability to manipulate information technology to exploit excess capacity in the air domain because the ANGLICO team had trained within the new paradigm of CAS in the years following World War II. We stand on the verge of a new paradigm as we en-

ter the age of cyber warfare, and we need to provide our Marines the same opportunities to smartly train in this new environment, so they can be successful in the conflicts of the future. The paradigm shift does not require modification of our warfighting philosophy or significant changes to our structure. Instead, by increasing our current Marines' awareness of the excess cyber capacity around them, and establishing the training environments and authorities necessary to exploit that capacity, we will greatly decrease the asymmetric advantage many of our adversaries hold over us in cyberspace.

### Notes

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3. David Ronfeldt, *Tribes, Institutions, Markets, Networks: A Framework About Societal Evolution*, (Santa Monica, CA: RAND Corporation, 1996).
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6. I acknowledge since the time I tried to acquire this capability for my own command the Marine Corps made efforts to integrate these capabilities under the banner of digital interoperability

(DI) but only with significant general officer involvement and only for select units like the 15th MEU.

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2016 MajGen Harold W. Chase Prize Essay Contest—First Place

# Embrace UAS “Guardian Angels” Immediately

**Our Corps is 15 years behind**  
by Capt Cory D. Radcliffe

**A**s each day passes, our Corps' non-existent MALE UAS capability status and projected path forward leave our MAGTFs increasingly, if not exponentially, behind our present and forecasted adversaries, as well as the rest of the DOD, U.S. Department of Homeland Security (DHS), NASA (National Aeronautical and Space Administration), and our closest allies. The consequences of these organic MAGTF deficiencies are severe. In the case of persistent, long-range, armed, multi-sensor, command and control (C<sup>2</sup>) extending, and digitally interoperable MALE UAS capabilities, over the past 12 years numerous urgent and deliberate universal needs statements (UUNS)/DUNSSs,<sup>1</sup> deployment and exercise after action reports,<sup>2</sup> GCE leadership feedback forums,<sup>3</sup> UAS transition task forces (TTFs), etc., have all clearly iden-

***Bottom-line: our ACE cannot provide air superiority or the persistent close air support that our GCE deserves, at any point across the range of military operations (ROMO). Immediately embracing medium altitude, long endurance (MALE) UAS is the fastest and most cost effective way to fix this problem.***

**>Capt Radcliffe was assigned to the Marine Unmanned Vehicle Squadron 1 (VMU 1) from June 2013 to June 2016. He is the first class of unmanned aircraft commanders to come straight out of TBS and is qualified on the RQ-7B v2 and the MQ-21. He has since joined the Air Force in order to fly the MQ-9 and fulfill his dreams of supporting Marines overseas.**



**Figure 1. MQ-9. (Photo by LtCol Leslie Pratt, USAF.)**



tified our Corps' gaps. Further, Marines have also identified the assets that best supported them in combat. As just one example, a 2d Bn, 8th Marines (2/8) forward air controller, who fought in and around Marjah, stated the following about the best CAS platform:

The deadliest asset was the UK Reaper. This was due to extended time-on-station, diverse precision-guided munition load-out, high fidelity sensor, video downlink capability, reliable communications, imagery analyst as part of the flight crew, and stable and reliable terminal guidance operations.<sup>4</sup>

Regardless of all this input, as well as the revolution in UAS occurring seemingly everywhere except in our Corps, when the senior ranking member of the January 2016 UAS TTF began the conference with "there will be no talk about Group IV/V UAS (often synonymous with MALE UAS)," one can only conclude that our leadership is reluctant to face the hard truth that dramatic changes to the current *Marine Aviation Plan (AVPLAN)* are required—effective immediately.

#### Lessons Re-learned

Despite the continued reluctance from some in our Corps to embrace MALE UAS, the critical roles that these assets can fill for our MAGTF were recently demonstrated—again—during TALON REACH VII, an Infantry Officer Course (IOC) training exercise conducted between Yuma and Twentynine Palms. In this case, due to good fortune in training schedules aligning, the California Air National Guard 163rd Operation Group supported the exercise with an MQ-9 Reaper (see Figure 1 on previous page). Our VMU squadrons were not capable of supporting the exercise due to the RQ-7's shortfalls in range, communications, sensor capabilities, time onstation, and inability to carry ordnance; the MQ-21 has the same limitations, as well as no ability to laser designate. The MQ-9 found, fixed, targeted, tracked, engaged, and assessed a variety of targets in support of TALON REACH and served in a multitude of aviation roles. I observed this all firsthand, as the Marine Corps' liaison of-

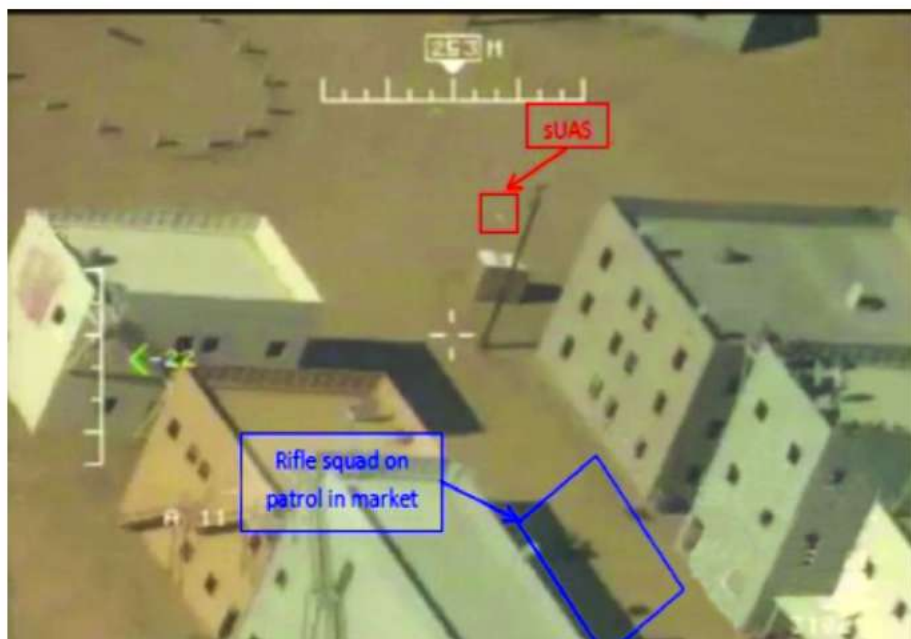


Figure 2. Enemy sUAS observed from 17,000+ feet.

***Despite the continued reluctance from some in our Corps to embrace MALE UAS, the critical roles that these assets can fill for our MAGTF were recently demonstrated—again—during TALON REACH VII ...***



Figure 3. sUAS operations center viewed from the MQ-9.



ficer to the 163rd. In this capacity, I was collocated with the MQ-9 ground control station (GCS) in March Air Reserve Base and in constant communication with the IOC Marines executing the mission. *What I observed during this mission was remarkable and solidified the idea that the Corps should make fielding each MEF at least one MQ-9 squadron a top priority.* To reinforce this point, the below comments and images seek to summarize how the MQ-9 supported the MAGTF during TALON REACH:

As seen in Figures 2 and 3, in support of urban reconnaissance, surveillance and target acquisition (RSTA) tasking, found enemy small UAS (sUAS) and multiple enemy sUAS operators who were targeting Marine rifle squads;

Located a simulated downed pilot in support of a TRAP mission and then with the TRAP force embarked on two CH-53s, provided enhanced in route situational awareness about the pilot's condition, location, and terrain;

Provided over-watch, on-call CAS and enhanced situational awareness for CLT reinforcements to include, as shown in Figure 4, supporting aircraft flying into a chaotic urban battlespace;

As shown in Figure 5, demonstrated manned/unmanned teaming (MUM-T) through target acquisition and FMV (full motion video) sharing, enabling H-1s to employ ordnance without exposing themselves to a MANPADS (man-portable air defense system) threat;

Served as the primary CAS integration platform for both simulated and live air-to-surface attacks, employing four GBU-12s and buddy-lasing for three AGM-114 Hellfire missiles, successfully killing 15 enemy personnel, 2 MANPADS threats, 3 enemy tanks (see Figure 6), and a sUAS operations center;

Figure 6. MQ-9 GBU-12 strike on enemy HVI (high-value individual) coordinating reinforcement mission.

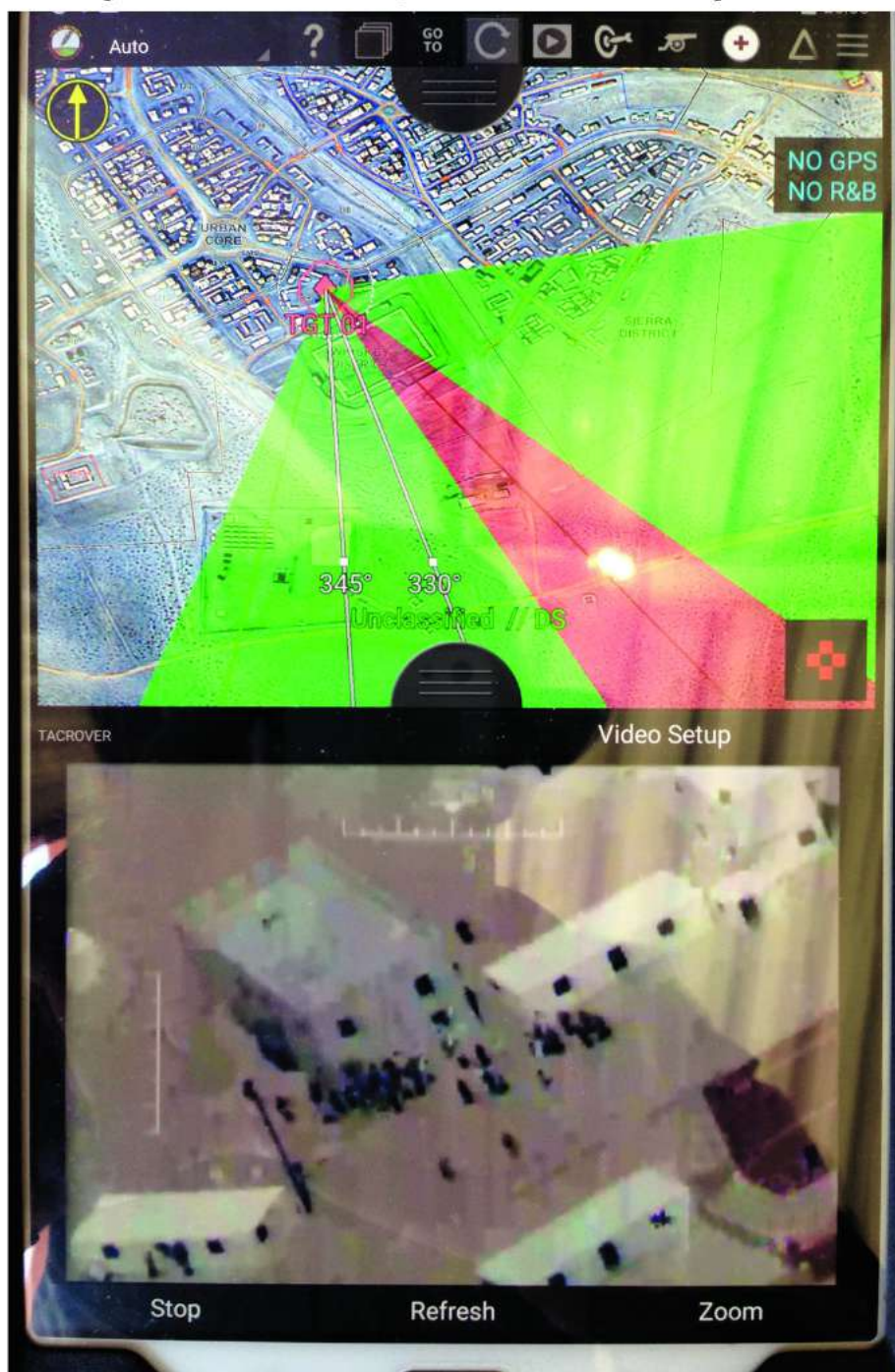
As seen in Figure 7, enabled advanced digital interoperability across a distributed MAGTF which ensured unprecedented levels of situational

awareness between the Marines on the ground, pilots, and sensor operators in the GCS;

As shown in Figure 8, extended the UHF tactical air direction communications net more than 3,000 miles to Marines located in Virginia, who simultaneously viewed and listened to exchanges between the FAC, MQ-9,

and H-1s during the networked FST (fire support teams) drills.

Beyond these and other TALON REACH successes, the MQ-9 validated a MALE UAS's ability to support five of the six functions of Marine aviation: offensive air support, assault support, anti-air warfare, electronic warfare, and air reconnaissance. Specific to control



**Figure 4. MQ-9 sensor information showing a hostile crowd in KILSWITCH on an AH-1Z's pilot's COTs tablet.**





**Figure 5. MUM-T in action; MQ-9 buddy-lasing for an AH-1Z AGM-114 Hellfire.**

of aircraft and missiles, the MQ-9 was more than capable of assuming the role of on-scene commander during the TRAP mission and is also an ideal candidate to act as the strike coordination and reconnaissance coordinator.

Repeatedly throughout TALON REACH VII, the words “situational awareness” were mentioned either in the context of adding situational awareness for the GCE or the amount of situational awareness in the MQ-9

cockpit. From the Marine in the fight at the tip of the spear to the mission commander, the MQ-9’s video, moving target indications data, digital target plots, and communications extension capabilities were readily available, unlike any other aviation asset in the Marine Corps’ inventory. Further, from helping determine QRF (quick reaction force) insert criteria, to enemy sUAS and their operators, to serving as a critical enabler of information warfare to the



**Figure 6. MQ-9 GBU-12 strike on enemy HVI (high-value individual) coordinating reinforcement mission.**

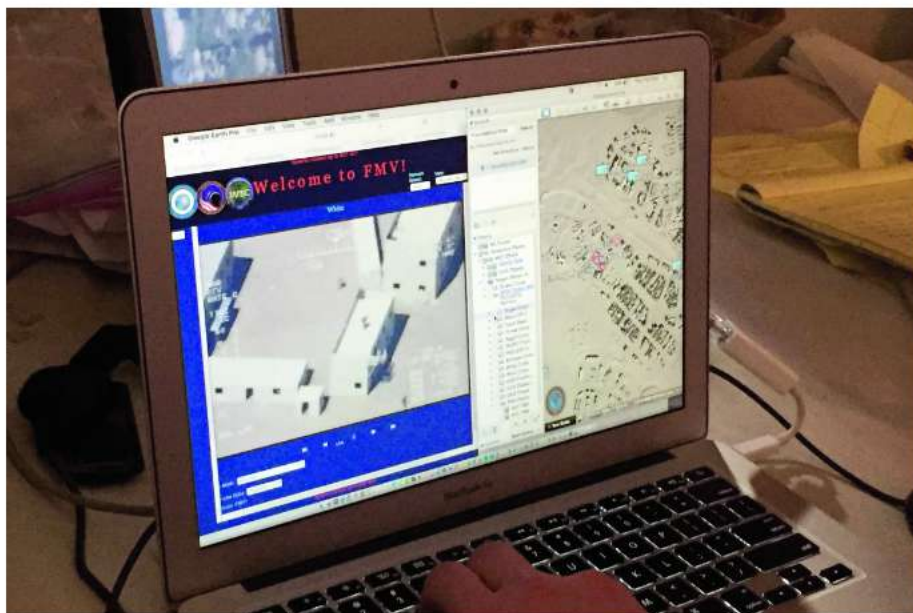
tactical edge, the asymmetric advantages provided by the MQ-9 enabled the Marines to make much better and more rapid decisions. In short, during TALON REACH, the MQ-9 proved to be the perfect “guardian angel.”<sup>6</sup>

What’s equally promising about the MQ-9 is that it brings all of these capabilities at a cost per aircraft that is at least half of what any other current and projected Marine rotary-wing, tilt-rotor, or fixed-wing aircraft costs and for a cost per flight hour that is also cheaper than any other aircraft in the Marine inventory today, in the case of the F-35, by more than \$30,000.00 per hour. Beyond cost considerations, the MQ-9 is also one of the most reliable aircraft in the entire U.S. inventory today, consistently maintaining readiness rates in excess of 90 percent while heavily engaged in combat operations overseas and training exercises in the U.S.

### Looking MALE UAS Head On

When asked why our MAGTF does not have MALE UAS capabilities 15 years after our Nation first successfully employed a Predator UAS strike to eliminate Mullah Omar’s bodyguards in Afghanistan<sup>7</sup> and, shortly thereafter, to provide CAS in support of outnumbered troops on the top of the Takur Ghar Mountain during Operation ANACONDA,<sup>8</sup> some key members in our aviation community argued that MALE UAS did not meet expeditionary deployment and forward basing requirements. While rarely employed via cargo aircraft due to its multi-thousand mile self-deploy range, the MQ-9 has demonstrated significant expeditionary capabilities, in line with MAGTF concept of operations as detailed in the 2016 Aviation Plan<sup>9</sup> for fixed-wing tactical aviation platforms, such as the F-35B and the KC-130J. As an example, in February, Special Operations Command flew two MQ-9s and a GCS via two C-17s in an expeditionary exercise in Florida, where the MQ-9s, less than six hours after landing, supported forces operating on the ground for a week straight, including employing kinetic ordnance daily. Our Corps employed a similar employment concept when rapidly responding to the humanitar-





**Figure 7. Company-level intelligence cell Marines collaborating with pilot and sensor operator in GCS while simultaneously viewing MQ-9 FMV and friendly force locations.**

ian disaster in Nepal in May 2015; the UH-1Y illustrated in LtGen Jon M. Davis' "Fight Tonight, Fight Tomorrow" article in the May 2016 Marine Corps Gazette arrived in Nepal via C-17.<sup>10</sup>

Separate from expeditionary C-17 employment, going back nine years the

DHS proved the MQ-9's expeditionary deployment characteristics via C-130, specific to our Corps, with the KC-130J's.

3,250 nm range, wherever this aircraft can go so can an MQ-9 self-deploy, to include from "cluster bases" as



**Figure 8. A snapshot of a Marine in Virginia showing his smartphone as he listens and observes from multiple vantage points networked FST drills 3000 miles away.**

described in the *2015 Aviation Plan*.<sup>11</sup> Operating from such cluster bases, the MQ-9 can, for example, execute missions with sophisticated maritime sensing, electronic jamming, and decoy capabilities at ranges out to 1,000 nm while remaining onstation for 10 hours. Additionally, as mobile forward aerial re-fueling and re-arming points (M-FARPS) are established for our tactical aviation platforms, mentioned before in the *AVPLAN* tactical aviation concept of operations, the MQ-9 can operate rapid launch and recovery element operations from these locations. Such operations would enable persistent counter UAS protection for personnel and aircraft at M-FARPs, who, given the production of tens of thousands of cheap small UAS in East Asia on a monthly basis, will all but guaranteed be under surveillance and potentially even kamikaze UAS attack.<sup>12</sup>

If our Corps is executing more deliberate, sustained operations ashore, similar to the ongoing fight in Operation INHERENT RESOLVE, where MV-22s, KC-130Js, F/A-18s, and AV-8Bs are operating from fixed airfields in Kuwait and Bahrain, a USMC MALE UAS can support the MAGTF from these same locations.

Separate from these employment options, a more traditional employment construct would be that which our MEUs have executed for decades now with our landbased C-130s. In this case, MQ-9s, either self-deploying alongside the MEU's KC-130Js or embarked inside, would be strategically located to support the MEU commander, right next to his KC-130Js. Instead of providing the MEU commander critical and often in short supply air-to-air refueling and logistics lift capabilities though, the MQ-9 would serve simultaneously as his primary digital interoperability gateway, line-of-sight (LOS) and beyond LOS RSTA (reconnaissance, surveillance, target acquisition), electronic warfare platform and, if and when required, kinetic strike delivery system. This same employment paradigm is, of course, directly applicable to both SPMAGTF-CR forces, which operate strictly from land bases and whose Marines have already described in multiple venues, to



include in the pages of the *Marine Corps Gazette*,<sup>13</sup> many of their concerns are due to lack of organic, long-range and persistent C<sup>2</sup>, kinetic and non-kinetic fires, RSTA, etc.

## Adapt, Innovate, and Win

Our Corps' 36th and 37th Commandants, in their *Commandant's Planning Guidance*<sup>14</sup> and *FRAGO 01/2016: Advance to Contact*,<sup>15</sup> respectively, emphasized the critical need for our Service to change given current and forecasted threats. Our 37th Commandant stated:

As we have remained engaged in the current fight and operationally committed, our enemies and potential adversaries have not stood idle. During these years, they have developed new capabilities which now equal or exceed our own.<sup>16</sup>

In the case of MALE UAS, potential adversaries ranging from China to Russia to Iran all have capabilities that greatly exceed our own.<sup>17</sup> Countries such as Pakistan, Nigeria, Iraq, Egypt, and Saudi Arabia all have armed MALE UAS as well.<sup>18</sup> Beyond these countries, what the Israelis have done with MALE UAS—which now fly approximately 65 percent of their daily combat sorties—is incredibly impressive, to include how they have closely integrated with their forces on the ground.<sup>19</sup> Within the U.S. Department of Defense, every Service, as well as Special Operations Command, employs daily long-range and long-endurance UAS. Specific to the U.S. Army alone, a company of MALE UAS is permanently assigned as an essential warfighting component in each of the organization's 10 divisions. These aircraft provide RSTA, C<sup>2</sup> extension, electronic warfare, and kinetic strike capabilities in support of the divisions' soldiers on the ground, as well as their attack and assault support aircraft.

In contrast, our Corps' way forward on UAS has already been assessed—repeatedly—as missing the mark by the very ground community that the ACE exists to support. For example, from the fall 2015 Infantry Operational Advisory Group (IOAG) out brief:

The current MQ-21 capabilities do not meet the infantry community's



**Expeditionary MQ-9 daily employment at Special Operations Command exercise in February 2016.**

current operational requirements ... recommend expanding the UAS family to include the capabilities of munitions, air-launchable cargo/delivery and multiple intelligence, surveillance, and reconnaissance (ISR) payloads, all with ranges and on-station times that support the operational capabilities of the MV-22.<sup>20</sup>

Further, any discussion about a seabased MALE UAS, which sometimes is the counter when Marines express a desire for expeditionary landbased MALE UAS, should start with the following

factual statement: *A seabased MALE UAS that meets the MAGTF's current, much less future requirements, does not exist anywhere in the world and will not exist for at least another decade and most likely for at least 15 to 20 years. Making such a capability a reality will cost billions of dollars as well. Moreover, even if such a capability does become available in the distant future, it will have to compete with already precious embark space on our limited number of amphibious ships.* Beyond this statement, it's also true that any discussions about the MQ-



**DHS MQ-9 deployed via a U.S. Coast Guard C-130 in 2007.**



8C Fire Scout (rotary-wing UAS) filling MAGTF capability shortfalls are simply that, discussions. The truth is that the MQ-8C does not meet any of the MAGTF's UAS capability shortfalls and attempts to prove that it does will—despite the facts clearly presented in the platform's *Naval Air Training and Operations Procedures Standardization (NATOPS)* manual,<sup>21</sup>—end up a waste of time and resources—and ultimately further delay filling what are now 12-year-old MAGTF UAS capability gaps.

Beyond talks of non-existing sea-based UAS filling the MAGTF's capability gaps, purchasing Harvest HAWK kits for all 79 of our KC-130Js and turning MV-22s into “Osprey Hawks,” with enhanced sensors, laser designation ability, jamming pods, and laser-guided munitions are also being discussed as alternatives to embracing organic MALE UAS.<sup>22</sup> On the surface, both possibilities might seem logical; with a little analysis though, the myriad of challenges involved in both options jump out. First is money. The Harvest HAWK kits for the KC-130Js alone are nearly \$600 million, adding wideband BLOS communications for each aircraft, another approximately \$100 million. Weaponizing the MV-22 with laser-guided munitions also comes with an approximately \$500 million cost; potential wideband BLOS communications, sensors, and jamming pods will add another \$500 million, at a minimum. Even if Congress funded the program at a time when Marine aviation has largely blamed this same Congress<sup>23</sup> for its readiness woes due to a lack of funding, both assault support communities have consistently reinforced the many challenges that they are experiencing having to be “trained specifically to employ Harvest HAWK (which) resulting in aircrew that are not able to focus on the other essential KC-130 missions.” Specific to the MV-22, one of our Corps' most accomplished Osprey pilots, who recently returned from serving as a squadron commanding officer in support of our crisis response SPMAGTF in U.S. Central Command, wrote in the April *Marine Corps Gazette*,



**Exercises like TALON REACH demonstrate how MALE UAS can modernize the Corps and protect our Marines.** (Photo by Cpl Aaron James Vinculado.)

The MV-22 suffers from a similar lack of focus. It is hampered from being most effective at its primary assault support mission because of an endless list of distracting quasi-missions, a misguided training manual, and debilitating readiness.<sup>24</sup>

Even if cost and training issues were not major challenges, what missions would have priority for our MAGTF's already too few and in great demand KC-130Js

### ***The MV-22 suffers from a similar lack of focus.***

and MV-22s: transporting Marines and equipment, air-to-air refueling or persistent RSTA, CAS, C<sup>2</sup> extension, counter-UAS, etc.? Further, if we prioritized these latter missions over the former, would our Corps really employ large visual and noise signature KC-130Js and MV-22s over objective areas for extended periods, to include during broad daylight? When considering this question, the tragedies above Mogadishu and “Blood Over Bor”<sup>25</sup> in 2013 immediately come to mind. Ultimately, all of these factors led a KC-130 pilot, who considered the Harvest HAWK's

post-Operation ENDURING FREEDOM applicability for our MAGTF to conclude: “the MQ-9 Reaper is clearly the superior machine that should be funded over future Harvest HAWK implementation.”<sup>26</sup>

In summary, having served in a VMU over the past three years, to include participating in nine integrated training exercises, four Weapons and Tactics Instructor courses, one Black Dart exercise, and the initial 15th MEU work-up before the MQ-21 deployment was cancelled, the MQ-9's support during TALON REACH VII further opened my eyes on how MALE UAS can fundamentally transform our MAGTF in very short order. In doing so, the MQ-9 will also specifically address the most recent I MEF and Marine Forces Pacific UNS request for Group V UAS. In the 20 November 2015 UNS's cover letter, the CG, I MEF made very clear the consequences of continuing on our Corps' current path:

Failure to provide appropriate UAS based ISR [intelligence, surveillance, and reconnaissance], C<sup>2</sup>, EW [electronic warfare], IO [information operations], and fires will reduce the relevance of the Marine Corps as the force of choice or force for high risk operations to be undertaken when unforeseen factors call for an imme-



diate response where ISR is limited or unavailable.

It's long past time for our Corps to advance to contact on MALE UAS guardian angels.

#### Notes

1. The first UUNS for MALE UAS was submitted by I MEF after Operation PHANTOM FURY in 2004. Subsequent UUNS/DUNSs for MALE UAS have been submitted consistently since this point, to include in support of Marines in Helmand Province in 2009, as well as for MEUs. I MEF submitted another DUNS for MALE UAS (titled "I MEF BLOS Group V UAS") in November 2015.

2. The Marine Corps Center for Lessons Learned (MCCLL) website includes numerous documents on this subject, from combat operations' AARs (after-action reviews) to SP-MAGTF and MEU lessons learned to consistent ITX AARs, etc.

3. As just one example, direct input from the February 2015 Ground Board outbrief: "The requirement for UAS capabilities to support the GCE must be developed across the spectrum of UAS, to include persistent and armed UAS capabilities."

4. This quote is from Capt Scott Jones, one of 2/8's forward air controllers in Helmand Province. He provided these comments in an interview with Capt Adam Weathers for his Expeditionary Warfare School paper titled, "UAVs and the Appropriate Balance with Manned Aircraft." This paper was accessed at <https://www.mccll.usmc.mil>.

5. This comment was made at the January 2016 UAS TTF.

6. From then-LtGen James M. Mattis' 10 October 2006 "I MEF Rules for Force Protection," a "Guardian Angel" is "hidden, watching over his unit's security in an ambush mentality ... Security is the first priority of work. Guardian Angel placement is the first priority of security," accessed at <http://www.imef.marines.mil>.

7. For more on this mission, see Chris Woods' "The Story of America's Very First Drone Strike," accessed at <http://www.theatlantic.com>.

8. See Matt J. Martin with Charles W. Sasser, *Predator: The Remote-Control Air War Over Iraq and Afghanistan*, (Minneapolis, MN: Zenith Press, 2010), 21.

9. Headquarters Marine Corps, *2016 Marine Aviation Plan*, (Washington, DC: Department of Aviation, February 2016), accessed at <https://marinecorpsconceptsandprograms.com>.

10. For more on our Corps response in Nepal in May 2015, see "U.S. Troops Complete Mission in Nepal," accessed at <http://www.defense.gov> and Jeff Schogol's "U.S. Sending Ospreys, Hueys, and Other Aircraft to Nepal," accessed at <http://www.airforcetimes.com>.

11. Headquarters Marine Corps, *2015 Marine Aviation Plan*, (Washington, DC: Department of Aviation, October 2015), accessed at <http://www.aviation.marines.mil/>.

12. For more on small UAS production and sales, see "Flying Robotics Blog Network," accessed at <http://blog.helidirect.com>. For more on how such drones are already being used for surveillance and attacks, see Clay Dillow, "Islamic State Ups the Size and Sophistication of its Drone Fleet," *Fortune*, (New York: Time Magazine, 18 April 2016), accessed at <http://fortune.com> and Azad Garibov "The New Eurasian Drone Wars," *The National Interest*, (Washington, DC: 12 May 2016), accessed at <http://nationalinterest.org>.

13. For a few examples, see in the September *Marine Corps Gazette*, LtCol Joel Schmidt and Maj Stephen Detrinis, "SPMAGTF-CR-AF," Capt Tina Terry, "Arming the Osprey for Self-Escort," LT Brian T. Reynolds, "Casualty Evacuation Capabilities," and Capt William T. Kerrigan, Justin Gates, and 1stLt Eric Todorski, "TRAP/PR in Operation INHERENT RESOLVE."

14. Gen Joseph F. Dunford, *36th Commandant's Planning Guidance*, (Washington, DC: HQMC 2015).

15. Gen Robert B. Neller, *FRAGO 01/2016: Advance to Contact*, (Washington, DC: HQMC 2016).

16. Ibid, 2.

17. For further details on the expansion of armed UAS, see Adam Rawnsley, "Meet China's Killer Drones," accessed at <http://foreignpolicy.com>.

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# Marine Aviation Readiness

Solving the problem

by LtCol Kevin F. Murray

**R**ecent news reports have painted a bleak picture of Marine aviation readiness. From fixed-wing squadrons unable to properly train for deployment and purportedly taking parts from museum or boneyard aircraft to MV-22 readiness at less than 61 percent, the Marine Corps' aviation fleet is struggling to make mission.<sup>1</sup> The news reports would make it seem that this readiness problem is Congress's fault, with reduced funding that has driven us to the point we find ourselves today.<sup>2</sup> Or, is it possible that there is a more fundamental issue in terms of how we have employed certain aviation platforms over the past 15 years in low-intensity to hybrid conflicts, far from the Cold War, near-peer adversaries of old? Regardless of the reasoning, there is a means to overcome the critical shortfall today, while avoiding the mistakes of our past. That solution is to leverage readily available, landbased medium altitude, long-endurance, tactical unmanned aircraft systems (MALET UAS) as an interim solution, which will allow our Corps time to reset aviation. Simultaneously, this solution will answer significant capability gaps for today's MAGTF and allow for the future of our Corps' ACE to become a balance between stealth platforms and low-cost, long-range, armed UAS capable of answering the Nation's call "in every clime and place."

Today, the *Marine Aviation Plan 2016 (AVPLAN)* portrays a path to fix these problems based upon what

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**Special Operations Command is utilizing the MQ-9 Reaper to conduct cyber and electronic attacks in addition to long-range C<sup>2</sup>, CAS, and ISR missions. (Photo by MSgt Dennis J. Henry, Jr., USAF.)**

we have but ignores the fact that every single platform in the ACE is in a state of near emergency in terms of readiness.<sup>3</sup> It lays out a comprehensive series of upgrades and maintenance actions to make our legacy fleet viable over time while carrying these aircraft to a point

where the F-35 can be fully fielded, and Marine aviation will be healthy again.<sup>4</sup> In recent reporting, Marine aviation lays out a vision where each airplane is a sensor and a shooter, expanding even our logistics aviation assets into multi-role platforms that can do a little





**To offset AV-8B and F/A-18 availability issues, the AVPLAN calls for the expansion of non-traditional roles, to include all our C-130 and MV-22 logistics enablers.** (Left photo by Cpl John A. Hamilton, Jr., right photo by Cpl Nicole Zurbrugg.)

of everything.<sup>5</sup> However, is this truly the best path for our Corps?

The MAGTF today is facing a dynamic world environment, characterized by threats from multiple peer competitors, failing nation states, and violent extremist organizations made all the more challenging by the proliferation of advanced weapons and new technologies that narrow the gap of our advantage over adversaries. In the past, it was acceptable to characterize aviation assets as high-cost, low-demand assets, which forced MAGTF commanders to have to make hard decisions on where to employ these limited assets. Today, however, the “new normal” of global, continuous, and increasingly more technical conflict across the range of military operations, on every continent, and in every climate, requires us to step back and take a broader perspective of the requirements being levied on the ACE.<sup>6</sup> Only by understanding the reality of this new world order and then taking a hard look into how we really got ourselves into the predicament can we move forward in making the right acquisition decisions to enable the MAGTF to meet the threats of today and in the future.

### A Critical Look to the Past

In truth, if we take a critical and introspective look back, we as a Corps will find that we really only have ourselves to blame for the readiness shortfall. Not to cast blame in any one direction, as every decision has been made with the best intentions, but it was the Marine ethos

of “make do with what we have” which drove our decision-making process. Additionally, a cultural bias toward traditional manned aviation has prevented us from looking outside of “what we have” to “what do we really need across the spectrum of operations?” This combination of factors drove us to make the decisions that we have and has placed us on the current path.

### *The MAGTF today is facing a dynamic world environment ...*

To begin, let’s step back approximately 15 years. In Iraq and Afghanistan, after both major invasions, the Marine Corps decided to continue to use its tactical, fixed-wing aircraft in non-traditional roles. These aircraft, built to fight a near-peer adversary by engaging other fighters in air-to-air combat, destroying forces deep behind enemy lines, or conducting CAS in medium to high threat environments suddenly were introduced to a new mission: non-traditional intelligence, surveillance, and reconnaissance (NT-ISR).<sup>7</sup> As the force transitioned from major combat operations to irregular conflict, we chose to leverage what we had vice asking the more difficult question of “what is the best tool for the job?” F/A-18 and AV-8B missions

began to be flown based upon electro-optical and infrared full-motion video cameras, and thousands of sorties were flown where tactical jet aircraft never dropped a single weapon. A now famous story was that a MAGTF commander once asked, “Where is my LITENING pod?” Instead of “where is my AV-8B?”

The results of these decisions, over the past 15 years, are readily apparent. Aircraft that were meant to be used for deterrence against near-peer adversaries and for fighting in major combat operations have found their flight life used up in the NT-ISR role fighting insurgents. Jet aircraft meant to fly fast to survive and strike robust military targets burned their life away “in the overhead” as surveillance and reconnaissance assets. C-130s, which cost even more per hour to operate, were converted to close air support and ISR roles because they could loiter for longer periods than F/A-18s, AV-8Bs, and H1s; yet, this detracted from their tanking responsibilities, aerial delivery needs on a global scale, and, ultimately, diminished these aircraft’s flight life as well.

### Facing the Problems of Today

Today, even with our current readiness issues, we continue to use our limited manned tactical aviation fleet in the NT-ISR role. To offset AV-8B and F/A-18 availability issues, the AVPLAN calls for the expansion of non-traditional roles, to include all our C-130 and MV-22 logistics enablers. The question becomes, are we adding capacity to meet



globally employed MAGTF requirements with the right, cost effective tools for the job?

Upgrading our entire legacy manned fleet with the multi-sensor payloads, electronic warfare suites, and connectivity via satellite communications is estimated to be around \$7 to \$10 million per aircraft, with a total bill in the billions over the next decade. All the while, we still face the increasing challenge of high-demand aviation assets and low-density quantities. What happens when F-35s, F/A-18s, AV-8Bs, MV-22s, and CH-53s need tankers that were instead assigned to electronic warfare or armed ISR missions? Are we willing to risk MV-22 or C-130 aircrew to orbit over an objective deep in enemy territory for hours just to build a picture for the raid force en route to a target? Most importantly, are we creating decision-making space for the MAGTF commander, or are we creating a situation where difficult decisions have to be made in terms

of prioritization between logistics, CAS, ISR, and long-range C<sup>2</sup>?

Unfortunately, the current plan follows the old model of making do with what we have. Both the Army and the Air Force have abandoned that tact and have moved out quickly in acquiring MALET UAS, primarily MQ-1C Grey Eagles and MQ-9 Reapers, to build armed ISR and long-range C<sup>2</sup> capacity while allowing legacy platforms to retire, such as the case of the Army's Kiowa scout helicopter. For the Air Force, they have increased total capacity of MQ-9 to over 60 persistent combat air patrols (CAPs), which has allowed them the breathing room to refocus a majority of their fighter/attack aircraft toward threats that are more appropriately suited to their capabilities and design.<sup>8</sup> Meanwhile, the Marine Corps continues to hold on to the legacy RQ-7B Shadow UAS and is beginning to field a new program of record, the RQ-21A Blackjack, which has only 50

miles of range and 30 pounds of payload capacity. While there may be a role for this platform at the tactical level, it is not armed and does little in the way of providing a suitable offset to answer the readiness issues within AVPLAN.

The 2016 AVPLAN does call for the development of a new, amphibious ship-based MALE UAS that will address the cumulative set of capability gaps.<sup>9</sup> However, this will take a minimum of 10 years to fund, experiment, and finally field, with a realistic initial operational capability of 2029 and an full operational capability somewhere in the mid-2030s as there is currently no existing MALE UAS that can fly from the deck of amphibious shipping.<sup>10</sup> While this is in the development process, what adequate asset will be provided over the intervening approximately 15 years to address both legacy readiness and the near-term force gaps such as counter-UAS, ISR, electronic warfare, digital interoperability, CAS, joint terminal



## MARINE CORPS MUSTANG ASSOCIATION MEMBERSHIP APPLICATION

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Status: \_\_\_\_\_ Active Duty \_\_\_\_\_ Retired \_\_\_\_\_ Reserve \_\_\_\_\_ Former

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Nine-Digit ZIP: \_\_\_\_\_

Phone: \_\_\_\_\_ E-Mail: \_\_\_\_\_

Enlisted Service Dates (From/To/Highest Rank): \_\_\_\_\_

Officer Service Dates (From/To/Highest Rank): \_\_\_\_\_

Mail with check for \$40.00 made payable to: **MARINE CORPS MUSTANG ASSOCIATION, Inc.** Additionally, enclose your DD-214(s) which show your eligibility for membership or other official documentation such as a copy of the appointment and acceptance record which is filed in the Officers Qualification Record. Deployed active duty Marine warriors are exempt from the DD-214 requirement until renewal. Mail to:

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attack controller training, and the need to promulgate these capabilities across every MAGTF around the world, simultaneously?

As a case in point, consider the sun-down plan of our primary electronic warfare platform, the EA-6B prowler. This venerable aircraft sunsets in 2019, and the majority of the 7588 electronic warfare officer billets are being ported over to the VMU (Marine unmanned aerial vehicle) squadrons, which will only be equipped with the RQ-21A Blackjack systems, as previously mentioned. The *AVPLAN* also calls for the distribution of electronic warfare capabilities across the fleet, in the form of Intrepid Tiger II pods on Harriers, Hornets, H1s, and C-130s, assigning yet another mission that requires long loiter times, to platforms poorly designed for this role, and does little to address the other mission area gaps that begin to conflict in priority.<sup>11</sup>

If everything does all missions, then nothing will do anything very well. In fact, the ACE's readiness issues are also taking their toll on the MAGTF's ability to train, so adding new missions upon these platforms will only exacerbate our entire Corps' readiness challenges.<sup>12</sup> Meanwhile, in contrast, Special Operations Command has begun to leverage the 92 percent operationally reliable MQ-9 Reaper platform to conduct simultaneous cyber and electronic attack, in addition to long-range C<sup>2</sup>, CAS, and multi-spectral ISR.<sup>13</sup> The key to answering the ACE's readiness issues lies with investing in an interim MALE UAS capable of actually accomplishing what the EA-6B brought to the force and with the ability to expand to become much more.

### A New Path Forward

With the ever increasing threats to the MAGTF, spanning across the high-end proliferation of advanced weapons technology, down to the cheap, commercial off-the-shelf capabilities, there is a critical MALET UAS requirement today that must be met immediately, regardless of land or ship basing, while we continue to build toward the future with traditional acquisitions. As we move ahead, it's time to embrace the concept

of manned-unmanned teaming to enable the ACE force of today, not just the future. Our plan must refocus to leverage currently available UAS—that can operate right next to our landbased KC-130s and most tactical aviation platforms—to offset the readiness issues of our manned aviation assets. This cost-efficient approach will apply the right tool for the right job, in the right place and time. When a MAGTF shows up in a geographic region, it will be properly equipped, trained, and additive to the joint force, not creating a food fight for limited armed ISR assets that are increasingly mission essential. Meanwhile, this additive nature of capable MALET UAS will lead to breathing room for the reset and transition of our F/A-18 and AV-8B fleets to F-35B/C.

Additionally, by focusing on installing digital interoperability capabilities into our legacy platforms and then integrating them through network data links with MAGTF specific MALET UAS, our Corps will find a new level of enhanced situational awareness and digital interoperability for our increasingly distributed units. The tailored multi-spectral sensor suite on these UAS will also allow the MAGTF commander to be proactive, vice waiting for the enemy to act, and then having to ask permission for allocation of a joint armed ISR asset. Further, this approach leverages UAS to limit risk to manned platforms from man-portable and radar guided air defense systems while providing long loiter persistence without the need of an organic tanker and comes “standard” with the same multi-spectral sensors that would have weighed down and reduced capacity of our logistics platforms at far less cost. Ultimately, the key is digital interoperability, as the fleet of MALET UAS become the “tactical satellites” for the MAGTF, sharing sensor data in a fused manner across every platform and to the GCE, bringing new levels of collaboration and refining what is so special about the Marine Corps: the combined arms effect of a truly integrated MAGTF.

### Notes

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# Post-Jena Reform in the 21st Century

Challenges in evolving the force

by 1stLt Taylor L. Paul

**T**he Marine Corps, with its long history of battlefield innovation, is often at the forefront in adapting its force to encounter new challenges. However, in the wake of the campaigns in Iraq and Afghanistan, the Marine Corps (and the military in general) is struggling to adapt to face changing global factors that are making the large-scale industrial conflicts of the past obsolete. The Marine Corps will continue to be unsuccessful in prosecuting operations against Fourth Generation Warfare (4GW) enemies such as those encountered in Iraq and Afghanistan if we do not accept the shifting economic, social, and political realities that have led to the dominance of 4GW and reform our Corps to meet those challenges. An excellent example of change in the face of an evolving enemy despite the hide-bound nature of the dominant military system can be seen in how the Prussian confederation responded to their disastrous defeat at Jena in the War of 1806 at the hands of Napoleon Bonaparte.

After a declaration of war by Prussia to counter French influence in its German satellite states, the war that followed lasted little more than a month and culminated in a quarter of the pre-war Prussian army being demolished in a lightning campaign. The Prussians were outclassed in every way from their reliance on outdated tactics to their rigid devotion to Prussian caste rule and tradition. The Prussian leadership, before war was declared, failed to recognize that warfare had fundamentally changed in the face of the Napoleonic reforms to the French army. Only after the crushing defeats of the War of 1806

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did Prussian leadership look to evolve not only their military force but also the state itself in order to counter this new generation of warfare.

The process that Prussian leadership used to initiate the post-Jena reforms is useful to American leaders because it illustrates how a country proactively recognized the need for change and took positive steps to initiate that change. The evolutionary change in warfare currently being encountered by the United States military is the shifting paradigm from the state-centric Third Generation Warfare to the network-centric 4GW. 4GW warfare has been evolving in observable steps since its codification by Mao Tse-tung to shift the balance of forces away from Nationalist Chinese and Japanese forces before, during, and following World War II. To understand this evolution, leaders must understand the shifting political and social realities that make such evolution possible. The Prussians faced a similar situation when facing the revolutionary French forces and their First Generation tactics.

The Prussian command, slow to react to the changing tactical picture on the ground and lacking a clearly defined strategic goal for the campaign, would have understood many of the American military's struggles during the long war.<sup>1</sup> Insurgent cells in both countries used widely networked command and control (C<sup>2</sup>) nodes that were synced with the operating cells utilizing only com-

mander's intent and a strong political message. American forces, on the other hand, operated within a hierarchal bureaucracy which was slow to respond to a shifting political and tactical situation and whose political leaders were never able to forge a unified strategy or end state on how to stabilize the country in question. The United States and pre-Jena Prussia are alike in this aspect: each country was well prepared to fight and win in the arena of the previous generation of warfare but poorly prepared for what would come next.

The United States' crushing victories in the First Gulf War and the initial stages of Operation IRAQI FREEDOM proved that no other country could match its abilities in Third Generation state-on-state industrial warfare. Because of this dominance, the United States does not want to accept that the force must be adapted. These circumstances provide an interesting historical analogy, as Prussia

with some exceptions ... regarded the French as an imperfect copy of itself, an assumption that made it difficult to understand the enemy's conduct so that it could be adopted or countered effectively.<sup>2</sup>

Instead of acknowledging that insurgent groups in Iraq and Afghanistan were executing 4GW techniques against our forces on the ground, we instead called these groups "bitter enders" or



“criminal elements” until it was apparent to all that an insurgency had been allowed to form and flourish while the United States debated on what to call it. Forty years earlier, in their analysis of the Vietnam War, several prominent historians, including Maj John A. Cash,<sup>3</sup> would state that it was the North Vietnamese Army forces that won the war for the Communists, ignoring that Ho Chi Minh utilized a 4GW strategy to upset the balance of power, effectively allowing these regular forces to complete the conquest of the South.<sup>4</sup> Such a desire to avoid confronting irregular tactics, and the very difficult strategic situations that they are meant to create, hints at a desire to stay within comfortable waters. *Massive technical superiority in war does not lead directly to the force’s ability to achieve and sustain desired political objectives.* However, the United States’ mastery of this realm (and the required correlation to combat between state actors) leads to the issue being shaped in a way that makes the leverage of this stated technical superiority the answer as opposed to more esoteric issues such as organizational mindset or philosophy.

At this point in the evaluation of the United States’ approach to warfare, it must become apparent to the reader that the issues of leadership and doctrine as the *primary* explanation for failure to achieve the desired political end state are overly simplistic. The primary value to be gained from objectively analyzing defeats in Vietnam and Iraq is the ability to evaluate our performance and correct our deficiencies. The issue, then, becomes the military’s inability to draw real-world tactical and strategic lessons from these decades of conflict. The same held true for some Prussian thinkers even after reforms were enacted. A hundred years after the 1806 campaign when the great German tactician Alfred Graf von Schlieffen wrote his analysis, his conclusion was that faulty Prussian generalship destroyed the army’s hopes for victory. Even as keen a mind as Schlieffen’s had issues coming to terms with the fact that fighting an outdated mode of war with an army that does not have the mindset or training to achieve the stated political



**As we discuss and develop military objectives, are we aligning them with political objectives as well?** (Photo by Cpl Brandon Martinez.)

objectives can only lead to one outcome. Maj Cash is essentially attempting the same feat when he finds fault with the overall strategy for the war. An army that has not been adapted or trained to 4GW tactics *and* receives poor strategic guidance is bound to fail. Both sides of this coin must be addressed instead of just the issue of inadequate leadership.

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**... next to nothing is to be found about restructuring the force itself toward 4GW.**

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While the issue of leadership during the long war has been addressed in both the public sphere and within the military, next to nothing is to be found about restructuring the force itself toward 4GW. On the contrary, current strategic guidance reflects a shift away from what 4GW lessons were learned and back toward an emphasis on 3GW. *Joint Operating Vision 2020*, (Washington, DC: Joint Staff, May 2000), or *JV 2020*, is the forecasted future of American military operations and describes how the DOD sees American

forces countering potential threats of the future. High speed, infallible intelligence gathering techniques promise to supply the commander with everything he needs to make rapid, realtime decisions and service enough targets with overwhelming combined arms firepower that the enemy will no longer be able to resist. Again, it must be stated that the employment of technology in and of itself is not a strategy. In the absence of a strategy, however, the United States falls back on its dominance in that field. The evolution of the force is stifled by this lack of guidance, and military leaders are left to conduct their business in a vacuum with no clear picture of what the force must become.

The Prussians, to their credit, realized that something new was afoot and provided serious resources to study French tactics and adopt what worked and developed new techniques for what didn’t. The Prussian’s biggest continuing contribution to military thought was to go against their patriarch, Frederick the Great, and suggest that warfare could not be understood outside of its place within the political, scientific, and social realities of the time in which that war is taking place. Nothing exists or grows within a vacuum but is instead a product of the world around it. The Prussian military of 1806 reflected the



Prussian state in 1806; there was no cosmopolitan air to the army as its ranks were drawn exclusively from the lower classes. The nobility and bourgeois were excluded from service except for a select few who became officers. These lower class Prussian serfs were leavened with paid mercenaries. With no national feeling to generate morale, discipline was maintained with the rod and the lash. With no conscription to quickly and cheaply replace battlefield losses, preservation of the force was always a consideration for the Prussian commanders. Through these illustrations it is apparent that Prussian society shaped and produced a military that was fundamentally unable to confront the French in 1806.

Are American political, economic, and social institutions capable of producing a military that can win in a 4GW environment? An analysis of what factors generated change in Prussia and what factors restrict change within the United States may prove illuminating.

Prussia was a collection of client states that could only advance reform through collective action. Reform was seen as a prime mover of the changes instituted by Prussia within the military (the most important of societal organs) because these reforms more closely bonded the coalition states together and began to form an idea of what a German state could be. A desire to reform was really a desire for increased economic and political power through the formation of a unified state. The United States, on the other hand, has already developed a very distinct culture and economic system as well as a very broadly defined "American Way of War." A very unique aspect of how the military and economic spheres interact is through defense contracting. Defense contracting generates jobs in American states, which makes it an interest of American politicians. Most of the weapons currently under development by the U.S. military are very high tech, very expensive, and useful only when confronting near-peer state competitors.

The most powerful weapons in 4GW are ideas and political will. While political will might take significant funds to generate, it cannot cost nearly as much as the F-35 or an updated stealth bomb-

er fleet. Both of these programs yield nothing in 4GW, but they do take up an inordinate amount of resources. Both programs also generate jobs in American states. The possibility exists that, due to the nature of military procurement and defense spending in the United States, there will never be a strong desire for reform within the American military or among the American people. The American society will continue to field the military that the society shaped.

What lessons, then, can the Marine Corps draw from the Prussian successes in adapting to a new generation of war? Simply put, the Marines must attempt the seemingly impossible. In the absence of substantive reforms to American society and our democracy, to what extent can the Marine Corps more closely align military objectives on the ground with foreseeable political objectives? In what ways can our Corps lead by example, perhaps covertly, the Nation's begrudging and inevitable acceptance that real enemies no longer (or rarely) come in the form of conventional armies? How can we truly see and fight the enemy as they are, not as we want them to be?

Several encouraging examples can be seen in which the Corps has taken the right steps. The Marine Corps has added counter-intelligence as an occupational specialty, and Gen Ronald L. Bailey recently stated in *Expeditionary Force 21*, (Washington, DC: HQMC, 2014), that the standard practice of accepting the lowest tier of GT score for infantry Marines (the dismounted, patrolling units that would shoulder most of the burden in a 4GW fight) is unacceptable and that higher standards must be adopted.

However, these incremental changes will not be sufficient to reform the force. 4GW warfare is evolving, and a new generation may even be on the horizon. Marine Col Thomas X. Hammes points out in his seminal work on 4GW, *The Sling and the Stone*, that attacks on the United States by super-enabled individuals (such as the Anthrax attacks on the Senate building in 2001) may point toward an emerging Fifth Generation.<sup>3</sup>

The time for moderate reform is over. In order to restructure the force

for success in the modern operating environment against a 4GW enemy, change must be fast and decisive. Some of the military's most cherished institutions will disappear, and new ones will need to be created. The first step, however, is easy. As an institution, the Armed Forces must accept that the current focus and composition of the force must be updated. The U.S. military has been out-cycled, and a new generation of warriors has defeated our best technology with nothing more than cell phones and assault rifles. States that oppose the United States are also utilizing 4GW techniques to neutralize American power, such as North Korea and China's cyber-attacks on American institutions. Even lacking strategic guidance, we must move toward reform based on an analysis of changing economic and political realities. Nothing exists in a vacuum. The Marine Corps is a vast network of people, ideas, groups, and ideology. It is time to harness this potential toward a dynamic end state and let the process of reform take place, even in the face of determined resistance from outside forces. An example exists of a much more tradition-bound society than ours accomplishing a task no less daunting. The Prussians succeeded because they realized that the world had changed and that Prussia had to change with it. The United States must now come to the same realization.

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#### Notes

1. In this case, the long war is a reference to the ongoing conflict in Iraq and Afghanistan.
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2016 GEN Robert E. Hogaboom Leadership Writing Contest: Honorable Mention

# Individual Accountability

Creating a culture where Marines meet expectations through personal discipline

by Capt Luis R. Perez

**Y**ou are SSgt/2ndLt/1stLt/1stSgt/Capt/SgtMaj/LtCol Smith, and you are a unit leader of Marines. You just returned to your desk from a staff meeting, and you are trying to figure out which of the dozens of critical items on your to-do list—to which another six were added at the meeting you just attended—you are going to attack first. Your phone rings, and the voice on the other end of the line tells you that you need to go see your boss right away. You rack your brain trying to think what this could be about. You hope it is for a good reason, but your inner pragmatist tells you this probably is not the case.

***Capt Perez recently transitioned to the IRR after serving with 1st Bn, 4th Marines. He has been a student of leadership for almost ten years while leading Marines in training, combat, and in the Supporting Establishment.***

After postponing your endless tasks for the moment, you report as ordered. “You wanted to see me, sir?” Your boss informs you that your unit had the most good conduct medals awarded in the company/battalion/regiment this fiscal year and congratulates you on a job well done. On your way out, he shakes your

hand and offers you his sincere appreciation for your outstanding leadership.

If you have never heard of such a scenario occurring in your unit, it’s probably because this does not happen in our Corps very often, if ever. A leader is not praised for the high number of good conduct medals or promotions his subordinates earn because these praises are bestowed on the Marines themselves. These individuals have worked hard to meet expectations and are being rewarded accordingly. This paradigm, however, does not apply when it comes to negative behavior. Throughout my few years in the Marine Corps, I have seen the adage that “*the leader is responsible for everything his unit does or fails to do*” be taken too literally. A leader should indeed be held accountable for his shortcomings if he fails to train his unit to standard or cultivates an environment that is not nested with the organization’s core values. However, the Marine Corps has evolved beyond this to a culture where too often leaders are held accountable when their subordinates make bad decisions that lead to actions that are realistically beyond the leader’s control.

There is a difference between a *poor decision* and a *bad decision*. A poor decision is one which exhibits less than desirable judgment for one of two reasons. A Marine might make a poor decision out of ignorance, meaning he simply does not know what the correct course of action is, or he might make a mistake out of failing to be thorough,



**Hold the Marine responsible for his actions.** (Photo by Cpl Joseph Scanlan.)



meaning he overlooks something, forgets something, or otherwise fails to account for something in his planning. I have yet to meet a Marine who has not made a poor decision at some point or another; myself included. On the other hand, a bad decision is one that exhibits bad judgment. The only way a Marine can exhibit bad judgment is to know that the course of action he is about to embark on is the wrong one and deliberately choose to do it anyway.

Admittedly, there is not much data on leaders being relieved for their subordinates' bad decisions; even when a commander is publicly fired, we learn only of a vague "loss of trust and confidence" charge. Still, the ranks are filled with anecdotes of leaders having to prove they did everything they possibly could to prevent their Marines from making a bad decision.

There are several problems with this approach. The first problem is that this is lazy leadership. Expecting a subordinate to be in control of every aspect of the Marines and resources in his charge does not reflect a realistic understanding of the way the world works. The easy thing to do upon learning of a Marine's bad decision is to put the blame on one or all of the Marine's intermediate leaders in the chain of command. Holding intermediate leaders accountable for such actions requires no analysis or judgment on the leader's part and is not a proactive way of creating change in a unit. The more difficult, but more appropriate, course of action is to hold to the person who is truly in control of the situation accountable: the Marine himself. Concurrently, judgment can be exercised to determine if the Marine's leaders somehow contributed to the bad decision. The leader cannot and should not be responsible for being in control of everything all the time; the individual must be accountable for himself.

Now if a unit exhibits a trend of bad decisions—especially repeated misconduct of the same or similar offenses—then an investigation should be conducted to determine if the leader is in fact breeding an environment conducive to bad decisions, whether through explicit or tacit approval. However, even if such a pattern exists, it still may be



***Being personally accountable for his actions, Marines reap the rewards of faithful service.***  
(Photo by Cpl Manuel Estrada.)

detrimental to hold the current leader accountable. Arguably, symptoms exhibited today were cultivated before they manifested themselves. Chances are that the previous unit leader is at least in part responsible for this. A good leader will ensure he has all the facts so that he can hold the right people accountable.

A similar problem with this approach to leadership is that it absolves the individual of personal responsibility for his actions. A Marine who believes that the onus of responsible conduct lies not with him but with his leaders will be more inclined to push the boundaries of what is acceptable. And when reproached, he will eschew responsibility and instead blame his leaders for failing to specify each and every scenario that constitutes a bad decision. This is not to say that individuals do not face punishment when they err, but rather that the finger first gets pointed at their leaders before it lands on the Marine himself. This creates an environment in which Marines "act accountable" but do not "assume true accountability."<sup>1</sup> If unchecked, this attitude could extend to performance, in which case a Marine will blame all of his failures on his leaders, not just his bad decisions.

It is interesting to note that in the civilian realm the police only arrest the individual who commits a crime; they

do not also arrest his parents, his church leader, or his school teachers—all of whom are arguably responsible in some way for raising this person to behave morally and ethically. When star tight end Aaron Hernandez was convicted of murder, the judge did not also convict his offensive coordinator or his head coach, nor did the NFL or the Patriots organization hold anyone except the player himself responsible for these actions. Though the relationship between a leader and his Marines should not be determined by civilian standards, the comparison in this case is illuminating.

A third problem is that it breeds significant inefficiency in our organization. Leaders at every level are consumed with doing everything they can to mitigate their subordinates' negative behavior. This involves everything from preparing for and conducting force preservation councils, to meeting extensive annual training requirements, to conducting lengthy safety briefs which may or may not affect their subordinates' decision making—not to mention the extensive hours spent by the leader and his team to show that a troubled Marine was indeed set up for success but chose to make a bad decision anyway. The primary cost of doing business this way is that it detracts leaders from focusing on their mission



of preparing their Marines for combat. Additionally, the more hours a leader spends ensuring that trouble-making subordinates meet the minimum expectation for personal conduct, the fewer hours he has to dedicate to the development of Marines who meet the expectation out of their own sense of personal discipline.

A fourth problem is that it degrades trust and confidence in the chain of command. This can drive some intermediate leaders to instill a suffocating grip on their subordinates in an attempt to control everything. Such a leader robs his subordinates of their ability to exercise initiative, aggressiveness, and individual judgment, lest he be left out of the loop on any tiny detail that may or may not be a sign of an imminent bad decision. This over-attentiveness erodes trust between the intermediate leader and his subordinates and is contrary to our ethos and doctrine.<sup>2</sup> Moreover, the punishment or removal of an intermediate leader whose unit perceives him not to be at fault for a subordinate's bad decision could create an environment in which Marines become distrustful of the judgment of their chain of command or, potentially, all senior leaders in the organization.

An effective leader instead creates a culture of individual accountability in which individuals exercise personal discipline to meet their responsibilities as members of an elite organization.<sup>3</sup> Good leaders hold a Marine accountable for a poor decision, mentor the Marine on what the right decision would have been, and give him the chance to start anew. This is why even Marines with prior punitive paperwork are eligible for the good conduct medal so long as they subsequently maintain a consecutive three year record of good behavior.<sup>4</sup> However, when a Marine makes a bad decision, and especially when he commits an offense for which the Corps has a stated "no tolerance" policy, the incident should be viewed as an individual breaking faith with the Service and not as a failure of supervision by the Marine's leaders. A Marine who breaks faith with the Marine Corps—and with his leaders and chain of command for that matter—has failed to uphold his



**Good Conduct Medals indicate the Marine has worked hard to meet Service, unit, and leader expectations for his performance of duty. (Photo by Sgt Bryan Nygaard.)**

end of the bargain and should be dealt with accordingly.

Leaders at all levels should be expected to reinforce the organization's core values to guide their Marines' conduct and performance. Moreover, leaders should be a primary resource for troubled Marines and should do everything in their power to ensure these Marine have all the necessary resources available to them. However, the individual Marine should be held responsible for meeting the expectations placed upon him, whether they pertain to conduct, performance, physical fitness, etc. A Marine who knows that he controls his fate because he is in control of his decisions will be more likely to develop the personal discipline required to toe the line.

By creating a culture of personal accountability, leaders increase their unit's effectiveness in several ways. First and foremost, they increase efficiency by freeing subordinate leaders to focus on their assigned mission. This is accomplished through intermediate leaders meeting their responsibilities without fearing that they must control every single action their subordinates take. This is also accomplished by individual Marines meeting expectations for conduct and performance through personal discipline rather than through a mecha-

nism imposed by their leaders. Second, this leadership approach increases trust and confidence between the leader and the led throughout the chain of command. Marines perform better when they trust their leaders. More importantly, intermediate leaders are more willing to be aggressive, take initiative, and exercise judgment when they know their leaders trust them. This is how leaders can set the conditions for their subordinate leaders and Marines to succeed.

## Notes

1. A phenomenon described by Roger Connors and Tom Smith in *How did that Happen?: Holding People Accountable for Results*, (London: Portfolio Publishing, 2011 reprint).
2. Headquarters Marine Corps, *MCDP 1, Warfighting*, (Washington, DC: 1997).
3. This is not a new leadership concept and has been advocated by business experts such as Jim Collins.
4. Department of the Navy, *Secretary of the Navy Instruction 1650.1H, Navy and Marine Corps Awards Manual*, (Washington, DC: August 2006).





# Armor Protected Firepower

## Tanks and EF 21

by LtCol Robert W. Lamont, USMC(Ret)

In the 16 years leading up to the fielding of the M1A1, senior leadership consistently would ask not if we needed to modernize the tank fleet but rather if the Marine Corps needed tanks at all. Post-battlefield analysis of the Yom Kippur War on both the Sinai and Golan Heights in the mid-1970s provided compelling evidence to warrant such an enquiry. Forty years removed from the “tank is dead” calls emanating from the beltway, changing operating climate, budget constraints, and force structures reductions compel this question to be addressed again. This article focuses on the capabilities associated with the tank to fully explore their continued relevance within an *Expeditionary Force 21* (EF 21) operation context.

From a programmatic perspective, tanks have many drawbacks. Their fuel consumption drives a high-carbon footprint, potentially contributing to climate change, which has been singled out in some DOD literature as a significant threat to global security. Tracked mobility damages topsoil, leading to erosion and adverse environmental impacts with repeated use in training areas. Everything on a tank is heavy, limiting the ability of operators with low upper body strength to fully contribute to crew functions ranging from loading 120mm ammunition to routine maintenance. In an age of constrained budgets, their complexity, operating, and maintenance costs make each tank tactical unit more expensive to run when contrasted with other combat formations.

From a top-level MAGTF perspective, other assets are well suited to kill opposing tanks on the battlefield. The MAW is confident in its ability to re-

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duce the majority of enemy armor prior to the close battle leaving the GCE to deal with “leakers” perhaps better handled by anti-armor systems. This total force approach would allow the GCE to mimic ACE acquisition strategies and reduce the number of tactical vehicle types by the introduction of a common mobility frame and modular force packages to address mission unique requirements.

Such a “down select” acquisition strategy allows cost savings by reducing the different training needed to operate and maintain a diverse vehicle fleet with mechanics and optics repair personnel well versed on fewer vehicle types. Cost savings are further enhanced by

common repair parts packages, which reduce the complexity in managing inventory levels. The potential of modular force packages would enable the MAGTF commander to tailor anti-armor, anti-air, or ground mobility capabilities of the force consistent with emerging mission demands and threat potential. Given these programmatic and acquisition considerations, what historical tank capabilities command our attention in an evolving security environment?

The contribution of the tank was well established by the close of World War II. Commenting on the Okinawa Campaign, Gen Lemuel Shepherd of the 6th MarDiv noted the following:



**Tanks are mobile and often the arbiter of tactical success.** (Photo by Cpl Clarence Leake.)



If any one [sic] supporting arm can be singled out as having contributed more than others during the progress of the campaign, the tank would certainly be selected.<sup>1</sup>

It is somewhat ironic that his counterpart, Gen Mitsuru Ushijima, commander the Japanese 32d Army, would agree stating, "The enemy's power lies in his tanks."<sup>2</sup> These are striking testimonials given the level and volume of other supporting arms available at Okinawa.

By the time of this final battle in the Pacific, the quality of air support had been refined to the highest level. Improved aircraft, mature tactical technique, and superior pilot skill all characterized the close air support available for the battle. The number and scale of the aircraft able to be tasked during the campaign exceeded those of other Pacific battles.<sup>3</sup> On the ground, the volume of indirect fire available to Army and Marine units has not been matched in recent operational history. The divisions engaged were able to muster 24 artillery battalions for the fight while, at the Corps level, an additional 12 artillery battalions were available in general support. This placed 36 artillery battalions across a 5-mile front on the Shuri line, which translates to just over 4 artillery per kilometer battalion, to support the final drive to the southern end of the Island.<sup>4</sup> Yet, with all this firepower available, it was the tank that emerged as the arbitrator of tactical success. To understand the dynamics at work here, the nature of the terrain and enemy defenses requires investigation.

After seizing control of the northern two-thirds of the Island, the 10th Army turned south into the heart of the Japanese defenses located near the Okinawan ancient capital. The Shuri line was characterized by rugged and complex ridgelines defended from entrenchments and reverse slope positions.<sup>5</sup> Artillery, including the large caliber 155mm cannon and howitzers, were unable to destroy these well-constructed defensive positions.<sup>6</sup> The topography limited the employment and effectiveness of indirect fire systems, forcing the attacker to use direct fire to come to grips with an enemy that was resisting

to the end. Only armor-plated vehicles could weather the severe enemy fire and bring them to terms.<sup>7</sup> When tank-infantry operated together the progress was notable when contrasted with areas devoid of tank support.<sup>8</sup> The ability of armor to bring protected firepower to the point of employment allowed the attacker to dominate the direct fire envelope and reduce enemy opposition as needed. While this is interesting history, the issue remains are these observations relevant on the battlefield today and in the future?

### **... tanks and mechanized infantry still dominated close combat.**

In 2005, LTC John Gordon IV, USA, and Mr. Bruce Pimie conducted a review of IRAQI FREEDOM operations for the *Joint Force Quarterly* and reached some noteworthy conclusions regarding the use of heavy forces during the operation. In short, they found tanks and mechanized infantry still dominated close combat. Given the equipment density in the Marine regimental combat teams, roughly 130 tanks and 450 AAV-7s, they included the Marines in their assessment of heavy forces. They concluded tanks remain highly resistant to fire including the commonly found RPG-7. One M1A1 took 45 hits from various weapons including heavy machineguns, anti-aircraft guns, mortars, and RPGs with no penetration. They were able to immediately take the enemy under fire demonstrating a level of responsiveness not seen with other supporting arms. Artillery took 2 to 4 minutes to obtain fire on target. The latency of air support was 5 to 20 minutes.<sup>9</sup> This combination of armor protection and rapid fire response tended to push tanks to the front of the advance.

Despite years of combat development, technology has yet to lift Clausewitz's "fog of war" from the battlefield. At the operational level, commanders often had enough information to meet their needs, but tactical commanders rarely

had the detailed information required to mitigate the inherent risk associated with battlefield uncertainty. When situational awareness (SA) was lacking and the force was in constant danger of encountering the enemy, tanks were the weapon of choice at the head of the column. The combination of armor protected responsive firepower provided the enabling capability to compensate for poor or developing situational awareness.<sup>10</sup>

The RAND article found Army, Marine, and British tanks were highly effective in urban operations, which they thought was contrary to conventional wisdom.<sup>11</sup> For *Gazette* readers this insight was nothing new, recalling an April 1999 article that discussed capabilities of armor on urban terrain. By reviewing the loss exchange ratios experienced during battle in Hue and Khorramshahr, it was shown how armor dominance translated to a four-to-seven fold increase in application of combat power during close-in city fighting.<sup>12</sup> When we compare the complex terrain of the Shuri line with the potential urban canyons along the littoral, we find striking similarities that will limit the employment of indirect fire systems and increase the value of armor protected direct fire.

In an after-action report from combat in Al Fallujah, it was noted how key combined arms teams were in the detailed clearing of built-up areas. Each street would have a tank section lead while dismounted infantry provided local security and marked selected targets with M203 smoke grenades. Tank main-gun fire was the weapon of choice to reduce strongpoints given their precision, which in turn limited collateral damage. The ability of tanks to open holes in buildings further enhanced the dismounted maneuverability of the infantry, which in turn could provide observation into areas not visible from vehicle optics.<sup>13</sup> These themes continue to echo from our battlefield veterans. In recalling his experience in Afghanistan, then-MajGen Richard Mills commented how a tank company gave him tremendous optics, precision firepower, and valuable technology to reach out and touch the enemy.<sup>14</sup> How do these



distant and recent historical examples tie-in with the capabilities demanded from our employment doctrine?

Tanks provide five major capabilities to the MAGTF: armor-protected firepower, mobility, shock effect, extensive communications, and flexibility. Historically, the first of these has drawn the most scrutiny when the shooting starts. The vehicle can find the enemy day or night with a thermal viewer that can magnify the image by 3 to 10 times depending on the need. The fire control system can then localize the target with a laser rangefinder that can determine distance to the target within 10 meters out to 8 km. The 120mm main gun can fire a number of rounds out to 4 km with a full ballistic solution accounting for such factors as crosswind, round drift, and temperature. Carrying 40 rounds of main gun ammunition and 12,300 rounds of machinegun ammunition, the vehicle is well suited to sustained struggle on the hostile streets found within the littoral urban sprawl.<sup>15</sup>

The development of laminated armor plate has changed the level of protection for tactical vehicles dramatically since the observations emanating from the October War in 1973. Additionally, the advent of reactive armor and the transition of active countermeasures to the armor fighting vehicle arena ensures the continuing development of weapon system protection will forge ahead. This contest between sword and shield dates back to antiquity and is likely to unfold on any future developmental path. Current levels of protection have proven their combat capability and set the stage as a minimum level for future systems.

The M1A1 sets the standard for tactical mobility. Virtually all capabilities documentation requires future tactical vehicles to be able to keep pace with the tank as a gold standard requirement. With paved road speed in excess of 40 mph and a range of over 250 miles, the bench marks of tactical mobility are clearly set. The fully tracked design allows the vehicle to transit the rubble of the urban battlefield and operationally support any dismounted effort in difficult terrain. On the negative side, the

weight of the vehicle demands deliberate planning for gap cross and monitoring of bridge capacity when operating in the light infrastructure of the Third World.

The shock effect of armor traces its roots to their very first appearance on the battlefield. Since then the appearance of armor in unexpected places and at unanticipated times has added an element of surprise to many offensive operations. In recent combat operations, the shock value of tanks was reaffirmed. One Marine described how the firefight for Nasiriyah Bridge had a decibel level of about 90. When two tanks rolled onto the bridge, the volume of enemy fire immediately went to 20 decibels. Based on frontline interviews, it was noted that "tanks got respect and many Iraqi fighters just ran from them."<sup>16</sup>

The communications capabilities of Armor are built on the SINCGARS radio systems. Adaptations to the basic capabilities have allowed for Forward Observers and Forward Air Controllers to operate mounted in tanks when called on to do so. After-action reports from Fallujah indicate that the Tank-Infantry phone retains value in the urban setting. Additionally, using the high-powered VHF radios, the tank provided supported infantry units with yet another reliable path to relay mes-

sages to higher headquarters within the confines of the urban canyon.<sup>17</sup>

In many ways, the culmination of these capabilities provides the final doctrinally driven capability of flexibility. *EF 21* requires a maneuver force to move inland with the ability to concentrate or disperse consistent with the tactical situation and threat.<sup>18</sup> The combination of armor protected firepower, ground mobility, and communications reach allows the mounted force to concentrate from distant locations, engage in combat, and, when needed, break contact and disperse to limit vulnerability or redirect their efforts consistent with the commander's intent. This capability provides the cornerstone of ensuring the enemy is presented with an ever-changing array of tactical threats that exploit surprise and lethality to complicate his dispositions and frustrate any intended operational scheme.

As we return to our original acquisition strategy, the question becomes can these operational requirements be bundled in a lighter weight family of vehicles to provide the operating force with a "tank like" capability sufficient to meet the parameters of *Expeditionary Force 21*? In February 1998, a *Marine Corps Gazette* article explored the technologies that would enable lightweight vehicles to exploit superior engagement



**Direct firepower and responsiveness make the tank the supporting arm that can't be competed against. (Photo by Cpl Clarence Leake.)**



range as a defeat mechanism to revise the Tank Destroyer concept of WWII. This approach envisioned the development of vertically launched missiles with smart engagement capabilities, the deployment of seismic sensor arrays to track threat movement, and the digital transfer of targeting data between remote systems. So far, these technologies have not been forthcoming. The article concluded with a clear assessment that "attempting to have light armored vehicles fight in the direct fire envelope with tanks was a prescription for disaster."<sup>19</sup> How does this observation translate to the potential battlefields of the near future?

It is not a novelty that the complex Shuri ridgeline terrain characterizing the Okinawan battlefield of 1944 has matured into an equally complex urban sprawl in 2016. *EF 21* recognizes that 80 percent of the world's population resides within 100 miles of a coastline.<sup>20</sup> The ability to exploit superior engagement range as a method to offset limited protection does not appear relevant for many of the battlefields envisioned along the littoral. In his Naval Institute Proceeding article, Maj. Houlgate presses the case that urban warfare considerations should drive all acquisition decisions. His thesis places urban combat at the center of warfighting development and not a specialty environment akin to cold weather or desert operations.<sup>21</sup> While such a focus must be balanced against potentially myopic vision, his point is well taken given the short fields of fire that dominate the urban landscape future force packaging should not trade-off armor protected firepower without due consideration as to operational impact.

This article started by detailing some of heavy armor's drawbacks from a programmatic and acquisition perspective. However, by reviewing historical and recent operational conflicts the doctrinal capabilities associated with these platforms remain not only valid but dominate within the constructs of *EF 21*. The capabilities resident in armor protected firepower, mobility, shock effect, communication, and flexibility become the means by which the GCE translates the tenets of *EF 21* into op-

erational reality in the face of an active and determined opponent.

Mobility allows the GCE to enter the littoral at a wider number of penetration points increasing the options available to the landing force. The operational range and speed of these systems ensures that once ashore they can exploit maneuver as a defeat mechanism and force the enemy to confront an expanding array of tactical threats. Armor protected firepower provides both the means to compensate for limited tactical SA shore during the earlier hours of a landing as well as having the ability to fight for intelligence when confronted by the enemy's counter-reconnaissance assets. No other supporting system can compete with the responsiveness and accuracy of direct firepower when making unanticipated contact with the enemy. Finally, the analysis of combat in cities has validated the utility of these capabilities as force enablers when integrated with dismount infantry within the urban environment.

The technological competition between sword and shield will continue. Combining both these capabilities into a single force package has historical roots that reach back well into the classical age of combat. As we continue to look for the best way to equip the landing force, the capabilities of the M1A1 provide a solid starting point from which to grow our warfighting strength. The emergence of robotic technology, coupled with artificial intelligence, may well allow for the productive separation of these capabilities in terms of both equipment and organization but, for the near-run, the integrated combination of armor protected firepower will provide the means by which the MAGTF achieves victory with the "middle-weight" force.

#### Notes

1. Headquarters Marine Corps, *Fleet Marine Force Reference Publication 12-34-V (FMFRP 12-34-V), History of the U.S. Marine Corps Operations in World War II, Victory and Occupation*, Volume V, (Washington, DC: 1968), 386.

2. Ibid.

3. Ibid., 375.

4. Ibid., 384.

5. Ibid., 393.

6. Ibid., 385.

7. Ibid., 346.

8. Ibid., 313.

9. Accessed at <http://www.army.mil>, December 2005.

10. Ibid.

11. Ibid.

12. LtCol Robert Lamont, "A Tale of Two Cities – Hue and Khorramshahr," *Marine Corps Gazette*, (Quantico, VA: April 1999), 24.

13. Capt R.J. Bodisch, "Charlie Company, 2d Tank Battalion After-Action Report, Operation Al Fajr," (Camp Lejeune, NC: 8 January 2005), 1-3.

14. MajGen Richard Mills, "Don't Overload Troops With Gizmos," *National Defense*, (Washington, DC: June 2011), 10.

15. Headquarters Marine Corps, *Marine Corps Warfighting Publication 3-12 (MCWP 3-12), Marine Corps Tank Employment*, (Washington, DC: February 2005), A-1.

16. Accessed at <http://www.army.mil>, December 2012.

17. Bodisch, 4.

18. Headquarters Marine Corps, *Expeditionary Force 21*, (Washington, DC: March 2014), 33.

19. LtCol Robert Lamont, "Return of the Tank Destroyer Concept," *Marine Corps Gazette*, (Quantico, VA: February 1998), 44.

20. *EF 21*, 8.

21. Major Houlgate, "Urban Warfare Transforms the Corps," *Proceedings*, (Annapolis, MD: Naval Institute Press, 2004).





# Fire Support Pubs

There is no silver bullet

by MGySgt Robert R. Russell

**M**arines have always been able to come up with creative and innovative solutions to problems. In the fire support realm, this statement becomes even more a reality. Even though there are remarkable similarities between courses of action (COAs) that are developed by staffs, there are often subtleties and differences in the commander's intent that may require a unique solution. There currently exists no standard template or "silver bullet" that can be applied against every situation. Recent operations in Iraq and Afghanistan have shown us that fire support personnel have lost many of their core competencies in the areas of fire support planning, coordination, and execution. This trend must be reversed. The implications for support to maneuver against a peer or near-peer competitors could prove disastrous.

In his tome *On War*, Carl Von Clausewitz stated that, "War is thus an act of force to compel our enemy to do our will,"<sup>1</sup> and further, "If the enemy is to be coerced you must put him in a situation that is even more unpleasant than the sacrifice you call him to make."<sup>2</sup> The means the United States has used to impose her will on her adversaries has gone through many changes over the course of her history. In the 1950s, the Eisenhower administration put forth the idea of "massive retaliation." The mentality behind this was that any attack made against the United States would be met with such an overwhelming response that the idea of initiating any assault was unthinkable. Contrast this with the idea of "graduated response" under Kennedy and Johnson administrations. Under Secretary of Defense Robert McNamara, the graduated response mentality was to use force in order to "commu-

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**Large or small, the fire support coordination center will be collocated with the maneuver commander. (Photo by LCpl Clarence Leake.)**

***Infantry wins firefights, tanks win battles, and artillery wins wars.***

**—Anonymous**

nicate" with United States' adversaries and compel them to cease their current activities. The primary instrument of both of these ideas was, and remains, the application of fire support.

The Marines charged with assisting the maneuver commander in the plan-

ning, coordination, and execution of fire support are found in the fire support coordination center (FSCC). During the course of training or operations, the FSCC will be collocated with the maneuver commander in some capacity, either large or small, in size. However,



on a day-to-day basis, these Marines are located with the supporting artillery regiment or battalion that has a habitual relationship with the maneuver unit. The officers and SNCOs of both the supporting and supported units need to educate themselves on what the role and responsibilities of the FSCC are and who they really work for in the end. Often, concessions will have to be made on the part of the parent unit, but the benefit of these concessions will be the quality of support provided to the maneuver commander. Once a unit crosses the line of departure, it is way too late to find out that there are shortfalls in staff interaction with the FSCC. Realistically, fire support planning, coordination, and execution are easy—units just make it difficult.

Clausewitz also said, “It is harder to do without artillery than without cavalry; artillery is the principal agent of destruction, and its use in action is more closely coordinated with the infantry’s.”<sup>3</sup> Even though this was written at the beginning of the 19th century, the quote still rings true today. The reason for Marine artillery and all fire support is to support the maneuver unit in the prosecution of their scheme of maneuver. Currently, the habitual relationship between the supported and supporting units is disjointed. Maneuver units should be requesting their fire support teams for local training in addition to Service-level exercises and training events. Additionally, the supporting units should also maintain a constant presence in the supported unit’s command post. Realistically, this is a commander’s issue. An open dialogue between the supported and supporting commanders must occur so that the maneuver units are familiar with the fire support personnel who are attached to them. Likewise, the fire support personnel should be intimately familiar with the SOPs and techniques that the maneuver unit employs in order to better execute maneuvers.

The time to establish and maintain the habitual relationships starts in garrison, well before a unit starts getting ready to deploy. Providing a fire support team at the last minute based on availability ends up providing a “pick-

up” team to the maneuver commander. This should be avoided at all reasonable cost because the fire support personnel will not have time to effectively come together as a cohesive team. The pickup fire support team may not be able to provide the best possible support to the maneuver commander as a result. Additionally, the right Marines need to be attached or assigned to the supported unit. *Fleet Marine Force Manual 7-4 (FMFM 7-4)*, *Field Artillery Support*, (Washington, DC: U.S. Marine Corps, 1964) states:

The [fire support] officer is the artillery commander’s personal representative to the unit with which liaison is established. Frequent change of [fire support] officers is undesirable in view of the requirement to be thoroughly familiar with the supported or reinforced unit’s policies, plans, situations, responsibilities and missions. Nevertheless, where artillery officers are required to be away from their own units for prolonged periods, it may be desirable to change [fire support] officers. Representative liaison is best accomplished when the [fire support] officer is a highly qualified professional artillery officer familiar with the current situation, plans, and policies of his own commander.

While this may seem blindingly obvious, the interesting part about this particular paragraph from *FMFM 7-4* was that it was written in 1964. Nothing has changed, and our predecessors were not ignorant. The lessons they codified for use were written in the blood of Marines. It is in this area that units struggle the most.

Currently, the appearance remains that artillery officers assigned to fire support billets are only serving in them for a period of six months unless the unit these officers are supporting is deploying with a MEU/Unit Deployment Program (UDP) or as part of a Special Purpose MAGTF. Complicating this issue is the mythical “checklist” of billets that artillery officers should fill in order to remain competitive for promotion and subsequent command. Often this has led to those officers who are stellar performers filling the primary staff billets in the cannon battalion,

with the remainder left to fill the fire support billets. While having competent officers for the cannon battalion remains important, those same officers are also needed in the maneuver units. The officer assigned doesn’t need to be the number one captain of ten captains, but, by the same token, it can’t be captain number ten out of ten either. There remains a reason why these officers are the number ten, and these officers are not the ones who should be assigned to the maneuver unit. A simple solution to this problem exists.

Discussion has occurred in some circles, including *Marine Corps Gazette* articles, about divesting the artillery officer MOS into two separate MOSs—the first being 0802 field artillery officer that would reside in the cannon battalions, and second the 0804 fire support officer assigned to the fire support billets. This would require no change to existing structure. Only the billet MOS in a unit’s table of organization would change. Officers desiring to make this change would be in the rank of captain. The reason for starting at the captain level is twofold. One, these officers need experience in firing battery operations so that they can clearly articulate and explain what goes on in a firing battery to the maneuver commander. Two, the current rank for a fire support officer attached to a maneuver battalion is a captain. Officers making this decision would go in knowing full well that command opportunities would be limited in comparison to their 0802 counterparts. Ideally, the only command slated billets would be for the three active duty air naval gunfire liaison companies (ANGLICOs) and the Instructor-Inspector at the three Reserve ANGLICOs. There are some officers out there who would probably be willing to make this decision. The end result would be an officer who is professionally competent in the planning, coordination, and execution of fire support. As an additional benefit, the 0804 population would be small, and the promotion pyramid would closely mirror that of the 0861 fire support man who would be serving as the officer’s fire support chief. The possibility exists that officers and SNCOs would end up working together



several times throughout the course of their careers. By being familiar with each other's strengths and weaknesses, they would complement each other and the supported unit would reap the benefits. During the course of the planning process, there have been fire support officers and fire support chiefs who have come up with "unique" and interesting solutions to the problem. Often, the response given is "I'm thinking outside of the box." The problem is that, more often than not, they have no idea what the box looks like in the first place.

In the *Book of Earth* from his *Book of Five Rings*, Miyamoto Musashi stated:

Know the smallest things and the biggest things. As if it were a straight road mapped out on the ground ... These things cannot be explained in detail. From one thing, know ten thousand things. When you attain the Way of Strategy there will not be one thing you cannot see. You must study hard.<sup>4</sup>

This was written in the 17th century, and can easily be paraphrased as "read the publications." In his *Book of the Void*, Musashi further states, "By knowing things that exist, you can know that which does not exist."<sup>5</sup> With today's current technology, the ability for Marines to know the things that exist is easier than ever. All the answers have been provided in the form of our doctrinal and warfighting publications. Constant study and reference of these publications will reveal how to conduct fire support planning, coordination, and execution.

In keeping with the theme of this article, however, there is no "silver bullet" publication in existence that fits every contingency or answers every question. The current trend exists that Marines participating in the operational planning team are using only *Marine Corps Reference Publication 3-16.6 (MCRP 3-16.6A)*, *Multiservice Procedures for the Joint Application of Firepower* (otherwise known as the JFIRE [Washington, DC: HQMC, December 2012]) as their primary planning publication. The JFIRE is a reference publication, and while the publication provides the required formats to call for adjust all manner of supporting arms, risk estimate distances, ordnance loads for aircraft, etc.,



**Fire support personnel must remember that the enemy has a vote and that the enemy has length, width, and depth. (Photo by LCpl Levi Schultz.)**

it is not the base publication to be used for fire support planning. *MCWP 3-16 Fire Support Coordination in the Ground Combat Element* is the primary publication for conducting fire support planning and coordination. *MCWP 3-16.6 Supporting Arms Observer, Spotter, and Controller* is the publication used for fire support execution. Compounding this is a lack of understanding of joint doctrine and joint publications. Like it or not, it is a "purple" world, and attempting to remain insular will not allow Marines access to all the assets available within a given theatre of operation. A consistent lack of study of Marine Corps Warfighting publications has not only produced errors and poor fire support plans created during the planning process but has also contributed to consistent trends in fire support execution.

We return again to Clausewitz, who stated, "Continual change and the need to respond compel the commander to always carry the whole intellectual apparatus of his knowledge with him. He must always be ready to bring forth the appropriate decision." This quote reinforces the previous paragraph about the need to study and become intimately familiar with Marine Corps doctrinal and warfighting publications. Plans change. The enemy gets a vote. Friction occurs.

When this happens, the fire support team must provide the best means of execution in support of the maneuver commander in a finite amount of time. The Tactical Training Exercise Control Group (TTECG) at Twentynine Palms has identified a set of common trends exhibited by fire support teams during the Integrated Training Exercise (ITX). One of the biggest trends has been termed as "plinking," which more than likely means "shoot that tank, then shoot that tank," instead of engaging all of the tanks at the same time. A statement has emerged that fire supporters are forgetting the enemy has a length, width, and depth. Again, the solution remains simple, and it's written down in our publications on how to execute: make an area target in the initial call for fire. Engaging an area target is easy and feasible. The problem is that units don't practice this at their home stations. Units will go out for a battery-or battalion-level shoot and only conduct grid missions "because that's the standard." Observers forget that there are three methods of target location and that observers can generate a call for fire against an area target. If a fire support team ever conducted a suppression of enemy air defense (SEAD) mission using shift from a known point or polar plot as their method of target



location, it would challenge not only the skills of the observer to compile his mission but would also challenge the Fire Direction Center as well. It would certainly be ugly at first, but by continually pushing each other, both elements would improve. The beneficiary of this constant challenge and improvement in skills would be the maneuver units.

SEAD missions have taken on mythical proportions in some communities. TTECG even refers to it as “The Package.” This phrase needs to disappear from our lexicon immediately. In none of our publications will you find it. The correct term is Quick Fire Plan. The driving force behind “The Package” is that if a fire support team can create one, they will be able to create any quick fire plan. Additionally, in creating a quick fire plan, the discussion occurs on how to de-conflict the assets. Fire support professionals should strive to create integration, not de-confliction, of their assets. Marines forget that we practice combined arms, not sequential arms. Moreover, in order to integrate surface-to-surface and air-to-surface assets, there is concern with where the artillery or mortar round travels along its ballistic path in relation to where the aircraft’s flight path exists. The most commonly asked question is, “What is max[imum] ord[inate],” referring to what is the highest point that the round will be on its ballistic path. The correct question is not “what is the max ord,” but what is the altitude of the munition where the aircraft crosses the gun target line. The Tabular Firing Tables (TFT) series of publications have trajectory charts in the back of them that show the ballistic path of artillery rounds for each propellant charge. It is easy to derive at what altitude the projectile will be when the aircraft crosses the gun target line. Several ways to safely integrate aircraft with surface to surface fires exist.

Another disturbing trend that has crept into coordinating airspace with surface delivered fires is the establishment of the restricted operating zone (ROZ). According to *JP 3-52 (Joint Airspace Control)*, a ROZ “is that airspace of defined dimensions created in response to specific operational situations or requirements within which the

operation of one or more airspace users is restricted. Some typical uses are to restrict air operations over Army Tactical Missile System (ATACMS) launch and target areas as well as unmanned aerial vehicle (UAV) launch and recovery areas.” The ROZ is being used as a Fire Support Coordination Measure (FSCM) when it’s really an Airspace Control Measure (ACM). *JP 3-09 (Joint Fire Support)* currently only recognizes four permissive and four restrictive FSCMs, and the ROZ are not listed as one of them. The purpose of a FSCM according to *MCWP 3-16* is to “enhance the expeditious attack of targets and provide safeguards for friendly forces.” The correct solution is the creation of an airspace coordination area (ACA). An ACA is a three dimensional block

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***Marines forget that  
we practice combined  
arms, not sequential  
arms.***

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of airspace in which friendly aircraft are reasonably safe from friendly surface fires. The shape of an ACA is determined by the aircraft flight path. Some may be cubed; others may be cylindrical in nature. Regardless of the shape, all ACAs will have a minimum and maximum altitude that will allow for the reasonably safe flight of aircraft. Appendix 19 (Fire Support) to Annex C (Operations) of the operations order will contain all the required information on the ACA and all other FSCMs. A well written and comprehensive Appendix 19 will better enable subordinate units to execute their missions.

The creation of the Appendix 19 is quickly becoming a lost art. Producing an Appendix 19 used to be something that was done as a matter of course for all field evolutions by either the maneuver or artillery units for their own training purposes. Recently, Appendix 19s have been created after a staff has already gone through the intellectual rigor of determining the concept of

operations and assigning tactical tasks to subordinate units. The fire support personnel must be brought into the planning process at Problem Framing to produce a good, quality Appendix 19 that can be used for its intended purpose. If the planning process is ruthlessly followed and copious notes are taken by the fire support personnel, the Appendix 19 will essentially write itself. The planning process will also determine how to best apply supporting arms against enemy formations to include the use of precision weapons.

“The destruction of the enemy’s forces is admittedly the purpose of all engagements” is yet another quote from Clausewitz that applies to fire support. The means to achieve this destruction has many forms, but one has recently manifested itself as the preferred method. A love affair with precision munitions has become a common theme for the application of firepower against targets. In the various forms of Excalibur (Excal), High Mobility Artillery Rocket System (HIMARS) or the forthcoming Precision Guidance Kit (PGK) units have become enamored with precision munitions and appear to be considered the “silver bullet,” or golden arrow in the quiver, of fire support munitions. They also make for great post-strike videos in follow up debriefs to commanders. The primary issue with these munitions is that they are all GPS guided.

Clausewitz suggested, “Artillery intensifies firepower; it is the most destructive of the arms. Where it is absent, the total power of the army is significantly weakened.” This statement could prove eerily prophetic in the next conflict. Recent operations in the Ukraine have raised concerns with the apparent saturation of GPS dependent systems. Peer or near competitors, or even non-state actors with the access to the right equipment, have the potential to cause U.S. forces to operate in a GPS degraded or even denied environment. Should this occur, the use of precision weapons will immediately become negated. The solution again lies in a simple, tried, and proven solution—the ability to mass artillery fires at a specific location without warning. Opponents of this will state that the use





**Clausewitz said that "artillery is the principal agent of destruction." (Photo by Sgt Abbey Perria.)**

of massed artillery fires has no place in the modern, 21st century conflict. Quite the contrary—in every major conflict the United States has been involved in, massed artillery fires were often the key to the success of the supported unit. The ability to place a large volume of high explosive munitions on a target set causes not only the probable destruction of the target but also crushes the morale of the enemy troops that are exposed to it. Numerous veterans who have been on the receiving end of massed fires have stated that the psychological effects were often worse than the physical effects. This also produces an excellent Information Operations effect in that the enemy is now aware that we are willing to do what is necessary to destroy him. Above all else, the operational environment must be considered when making the decision for massed artillery as opposed to precision weapons. In the case of Counter Insurgency Operations (COIN), massed artillery fires are often more detrimental to the overall success of the mission than precision munitions. Proper input from the fire supporters in the planning process will allow the supported commander to make an intelligent decision as to when and where to apply both massed and precision fires. As the old adage goes, sometimes it is entirely appropriate to swat flies with sledgehammers.

For almost two decades, the Dual Purpose Improved Conventional Munition (DPICM) projectile was the preferred munition of choice for virtually all target sets. The Convention on Cluster Munitions is an international treaty that prohibits the use, transfer and stockpile of cluster bombs, over an area. DPICM is included under the provisions of the treaty which has been ratified or acceded to by ninety-eight states throughout the world. Currently, there is an ongoing search for a DPICM-like replacement. The question that should be asked is should we be looking for a DPICM replacement or for DPICM-like effects? Amazing work has been done in the past decade with regard to thermobaric munitions. The United States currently has thermobaric weapons from hand grenade to guided missile form. Notably absent from the family of thermobaric weapons is the availability of a thermobaric artillery projectile. If the United States is able to produce thermobaric hand grenades and shoulder-launched multipurpose assault weapon warheads, a thermobaric artillery round should be achievable. The following question is put before the maneuver commanders: What do you want? Are you willing to wait for a DPICM-like replacement that fits within the restrictions set forth by the Convention on Cluster Munitions, or

would you prefer to leverage a currently existing and proven technology that has the potential to be even more destructive against targets than DPICM? Imagine, if you will, a thermobaric artillery projectile that, by changing only the fuse, can be used against formations in the open or have devastating effects against hardened structures. Ultimately, the young Marine at the sharp end of the spear will bear the burden or success of this decision.

As the pessimist says, "It's always darkest just before it goes pitch black." While things may seem dark at present, there is still a light at the end of the tunnel. No major institutional changes are really required. They key lies in the proper study, planning, and execution of supporting arms and assigning the correct Marines to those billets that facilitate it. Commanders, both supported and supporting, must constantly stress and demand proficiency along with professionalism and a total dedication to duty of their craft from their assigned fire support teams. Miyamoto Musashi summarized it best when he said, "Any man who wants to master the essence of my strategy must research diligently, training morning and evening. Thus he can polish his skill, become free from self, and recognize extraordinary ability." This tenet of extraordinary ability has always made the Marine Corps successful in the defense of the Nation.

#### Notes

1. Carl Von Clausewitz, *On War*, (Princeton, NJ: Princeton University Press, 1976), 75.
2. *Ibid.*, 77.
3. *Ibid.*, 291.
4. Miyamoto Musashi, *A Book of Five Rings*, (New York, NY: The Overlook Press, 1974), 43.
5. *Ibid.*, 95.
6. Clausewitz, 147.
7. *Ibid.*, 236
8. *Ibid.*, 287
9. Musashi, 70.





# Ambrosia

## Chapter 6

by Maj Victor Ruble

“Crossing Phase Line Red,” Aidan instructed over the company net, not completely certain that there was anyone there to receive it.

Mack Prophet had an affinity for making sure that everyone knew he was from Arkansas. One of his “Easter Eggs” was the fact that he always used the colors of the University of Arkansas (phase lines), names of Arkansas towns (objectives), or names of major streets in Arkansas (main supply routes) as the naming conventions for his tactical control measures. As benign as the term “red” may seem to the lay person, it had significance, and if Mack Prophet was still alive, this brevity code was going to illicit a response.

After an overly dramatic pause, Capt Prophet responded with a simple, “Roger.”

Aidan sighed out loud, half relieved his company commander was alive enough to still come over the net, and

**>Maj Ruble is an Assault Amphibious Vehicle officer. He is currently serving in the United Arab Emirates.**

half relieved that what he was relying on with that brevity code was on its way.

“We’re online now,” Aidan responded.

“Roger, I got you. Stand by.”

In maneuver warfare, timing and phasing are absolutely critical. The most critical. Things have to happen exactly when they are supposed to happen or else you end up conducting fire-and-movement or, worse, movement under fire. But the enemy always gets a vote, so you have to make things event driven rather than time driven in an oversimplified sense. In this case, rather than ordering Aidan to be in the assault in 15 minutes, he was essentially saying, “Let me know when you hit Phase Line

Red, and I’ll make ‘X, Y, Z’ happen.” His response of “stand by” meant that X, Y, Z was about to go down.

Based on nothing more than the volume of smoke that began to emerge from the AST compound, Aidan had to assume that the Box was still in play. Obscuration fires began to rain on the fortified area. With a mechanized platoon of Marines having used the water way to completely envelope its exposed northern sector, AST was now vulnerable.

“Battle speed, battle speed, battle speed” Aidan announced over the platoon net. He suspected that SSgt Washington—the waterborne maneuver commander—wanted to make the call, but this was an opportunity that Aidan was just not willing to pass up.

With that, all five ACVs immediately pivoted in the water, bringing the armored amphibious column on line, and began to assault the beach of the unprotected AST sector. Whether AST was unable to erect battlements on this side of the island because of the topography, location of the desalinization plant, or just underestimation of a potential enemy’s capability, the northern shore was an “amtrackers” dream—an unprepared beach that had been sufficiently suppressed and obscured. In layman’s terms, it was ripe for the picking.

Aidan and his platoon, reinforced by a section from Weapons Platoon, hit center beach with little more than a slight burst from a 7.62 medium machine gun in response with all five ACVs. Setting into a hasty-180, the three remaining vehicles of SSgt Washington’s section began to lace into the soft side of the AST defense. At this range, the 30mm cannons made small work of AST’s compound. The two Weapons Platoon vehicles made short work of the four AST indirect fire



**Sparks flew, the ECP no longer functioned.** (Photo by PFC Sullivan Laramie.)



automations, and as Aidan saw them reduced to nothing more than burning metal and track, he hoped that the rest of his company was now free to conduct its maneuver.

Marines poured from the armored wheeled vehicles as ramps lowered. With the amount of obscuration smoke that had been brought to bear on the objective, the Marines must have looked like something out of a nightmare. Their tactical and technical proficiency gave none of the civilian contracted security any reason to believe this was anything but.

Aidan popped his hatch in order to get a better visual of the enfolding battle and, in doing so, exposed himself to an ambiguously uniformed enemy combatant, whose expression of surprise was as evident as his own. After what seemed like an eternity, the two were frozen staring at one another, attempting to anticipate what the other would do. Finally, the “merc” had enough and raised his rifle to negate the threat. Aidan was faster, pulling his Smith and Wesson .40 quickly from his thigh holster, doing just as he was trained. Putting two rounds center mass and one in the head, the contractor dropped lifelessly to the ground, dust floating from the impacts on his chest protector, and blood filling the space his helmet once occupied.

Aidan reached into the TC to grab his rifle, wishing to avoid anymore “OK Corral”-style situations in the future. He would dwell on the gravity of what just occurred later. They still needed to create a breach lane, and those skirmishers were waiting for orders.

Jumping down from his TC hatch, Aidan chanted repeatedly into his comm helmet, “OCD, go!” The modern comm helmet was Bluetooth enabled, so the transmission should have gone through. He only hoped that in his haste to rally on his platoon, that he hadn’t exceeded the range of the wireless capability.

As the ramps of the Weapons Platoon vehicles began to lower, he knew his command had met its intended audience. Two corn-fed Marines emerged from one of the ACVs—one egressing port, the other starboard. Like something out of a 1980s action flick were

firing their M27-A2 light machine guns from the hip. Had he not already known them, with all of their gear, equipment, and sheer size, Aidan would have thought them twins. The weapons that they held—like they were made of plastic—were the M27-A2, the “newest” version on the squad automatic rifle. Instead of being magazine fed like its predecessor, the A2 was able to support a 200-round drum. Looking like two goons out of some 1990s gangster flick, these two tree trunks laid down a volume of fire that would have made most 0331 machine gunners jealous. Eventually dropping to the prone position and employing their weapons systems in a doctrinal fashion, Aidan could see that there was a still a significant contingent of AST personnel rallying around what looked to be the “front gate.”

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### ***Aidan popped his hatch in order to get a better visual of the enfolding battle ...***

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“I need that thing down ASAP,” Aidan shouted to the OCD squad leader.

Nodding in the affirmative, he turned and barked some orders back into his track and three Marines came running from within the steel beast. As five 30mm cannons, with accompanying 7.63mm coaxial machine guns, continued their barrage on the AST fortifications, two Marines—one carrying two 4-foot long rods and another carrying what looked like a 7-cube rectangular box—ran into the smoke and obscuration that engulfed the center of the compound. Through the chaos, Aidan could see the first Marine thrust the two rods into the ground and then fall back behind the second Marine. The second Marine dropped his rectangular box and, pulling two cables from the 7-cube attached them to the two rods buried in the ground. Reaching back to the box, he turned a dial located on the top of the box and Aidan could feel the ground underneath him begin

to shift. This skirmisher, clearly satisfied that his equipment had survived the movement from the ship, gave a nod to his team leader and then gave the nob a full crank. Seismic technology was still relatively new, but its application in mine clearance was evident early on. The persistent problem with “earth shakers” was that there was very little stand off for the seismic projectors, so that meant that Marines had to push through enemy fire to get them in place. Needless to say, these guys relied heavily on combined arms to do their jobs. Luckily for Aidan and his OCD team, that’s exactly what SSgt Washington’s section was providing.

The seismic projections were focused via the two rods emplaced earlier. Depending on how they were positioned, the ground activity could either be directed toward a specific location or pulsed outward like a shock wave. In this case, the OCD team focused it directly toward the entry control point in the hopes that the rapid shifts in the foundation would force whatever held the “draw bridge” up to release its hold on the compound’s entry way.

Unfortunately, the seismic activity did nothing to the reinforced ECP, but it did successfully negate the threat of the AST personnel attempting to make a final stand around the entry way. All seven of the mercs laid sprawled out, unconscious on the ground surrounding the ECP’s control center. Aidan, thinking this was his moment to be a hero—run in, hit “the button” lowering the ECP’s barrier, and save the day—was quickly denied as burst from one of the few remaining mercs splashed in front of his feet. Aidan dove back to his original position, realizing that whoever was left from AST was going to go to the grave to keep that bridge up.

Barking at the OCD SNCOIC, Aidan shouted, “We need something else!”

He just nodded and a Marine harnessing some sort of focused emitter came running out of their ACV. With a large metallic box draped over his shoulders supported by shoulder and belt harnesses, Aidan full well expected the Marine to start turning a crank on the side playing calliope music while a



monkey danced for loose change. The device, affixed to his chest, was supported by a harness system which went around his waist and over his shoulders. The Marine, focused solely on delivering this weapon to its desired target, ran past Aidan as if he weren't there. Experiencing the same volume of fire that Aidan was just privy to moments ago, the Marine just stood, staring forward pointing his "chest box" at the ECP. Based on the size and tint of the Marine's sunglasses, which were more like visors than sunglasses, Aidan thought that maybe the Marine wasn't able to actually see the incoming fire, thus making him seem like the most hardcore motor scooter on the battlefield. But as the box began to shake violently, launching a blinding white light of focused electromagnetic energy, Aidan realized that those glasses were not the manifestation of some weird fashion statement, but an absolute necessity in order for the Marine to employ his direct energy weapon without burning out his retinas. What appeared to be lightning flashed from the box and instantly struck the ECP's sentry station, sending a current of pulsed electromagnetic energy through all of the electrical components of the ECP's guard post and retracting bridge.

Sparks flew from control panels and junction boxes as the burst of energy short circuited the electrically powered mechanisms holding the bridge in place. The heavy passageway lurched as it became free from the ECP's hold. The safety locks attempted to keep the bridge in place, but as gravity took hold, it eventually succumbed to weight of the massive platform. Chains snapped and housing brackets were pulled from the surrounding wall. As the bridge fell with an audible "BOOM," the skirmisher, still maintaining his position in the event that the ECP required an additional volley, simply turned around and ran back to his track. Passing Aidan as he jogged by, the engineer nodded in the lieutenant's direction as if to say, "mission accomplished."

Not wanting to dwell on the odd mannerisms of the combat engineers, Aidan stood to rally with his platoon and regroup in order to prevent what



**Obscuration fires began to rain on the fortified position; the northern sector was enveloped.**  
(Photo by Cpl Paul S. Martinez.)

ever contingent of the AST personnel were left from digging in and drawing out this battle any longer. A burst from one of the remaining posts along the wall keyed Aidan to one of the locations the defenders were bunkering down. Sighting in through his weapon's optics, he could see the silhouette of multiple mercs moving within the structure. Aidan saw one of them "pie-ing" through the open entrance, and just as he squeezed the trigger of his XM8, the post exploded in a fury of sand and fire.

Embarrassingly, Aidan wondered for a brief moment, "Did I just do that?"

Before he had time to explore that train of thought, ACVs from the rest of Aidan's company began pouring in through the breach lane.

*Currently ...*

Aidan snapped quickly from his thoughts as Capt Prophet's voice boomed nearby.

"Hollywood!" Mack shouted as he emerged from the main entrance of the task force's ultimate operations center (or UOC).

"There you are! I've been trying to get you on the hook for an hour now, and no one seems to know where you went off to. Come on, I need those range cards, so I can get that company fire

plan sketch up to higher, and we can get those on-call targets plotted and set. Those NGO folks aren't gonna get this 'drinking fountain' going until we can ensure their safety. So I need to you get off of your good side and get your folks set in." He shouted, trying in his own way to sugar urgency with levity. "You did good here today," he added, his overt expression of praise taking Aidan back a bit. "You're my guy. I need you in the fight, so finish that 'square' and hop to it. And for God sakes, stop looking like someone just ran over your puppy."

After all that they had been through—his platoon in particular—Aidan just looked up at his company commander in disbelief. But after seeing the expression in Mack's eyes, he realized that this bravado wasn't just some misguided projection of his leadership style, but a real personification of who Mack was. Aidan regained himself, took a long drag.

"Roger that," he uttered simply, standing up and making his way back to his platoon position.

He couldn't tell if he loved to hate that guy or hated that he loved him.

USMC





## Professional Note

# The Comfort Zone

**Base Plate McGurk  
Expounds . . .**

**D**usty wrinkled up his nose and breathed deeply. It was clear that something was bothering him from the conversation about developing Marines into NCOs.

I asked him, "What's wrong, Dusty?" He looked up from his thoughts and said, "It's something Tex said. I'm all for putting additional responsibility on a Marine to give him an opportunity to grow. But how much is enough? And how much is too much?"

"Well, there's no rule for this to be sure. You have to apply common sense," replied Tex.

"Common sense isn't that common," countered Dusty. "How much do you pile on a lance corporal? The Marine needs to be challenged to grow, but you can overdo it in the name of 'hey, I know this sucks, but you'll look back on it and thank me someday.'"

"Okay, I'll bite into this a bit more," said Tex. "What I was trying to say was that any given lance corporal will be very happy to stay in his comfort zone—to do things he knows how to do. If he has attained mastery of a certain skill or task, then he probably isn't challenged anymore. This is where you need to give him an opportunity to excel. Back me up on this, Baseplate."

"All true," I responded, "and it's not just lance corporals. This idea of a 'comfort zone' goes with every rank

in the Marine Corps. Each of us has attained mastery of our MOS skills at each rank, but we didn't have them all at the MEPS station. So we learn and then get to our 'comfort zone,' only to be provided more opportunities to learn and attain a new 'comfort zone.'"

"Okay, I think we are all in violent agreement on this. You are not hearing my point, Baseplate. How much is enough to get a guy out of his comfort zone, and how much is too much?" replied Dusty.

"Fair enough," I said, "You made that point, and we danced around it. I agree that you can certainly give a Marine too much of an opportunity, and you are setting him up for failure.

Dusty drew an imaginary line in the air with his hands. "So comfort here in my left and panic in my right, and as I bring them together, there is this space in between that we need to strive for: the 'learning zone.'"

"Yes!" I declared.

"So Baseplate, to build off of your example of a lance corporal in a panic zone, what would be an example of a lance corporal in the learning zone?" asked Tex.

I leaned forward and responded, "If you take that same lance corporal and put him in charge of a rifle squad for a training exercise, then he's challenged. Enough to learn, but not enough to panic. To be sure, every Marine is a

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***To be sure, every Marine is a little different. Some will take to the challenge quite easily, while others will need more supervision, coaching, and feedback.***

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For example, if you designate a lance corporal to be a platoon commander for a deployment, then you are asking too much."

"Comfort zone nothing! I'd call that the 'Panic Zone,'" interrupted Tex.

"That's a perfect way of putting it, Tex," I answered. "So you have on one end the comfort zone, and on the other the panic zone. The trick is finding that area in the middle—an area challenging enough for the Marine to learn but not put him into panic."

little different. Some will take to the challenge quite easily, while others will need more supervision, coaching, and feedback."

"Think about it for a minute. When dropped into a position or situation for which you are totally unprepared and you add the element of high risk or danger, then you are asking for trouble. That person will usually do one of several things: completely shut down, undergo some very negative learning only to repeat mistakes later, or fail.



A few will come out on top, but they usually earn medals doing it.”

“So if I follow your logic, in order to ensure creating a successful learning zone, you either reduce the risk or you reduce the unfamiliarity according to the needs of the Marine you are developing?” asked Dusty.

“Right again. My example reduces both. The risk is dropped from being responsible for a deployment to that of a training exercise, and the Marine should be fairly familiar with the workings of a rifle squad more so than of the platoon as a whole.”

Dusty added, “You also reduced the duration, which could be another factor. A deployment lasts for months whereas a training exercise is probably a week or two at the most.”

“Good point. I didn’t think of that. The answer to your original question is ‘it depends.’ As a leader, you have to assess each Marine and how much he is capable of to determine where the

learning zone ends and the panic zone begins. It’s part of the art of leadership. There is no T&R manual on this. The important thing for leaders is to make

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***As a leader, you have to assess each Marine and how much he is capable of to determine where the learning zone ends and the panic zone begins.***

---

sure that we challenge our Marines to move out of their comfort zone and into the learning zone.”



## MARINE CORPS **Gazette** Professional Journal of U.S. Marines

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- Decision making
- Net-Centric paradigm
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## Spread the Spirit

*Even Santa needs a little help this holiday season.*

During this season of giving, remember Marines serving throughout the globe. Make a tax-deductible donation to the MCA&F to provide Marines with the support they deserve.

Spread the spirit of giving beyond your family and friends. Make a tax-deductible donation to the MCA&F and support our Marines who give so much to us every year.

## Happy Holidays.

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# On War and Politics

reviewed by Col Eric L. Chase, USMCR(Ret)

Arnold Punaro's memoir, *On War and Politics*, roars through his multiple, yet connected, stellar careers—an active and Reserve Marine (ultimately a major general), a civilian in government on Capitol Hill under Senator Sam Nunn, and in business. Throughout it all, Punaro's experiences harken back to his months in combat in 1969–70. Even his extensive participation in America's national security work for a legendary senator and the Senate Armed Services Committee had deep roots in his time at war. This book will appeal to a broad readership: professional military, defense business civilians, academics, and those with an interest in the legislative process. Punaro delivers an informative, entertaining, and often riveting narrative.

Despite the coincidental title, Punaro does not deliberately invoke Carl von Clausewitz's 19th century classic *On War*, still a leading reference for the professional military on the overarching themes of warfare. By contrast, in arriving at what he sees as lessons of "a lifetime—in combat, politics and business," Punaro shares his experiences and insight into the shaping of one's destiny in and after war and the process of American national security governance. His roles and achievements were more than mere accident or luck, but he admits that chance and fortune sometimes intervened.

Vietnam—its hazards, hardships, pains, triumphs, and brotherhood—permanently impacted Punaro's life. He tells his story in mostly chronological order, lacing it with well-chosen anecdotes—often powerful, fascinating, moving, and poignant.

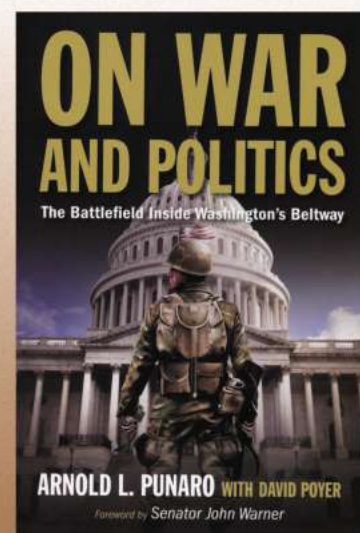
**>Col Chase, an attorney in private practice in New Jersey, retired from the Marine Corps Reserve in 1998 after more than 30 years of active and Reserve service.**

Even amidst somber revelations, doses of humor generate occasional laugh-out-loud moments.

*On War* does *not* start at the beginning, however. Instead, the first page of the first chapter, "Ambush at Hill 953," jumps into Punaro's signal event on 4 January 1970 as a Marine lieutenant. Though he didn't know it, this was to be the last day of his Vietnam tour of duty, cut short. He narrates the close, ferocious small unit combat on a hill in Vietnam's Que Son Mountains with vivid portrayals of courage, death, and injury. Hit by enemy fire, Punaro lay seriously wounded, but "[s]omeone had come after [him]. Incredibly brave. Incredibly risky." Shielding Punaro, that brave "someone," Cpl Roy L. Hammonds, took repeated mortal hits. He died, selflessly shielding fellow Marines, including the stricken Punaro. Following this riveting first chapter, the narrative circles back to earlier days, but the reader knows already why Punaro dedicates *On War* to Hammonds and why that day inspires him relentlessly.

After a summary of his early years, Punaro returns the story to Vietnam to backfill the months leading to Hill 953. Once in country, he describes the day-to-day routine for Marine grunts slogging in a free fire zone for weeks, or even months, as they seek an elusive and lethal enemy:

I quickly lost track of days and weeks. All that mattered was morning, noon,



**ON WAR AND POLITICS, THE BATTLEFIELD INSIDE WASHINGTON'S BELTWAY** by Arnold L. Punaro with David Poyer, Annapolis, MD: Naval Institute Press, 2016  
ISBN: 978-1612519067, 288 pp.  
<http://amzn.to/2bcxz30>  
Price: \$21.80 (on Amazon)

and night. My world revolved around my patrol: the weather, the light, whether it was going to rain, and how much chow, ammo, bullets and water we had to last until the next clatter of helo blades somewhere above the ever-present canopy meant another resupply had arrived.

Like the others, I quickly discarded my underwear, which was a sure recipe for the fiery, infected chafe we called crotch rot. With no way to wash except when it rained, and little clothing in the resupply, we began to stink, like ... well, like grunts in the field always have. Field sanitation consisted of heading off the trail a few feet, taking a crap, and wiping as best we could. It was impossible to follow the field sanitation manual.

Infantry platoon commander Punaro captures the routine of boredom, drudgery, and hunger, punctuated by adrenaline-filled moments of excitement and fear when mortars poured lethal bursts into a defense perimeter. He



expresses frustrations at the comically bad judgment of his regimental commander—whom he names—and his glee that the colonel was caught with career-ending contraband in his luggage that was supposed to be shipped home. The colonel's comeuppance was no accident, but this review will not spoil Punaro's surprise for the reader.

From his weeks of hospital recovery in Yokosuka, Japan, and then further assignment in Okinawa, Punaro finally returns to the U.S. He served his waning active duty time at The Basic School in Quantico, where newly commissioned second lieutenants learn to lead Marines. Like most young Marine officers, Punaro exited active duty at the end of his initial commitment, without any clear vision of what would follow.

After journalism school at the University of Georgia, he launched his 24-year saga on Capitol Hill under Senator Sam Nunn (D-GA), who was then in his first term in the Senate, and later as Nunn's appointed Staff Director of the Senate Armed Services Committee (SASC) when Democrats enjoyed a Senate majority and Nunn was chair. Punaro's stars rose with his boss's meteoric ascent but at a personal price to him exacted by long hours, seven-day work weeks, intensity, and stress. In the tradition of southern Democratic powerhouses before him, Nunn, like fellow Georgian Richard Russell, became a formidable Senate force in national security and defense. Although today's Congress is mired in historic disapproval ratings, Nunn earned and retained an unblemished reputation for integrity, expertise, and effectiveness that few legislators in American history have matched.

For Punaro's learning curve and his growing delegated responsibility, he could not have had a better example and mentor—or a stricter taskmaster. His chapters on Capitol Hill years read like a "who's who" of legislative and executive decisionmakers, military chiefs, and commanders. He provides "I was there" insight to lawmakers' participation in historical events, such as the exit from Vietnam,

arms control, the Panama Canal, the Iran hostage imbroglio and failed rescue attempt, the all-volunteer force, Goldwater-Nichols, Iran-Contra, the 1983 truck-bomb killing of 241 Americans (mostly Marines) in Beirut, DESERT STORM, "Don't Ask, Don't Tell," women's military roles, and others too numerous to mention.

Punaro's home life away from military and civilian work punctuates *On War's* narrative. He and his wife Jan deploy a literary "device" that will delight and resonate with most readers, particularly those whose professions require constant travel and grueling workdays. Long before she becomes Punaro's wife in 1974, Jan introduces herself with her own short vignettes, under her name, sprinkled

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***Punaro's historical episodes flow seamlessly with his insider's perspective.***

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periodically throughout the book. Her familial respites weave effectively into the storyline the partnership of affection that made possible Punaro's concentration on Reserve and civilian careers at the highest levels, while she chose to leave her own promising career to raise their (eventual) four children.

Punaro's historical episodes flow seamlessly with his insider's perspective. Historians and political scientists studying the give-and-take in major defense issues from 1973 to 1997 should relish Punaro's eyewitness accounts. For example, Punaro puts the discussion of gays and a still-simmering controversy in the military into a 20-year context with a conclusion that the contrasting outcomes were both right:

I believe that in 1993, "Don't Ask, Don't Tell" was the appropriate approach. In the legislative business, you either have the votes or you don't. And the votes were just not there for the

president's position. Seventeen years later, in 2010, circumstances were different when President Barack Obama took the next step and allowed gays and lesbians to serve openly ... While there was still opposition, this time the votes were there and I was a public supporter, along with Senator Nunn, of lifting the ban ...

Today gays and lesbians are serving openly with little or no impact on operations. This is due primarily to the significant changes in both public opinion and especially in the military at all levels, who accepted the change as they would not have before.

Punaro pulls no punches. He criticizes elected officials who were either less than honest, overly political, or just dumb, naming them as he details his assertions. At the same time, he confesses his own lapses or mistakes, usually small ones, but, on rare occasion, a big one. A notable example occurred during his visit to HQMC to review cables about the terrorist-driven truck bomb in 1983 that took the lives of 220 Marines (plus others) in Beirut.

At that time, Punaro was a major in the Marine Reserve. This status provided invaluable insight to him but also created potential conflicts. As a Hill staffer, he was under the umbrella of a distinguished senator in the Legislative Branch, but, as a Marine, he was part of a military organization under the Executive Branch. Maintaining a critical separation between Punaro's disparate roles was important, even vital. Sometimes the lines were blurry or nuanced, as when he served on active duty, but he had to deftly navigate those lines to avoid even the appearance of a conflict.

As Punaro finished reading Beirut message traffic in a room at HQMC on behalf of the SASC, the Commandant unexpectedly summoned Punaro to his office. In response to the Commandant's question, Punaro shared his thoughts about the anticipated testimony. Big mistake.

Upon his return to the Hill, Punaro shared the exchange with Nunn who told him that his "advice



to [the Commandant was] a serious breach of the separation of powers and a conflict of interest." Nunn further admonished "that he would have to think about [Punaro's] future as ... the Staff Director."

For a week or so, Punaro sweated it out. To his relief, Nunn gave him a stern lecture, but the mistake did not justify his firing:

[Nunn] decided that while I'd crossed a red line, it was not a career terminating offense. But he warned me clearly that if I ever did anything like that again, it would be immediate curtains. He had no issue with using my contacts to get inside information, but he drew the line at giving advice to Executive Branch personnel testifying before a committee. Of course, I never let this happen again. At least not without securing his explicit permission first.

This admonishment seared in his mind, and Punaro details a number of subsequent serious looming collisions between the Executive and Legislative Branches. He adhered to what he had learned in his trip to the woodshed from Nunn and adeptly enforced the prerogatives of the SASC against perceived intrusions by the Executive Branch, and vice versa. Punaro's detailing of these serious incidents, including his mistake in 1983, reinforces his design throughout *On War* to share truths about the workings of Capitol Hill, warts and all.

Punaro was so committed to Nunn that he would never have left Capitol Hill while Nunn remained in the Senate. When Nunn decided not to run, however, and to retire at the end of his term in 1997, Punaro entered the private sector as a senior executive at Science Applications International Corporation (SAIC), a technology and engineering company that, among other things, provides services to the Federal government, including the Department of Defense and military branches. Punaro was a natural for this kind of position, and he played a significant role in the growth of SAIC's revenues from about \$4 billion per year to over \$10 billion.

Meanwhile, Punaro was continuing his activity as a Marine Reservist,

ultimately promoted to major general, and serving in a series of high leadership billets, including CG, 4th MarDiv. Having retired from the Reserve in 2005, he left SAIC in 2010 to start his own business but continued to accept appointments to defense-related commissions and boards. He still provides substantial public service, and the *Military Times* has ranked him as one of the most influential defense experts in America.

*On War* succeeds at all levels. It is a personal, yet riveting, journey of the author's life, set against the most important military conflict and national security issues of the times. Punaro's book dedication to Cpl Hammonds was a first priority because, as he explains, "he put me,

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***On War succeeds at all levels. It is a personal, yet riveting, journey ...***

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his fellow Marine, first. He took the bullets an enemy aimed at me." His ten "lessons learned" could apply to any profession, but he articulates them in military jargon, ("Lead from the front;" "Take the objective;" "Be willing to take a bullet," etc.).

In the end, the reader comes away with several positive conclusions. First, Punaro's "luck factor" included his employment in 1973 by Senator Nunn. For over two decades, Punaro was a witness to, and a participant in, the major national defense legislative initiatives and decisions of the late 20th century under the stewardship of Senator Nunn. Second, it was Nunn's good fortune over his nearly quarter century in office to have Punaro's loyalty, workaholic nature, and ability to help his senator formulate the best solutions and make them happen.

Punaro still lives his credo. From the vantage of a professional who has reached the highest levels of both military and civilian achievement in national security, Punaro ends *On War*

where he starts in Chapter 1: "Every day I pledge to make myself worthy of [Hammonds'] sacrifice and to ensure that all the Corporal Hammondses, of the past, present, and future, do not give up their lives in vain."

>Reviewer's note: Punaro dedicates *On War* to Cpl Roy L. Hammonds, my platoon sergeant in the third platoon, Lima Company/3d Battalion, 7th Marines. On the morning of 4 January 1970, as I led my platoon on a combat patrol in the Que Son Mountains toward the site of our successful ambush of NVA troops a day earlier, a bullet tore through my left calf. Within a couple of hours, I was helo medevaced to Da Nang, leaving Hammonds, a corporal, as the platoon's senior Marine. It turned out that I was just the first of many Lima Company casualties on 4 January. In the U.S. Naval Hospital in Yokosuka, Japan, five days later, I learned from Punaro (who was in the bed next to mine) that a few hours after I was lifted out, Hammonds was killed by enemy fire. Only 21, and within weeks of his rotation date for return to the U.S., Hammonds personified the combat Marine in his courage and sacrifice. Movie star handsome, smart, quiet, tough as nails, and always insistent on taking point despite his leadership role, "Tex" Hammonds was a stud, looked up to by everyone in our platoon. Posthumously awarded a Silver Star for exceptional valor that cost him his life, he had rushed toward withering enemy fire to aid fellow Marines, wounded and pinned down, including Punaro. Punaro writes: "Why [did Hammonds] come after me? Corps discipline didn't demand it. He wasn't even in my platoon." And more: "Hammonds had done what warriors have done throughout the ages: take care of their comrades, no matter the cost." Amen, brother. — Eric L. Chase

>Editor's Note: As infantry platoon commanders in the same company, Col Chase and Gen Punaro served together in combat in Vietnam in 1969–70. They have remained friends since.





# Tactical Decision Game 12-16R

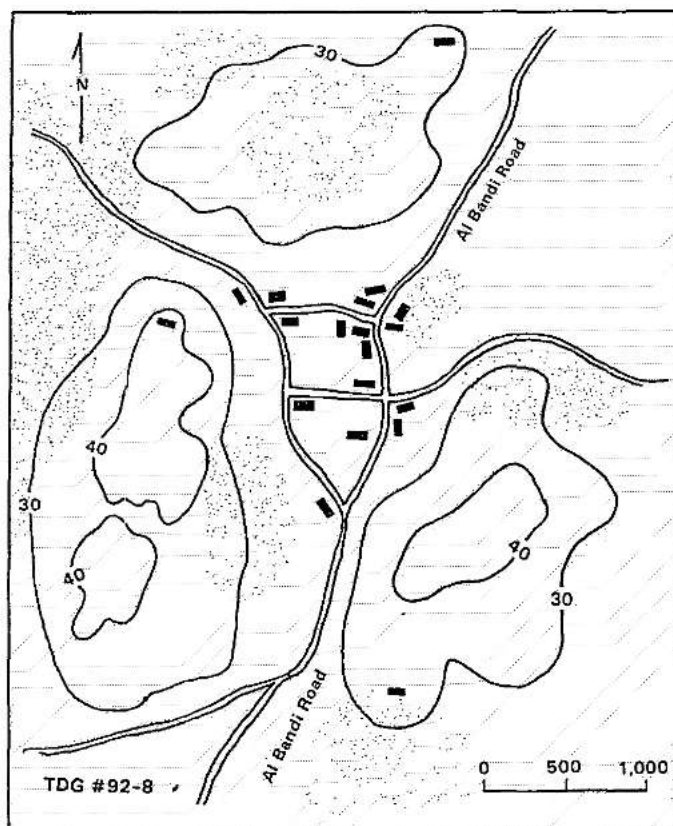
## Dull Garrison Chronicles Part VI: F-O-X Spells Relief

by Carl F. Kusch

### Situation

The 26th MEU has been directed to retake Dull Garrison Island (DGI) from the forces of BAD in order to rescue the beleaguered Marine garrison and to establish a foothold for follow-on forces. Elements of the 82d Airborne Division have begun to arrive and have taken up defensive positions around DGI Airfield #2. Things appear to be going well in that respect. For a time, the pressure on the flagging Marine provisional rifle battalion had slackened. In an apparent effort to wipe them out once and for all, however, the enemy redoubled their efforts against the garrison's shrinking perimeter. The MEU commander, therefore, ordered a relief column to rescue the badly depleted battalion now located at Al Habib several kilometers south of Al Bandi.

BLT 2/8 will execute this mission with only its organic assets. The battalion commander was required to leave his TOWs, LAVs, and AAVs behind for airfield security. You are the commanding officer of Company F ("The Gunfighters"). Your company is assigned as the lead element of one of the battalion's two parallel columns. Your mission is to proceed south along Al Bandi road, quickly bypassing or destroying any enemy resistance, in order to reach the provisional rifle battalion as rapidly as possible.



Your point has reported enemy activity in and around the small village of Al Bandi. It would appear that there are approximately 50 enemy soldiers armed only with small arms and medium machineguns. Attached to your company is a squad of heavy machineguns (two .50 caliber/Mk19s with component vehicles). You have your 60mm mortars and may call for support from the battalion's organic 81mm mortars. There are also two sections of Cobras (four aircraft) supporting the battalion's movement. The rules of engagement state that you may destroy

any local buildings only if first fired upon from within, and you must direct your fire only into those buildings in which known enemy forces are located. In other words, you are to minimize collateral civilian damage as much as possible. After all, the civilians are on our side, and preservation of community resources will help them to get back to their lives as soon as BAD forces can be driven from Dull Garrison Island.

### Requirement

In a time limit of five minutes, assign tasks for your platoon commanders. Include an overlay sketch indicating the positions for the platoons and provide a brief discussion of the rationale behind your actions. Submit your solutions to the *Marine Corps Gazette*, TDG 12-16R, Box 1775, Quantico, VA 22134 or by email at [gazette@mca-marines.org](mailto:gazette@mca-marines.org). The *Gazette* will publish solutions in an upcoming issue.





# 2016 Marine Corps Gazette Index

In this issue, as in every December issue for the past 37 years, we are publishing our annual index—a listing by subject and author of the articles, and by book author of the reviews, published over the past year. Similar indexes were published in 1966–79 but occasionally appeared in the January rather than December issues. Articles on the web are indexed as well. Our website, [www.mca-marines.org/gazette](http://www.mca-marines.org/gazette), contains links to archived articles back to 1916, as well as annual indexes from recent years. We commend these indexes to your attention as they are a guide to the many articles of lasting value that have been published in the *Gazette*.

Most letters are not indexed. We also continue to index selected news items in an attempt to provide you with more opportunities to review *Gazette* information.

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The Board of Governors of the Marine Corps Association & Foundation has given authority to approve manuscripts for publication to the Editorial Advisory Panel and editor. Editorial Advisory Panel members are listed on the *Gazette's* masthead in each issue. The panel, which normally meets as required, represents a cross section of Marines by professional interest, experience, age, rank, and gender. The panel also judges all writing contests. A simple majority rules in its decisions. Other material submitted for publication is accepted or rejected based on the assessment of the editor. The *Gazette* welcomes material in the following categories:

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- **Feature Articles:** Normally 2,000 to 3,000 words, dealing with topics of major significance. Manuscripts should be DOUBLE SPACED. Ideas must be backed up by hard facts. Evidence must be presented to support logical conclusions. In the case of articles that criticize, constructive suggestions are sought. Footnotes are not required except for direct quotations, but a list of any source materials used is helpful.

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