



# MARINE CORPS **Gazette**

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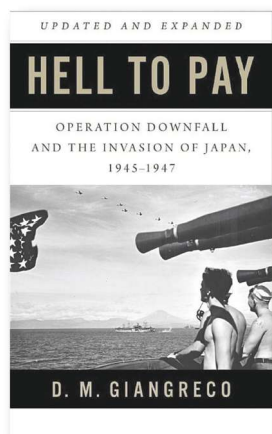


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*The Marine Corps' snipers have always been at the forefront of technical and tactical adaptations and innovation. (Photo by LCpl Alexa Hernandez.)*

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**FEBRUARY 2021**

**Editorial: Innovation and Future Force Design**

As in past years, February's *Gazette* is our annual "innovation edition." This year's content is improved by the re-establishment of the LtCol Earl "Pete" Ellis Essay Contest after several year's hiatus. The contest is made possible by renewed support from the Marine Corps Warfighting Lab (MCWL) and ongoing efforts to implement the Commandant's direction expressed in *Force Design 2030*. On page 9 in his letter titled "Old Books and New Ideas," BGen Benjamin T. Watson, commanding general of MCWL, notes that this year is the centennial of LtCol Ellis' visionary *Operations Plan 71, Advanced Base Operations in Micronesia*. This seminal work would, after live experimentation, wargaming, and development of a *Tentative Landing Operations Manual*, form the foundation of the Corps' "island-hopping" campaign in the Pacific during World War II. Following BGen Watson's letter are twelve articles discussing a very similar mix of subjects from infantry battalion experimentation to computer-based wargaming to innovation and future force design in all domains and elements of the Marine air-ground team—including robotics, drones, cyberspace operations, and the future of the Amphibious Combat Vehicle and attack helicopters.

In re-starting the annual Ellis Essay Contest, authors from across the Corps, academia, and industry were asked to examine the current era of renewed great power competition and identify the future capabilities required for Fleet Marine Forces to generate asymmetric advantages in a maritime campaign while retaining broad forward deployed capabilities afloat in order to provide relevant responses along the competition-conflict continuum. The winners and honorable mentions of the Ellis Essay Contest begin on page 83 with "Littoral Access Companies" by Maj Evan Zach Ota followed by "Flicker Operations & Modular Teaming" by Col Maria McMillen on page 89.

Also in this month's edition, we present the four prize-winning essays from the 2020 Kiser Family Irregular Warfare Essay Contest. This year's contest was conducted in collaboration with the Brute Krulak Center for Innovation and Creativity and made possible through the generosity of Mr. John Kiser and the William and Mary Greve Foundation. Marines were asked to explore the future of civil military operations and civil affairs in light of future force design and campaigning against a peer adversary. The winning essays begin on page 64 with "Closing the Gray Zone Gap" by 1stLt Matthew Beattie-Callahan and "Preparing for War among the People in the Indo-Pacific" by Capt Wayland Blue.

Tying together this month's wide-ranging ideas, from innovative uses of technology to generate asymmetric advantage against a peer threat to lessons from nearly two decades of "war among the people," is the sixth installment of the *Maneuverist Papers* by Marinus, titled "Introducing the *Dreikampf*," on page 102. In this latest offering in our ongoing study of the Corps' warfighting philosophy, Marinus moves beyond the concepts of binary war between two opposing military forces to include the third element in conflict: the relevant civilian populations involved.

As dedicated practitioners of the profession of arms, we recognize that military organizations that fail to adapt and innovate inevitably prove unready to meet emergent challenges. Constructive arguments and "disruptive" ideas generated in professional discourse are important to the learning required to innovate. The *Gazette* remains dedicated to providing the forum for adding your ideas to enhance the discourse on innovation and on the future of the Corps.

**Christopher Woodbridge**

*MCA&F President and CEO, LtGen W. Mark Faulkner, USMC(Ret); Chief Operating Officer, Col Dan O'Brien, USMC(Ret); Director Foundation Operations, Col Tim Mundy, USMC(Ret); Director of Strategic Communications & Editor, Leatherneck magazine, Col Mary H. Reinwald, USMC(Ret); Member Services, Jaclyn Baird; Chief Financial Officer, Johnna Ebel.*

## 2021 *Marine Corps Gazette* Upcoming “Monthly Themes”

### April 21 Edition

Themes: C4 and OIE

Author drafts due: NLT 5 Feb 21

### July 21 Edition

Theme: Marine Corps Recruiting

Author drafts due: NLT 7 May 21

### May 21 Edition

Themes: The Air-Ground Team Author

drafts due: NLT 8 Mar 21

### August 21 Edition

Theme: Acquisitions

Author draft due: NLT 11 June 21

### June 21 Edition

Themes: Learning, Training and PME

Author drafts due: NLT 9 April 21

### Sept 21 Edition

Themes: Intelligence/MCISRE and OIE

Author drafts due: NLT 9 July 21


### Additional “Trending Topics”

- Maneuver Warfare: Development, Application, and Future Relevance
- Talent Management: Manpower Management and Policy
- Force Design, Future War and Innovation
- Leadership: Theory and Practice
- Strategy & Policy

## Corrections

In Marinus Era Novum’s Response to Marinus’ “Maneuver Warfare: A Historical Context,” (*MCG*, Dec20) the name “John Lewis Gaddis” was incorrectly referred to as “John Gaddis Lewis.” The *Gazette* staff apologizes for this error.

The letter titled “Not for Recognition or Accolades” in the December issue was misattributed to Col Ricardo Player. The correct author is 1stSgt Rupert Palmer. The *Gazette* staff apologizes for this mistake.



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# SMMC

## “THE ‘NEW’ CORPS”

by SgtMaj Troy E. Black, 19th SMMC

**“Old breed? New breed? There’s not a damn bit of difference so long as it’s the Marine breed.” —Chesty Puller**

Over the course of time, there has been a tendency of the older generation of Marines to view the newer generations as not measuring up. Interestingly, those Marines were told the same thing when they were “boots.” Each line in the sand calls into question the ability of aspiring leaders to serve with as much honor, courage, and commitment as the last. These “lines in the sand” stretch from Iwo Jima, Chosin Reservoir, and Hue City all the way to Fallujah, Marjah, Sangin, and countless other battles. Like previous generations, this “New Corps” has made their own historic contributions to our legacy and proven their mettle in the crucible of combat.

I entered the Marine Corps in 1988 at the end of the Cold War and immediately learned the value of lessons passed on from one generation of Marines to the next. President Ronald Reagan was still in office, and many of my instructors at Infantry Training Battalion were Vietnam veterans. When I arrived at my first duty station, many of my battalion’s leaders were also Vietnam Vets. While their tales of combat were inspiring, those warriors were skeptical of us and thought my generation was soft because we grew up in the 1980s. Regardless of their personal feelings, and to their credit, those combat experienced leaders focused their efforts on training us to a high standard. Ultimately, my generation served together with many of them to achieve success in DESERT STORM. They understood that giving the individual Marine challenging training, firm leadership, and instilling a disciplined approach to all tasks were essential if we were to be successful on the battlefield, regardless of how our generation was labeled.

As the Vietnam veterans began to leave the ranks, my generation assumed greater responsibility for training the next generation of Marines. Even though the number of combat veterans dwindled, those that went before had prepared us to take up their task. As I became a more seasoned NCO, my appreciation for the lessons I received from that earlier generation grew. I committed myself to sharing their experiences, as well as my own, with those I had the privilege to lead.

On September 11th, the world changed. At that moment, the majority of the Marine Corps had little practical combat experience. The question we asked was, did each Marine of the new generation have the grit, determination, and resolve to fight and

win? We didn’t know for sure, just as the Vietnam generation could not be sure about me and my generation. Yet in both cases, leaders set a high standard and expected each Marine to not only meet it, but to exceed it.

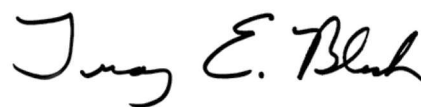
Over the years, I have experienced many new efforts designed to improve our Corps. Examples like the publication of Leading Marines and the stand-up of the Squad Leader Development Program illustrate the kinds of investments the Marine Corps has made over the decades in raising the performance of our most critical resource, the individual Marine. I see the implementation of talent management as the next logical adaptation in our approach to unlocking the potential in each Marine.

Talent management is an extension of our time-honored methods of bringing the best out of the Marines we lead. By developing the capacity for greater responsibility and passing on our lessons learned from one generation to the next, we are ensuring our ability to fight and win in an era of great power competition.

I have learned from the very beginning of my service, that each preceding generation will be inherently critical and demanding of the next. They will relentlessly challenge their successors to be better and do better in order to develop their warfighting spirit. Without fail, they will breed brilliance in the basics and perfection in warfighting skills. They will be ceaseless in their commitment to teaching, coaching, and mentoring their Marines. They will take seriously their responsibility to train their replacements because they know that one day they will leave the battlefield in the hands of those they have lead.

As the Commandant steers our Corps to meet the challenges of the future, we must focus on developing talent within our Corps. We must ensure those we trust to lead understand their role in forging the next iron links in the chain of Marine generations that stretches all the way back to 1775.

Semper Fidelis,



TROY E. BLACK

19th Sergeant Major of the Marine Corps



## Warfighting Ethos

■ We commend Maj Carian for his desire to retain Marine Corps customs and traditions that foster a warfighting ethos that differentiates the Corps as an instrument of national power. Integral to this warrior culture is the ability to fight and win in all operational domains. Retired Gen Joe Dunford noted advancements in cyberspace technology have “accelerated the speed and complexity of war. As a result, decision space has collapsed, and we can assume that any future conflict will involve all domains.” The Corps applies the same tenacity and martial spirit to conflict in cyberspace as in other domains.

In 1942, Commandant Thomas Holcomb changed the Marines’ Hymn fourth line from “On the land as on the sea” to “In the air, on land, and sea.” His decision recognized how technology and innovation change the way we fight. The single battle concept furthers our understanding of the interrelationships between domains to provide defensive, offensive, exploitative effects, and support to Marines. It is the Marine Corps’ custom and tradition to fight and win our Nation’s battles wherever the conflict occurs.

We have observed firsthand Marines executing decisive military actions in and through cyberspace, achieving results better resourced counterparts could not. These Marines maintain a level of discipline, fitness, and professionalism on par with the rest of the Corps, and they apply the Marine Corps’ fighting spirit to cyberspace operations. Leaders should seek to leverage these capabilities in a combined arms approach to support mission accomplishment.

As for the blue hairs, there are plenty of people who want to serve our country who might not meet the Marine Corps’ standards either by nature or choice—that does not mean they cannot fulfill critical roles. We should embrace this and take full advantage of what they have offer in service to our country and Corps.

**LtCol Henry Brown**  
**Col Tim Grattan, USMC(Ret)**

## Don’t Misread the Lessons

■ I read LtCol Drake’s “The Pentomic Division” in the November *Gazette* with great interest. His analysis of the mistakes made by

the Army in total reorganization of its force in 1957 was well done. It might interest Marine readers to know that the Marine Corps also adopted a version of the “pentomic” organization with its J-series table of organization (T/O). But it did so in October 1947. Under this T/O, each Marine division was organized into six battalion landing teams that reported directly to division. Regimental headquarters were eliminated. Each battalion was commanded by a colonel and intended to operate independently. The artillery regiment was reduced to six 105mm firing batteries and one 4.5-rockets battery. The artillery battalion headquarters were also eliminated so all batteries worked directly for the artillery regimental headquarters. (See Anonymous, “Staffing the Marine Division,” *Marine Corps Gazette*, [Quantico, VA: Oct 1947].) When deployed, the battalions would effectively become battalion landing teams and operate widely dispersed. Like the army’s effort, this reorganization was an attempt to deal with the dual challenges of battlefield nuclear weapons and drastic reductions in manpower. The Corps was in the process of going from a strength of over 400,000 down to 75,000.

Fortunately, after two years of trying to make this organization work, the Corps’ leadership declared it was a failure and instituted the K-series T/O on 1 October 1949. The K-series was effectively a return to the World War II divisional organization and was essential to the Corps’ success in Korea.

In shifting to the J-series T/O, the Corps made the same critical mistake as the Army would make ten years later; it reorganized its entire force without conducting a series of experiments and exercises to determine if the new organization was viable. LtCol Drake’s caution against this approach is well founded.

This is why it is a good thing the Marine Corps is not using the same approach for today’s reorganization. In contrast to 1947, today’s Corps is using the tried and tested approach of changing a portion of the force, experimenting, and testing to refine it, making necessary adjustments, and then repeating the process. This is the iterative method the Corps used to adapt from its colonial infantry/small wars role to amphibious warfare during the 1930s. Drawing heavily on civilian technology like the Higgins boat and the amphibious tractor, the Corps started

building organizations that met the new mission in a new theater. From defense battalions to reorganized infantry battalions to aviation organizations, it experimented, tested, and evolved. It is important to remember the 1st MarDiv was not formed until February 1941—almost a decade after the Corps started to focus on amphibious operations.

There is no question that the Corps must adjust to today’s geopolitical challengers and the rapid technological advances that, like those in the pre-World War II era, are being driven primarily by commercial sources. Failure to do so will render the Corps irrelevant. The current approach is the first step in a much longer process. Even as it explores how to make the Corps more effective against the pacing threat, it retains its capabilities to execute any of the missions it has been tasked to execute post-World War II. (See T.X. Hammes, “Building a Marine Corps for Every Contingency, Clime, and Place,” *War on the Rocks*, [April 2020], available at <https://warontherocks.com>.) LtCol Drake notes it is critical to heed the lessons of history; it is just as important to ensure the context of those lessons is relevant.

**Col T.X. Hammes USMC(Ret)**

## Maneuverist No. 6

■ Marinus’ sixth edition continues to make us think about how we think about and understand war, expanding the discussion on the concept of *Zweikampf* and introducing the term and idea of *Dreikampf*. Marinus is absolutely correct in his assertion that the Western default to thinking about war is embodied in the implied symmetry of the *Zweikampf*; a construct falling short of capturing the true complexity of war better expressed in the three body idea of *Dreikampf*. Even Marinus’ offered example of the American Civil War as one being uncommonly close to a symmetrical, two body struggle neglects to consider the influence of the Union population on the war in 1864 or the fact one of Sherman’s primary targets as he marched through Georgia was the morale of the South’s civil population. The fact is, the symmetry implied through the *Zweikampf* rarely, if ever, exists in war.

Understanding war as an asymmetrical struggle is or should be the foundational as-

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sumption of Warfighting. Marines constantly seek to leverage asymmetry and avoid symmetry. As George Bernard Shaw said, “soldiering my dear Madame, is the coward’s art of attacking mercilessly when you are strong and keeping out of harm’s way when you are weak.” Seeking and attacking critical vulnerabilities to collapse or erode the strength of the understood enemy center of gravity is always the goal. Recognizing war’s complexity broadens the search for asymmetry and vulnerabilities to areas beyond only those of the opposing force.

Marinus’ reflections today are similar to the thoughts of the military community in the 1970s and 1980s post-Vietnam era. Today’s intellectual dusting off of these ideas is influenced by recent, and unfortunately similar, experiences in Afghanistan, Iraq, and—to a lesser extent—Syria. Marines may enjoy a unique perspective or understanding of the complexity of warfare. The challenge becomes what to do with this understanding in the context of U.S. civil-military relations. It is great to say “no more Vietnams, or no more Iraqs, Afghanistans, or Syrias.” It is not the Marine Corps deciding where and when to commit the Nation’s armed forces. Once on the battlefield, Marines and the U.S. armed forces are limited to what they may and may not attack or influence.

What the Marine Corps can do, from the earliest stages of recruit or candidate training, is to continue to develop a sophisticated and possibly unique understanding of war in all Marines. It is critical to recognize complexity, to never cease challenging assumptions, and to continually seek asymmetries to win. Otherwise, and in recognizing the depth of knowledge that comes with a lifetime of experience and study, senior Marines should be bold and outspoken in leveraging their understanding of warfare to inform and influence a much less informed, popularly elected, or appointed civil leadership on the advantages and more often the disadvantages of engaging in *Dreikampf*-like foreign adventures.

**Alex Vohr**

### The Pentomic Division

■ A fundamental assumption behind the Pentomic organization had been that nuclear war was the most likely form of future war-

fare and that tactical nuclear weapons would definitely be used. The Kennedy administration questioned this assumption, being seriously concerned about limited conflicts and the ability to handle situations short of nuclear war. Pentomic, a product of the era of massive retaliation, did not fit into the strategy of flexible response, which was official national policy.

A number of Army leaders believed that another divisional reorganization was required. As it turned out, the groundwork had already been laid; the result was not another modification of the existing force structure but a major Army-wide reorganization under an entirely new concept called the Reorganization Objective Army Divisions (ROAD)—specifically designed to carry out Kennedy’s policy of flexible response while addressing the pentomic division challenges of command and control, battlefield mobility, and logistics. ROAD was primarily a divisional reorganization.

With unseemly haste, the Army abandoned its Pentomic divisions, the commitment to fighting with tactical nuclear weapons, and the emphasis on dispersion and non-linearity. The first ROAD units were organized in February 1962 under draft tables of organization and equipment. Final tables were published between 15 July–15 August 1963, and an Army-wide reorganization was completed by June 1964.

Most Army leaders probably shared the sentiments of GEN Paul L. Freeman who told an interviewer that the only thing he could say about the pentomic division was “Thank God we never had to go to war with it.”

GEN Freeman’s sentiments of about the pentomic division are applicable to the lessons learned or considerations that today’s senior leaders should take into account when developing future units. These considerations include the role of the individual Marine, command and control, battlefield mobility, logistics, and doctrine.

**COL Mark A. Olinger, USA(Ret)**

### Warfighting

■ In my 41 years of Marine Corps service, the most meaningful and rewarding time was as a rifle company commander (Mike 3/7) during the Vietnam War. Second only to the

influence of that wartime experience on my professional outlook was the effect of two tours at Quantico’s Marine Corps Combat Development Command during the intellectual renaissance that arose after the war ended. The 1980s and 1990s were an exciting and stimulating period as Marines carried on a wide-ranging discourse about maneuver warfare, not only at the Crossroads of the Corps, but also at posts and stations around the globe.

I am elated in my retirement years to again see Marines put their minds to work discussing the relevance of the Corps’ warfighting philosophy, in particular LtCol Drake’s “The Fantasy of *MCDP 1*” and Marinus Era Novum’s response to recent articles by Two Maneuverists and Marinus. Col Alex Vohr’s consistent letters-to-the-editor are always valuable additions to the dialogue. Paralleling what occurred more than 30 years ago, Marines are again synthesizing their combat experience with historical study and their understanding of military theory as they review, reinterpret, and perhaps even revise the Corps’ fundamental doctrine.

And once more the pages of the *Gazette* are alive with articles and letters questioning long-held thoughts on warfare, asserting various points of view, and engaging in what I have previously called “intellectual gun-fights.” For this reason, my aging eyes look forward each month to opening the pages of our professional magazine and reading about the latest engagement.

I salute the authors of these thoughtful articles and letters and the *Gazette* editors who bring them to us. Please, keep them coming!  
**LtGen Paul K. Van Riper, USMC(Ret)**

P.S. The best description of the Marine Corps operational and tactical thinking about doctrine that occurred from 1975–1997 is in Major Ian Brown’s *A New Conception of War: John Boyd, The U.S. Marines and Maneuver Warfare* published by the Marine Corps University Press.

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1 FEBRUARY 2021

**A MESSAGE FROM THE COMMANDING GENERAL  
MARINE CORPS WARFIGHTING LABORATORY**

**OLD BOOKS AND NEW IDEAS**

This year marks the 100th anniversary of Pete Ellis writing Operations Plan 712, *Advanced Base Operations in Micronesia*, which was approved by the Commandant, MajGen John A. Lejeune, on 23 July 1921. Although not billed as a “concept,” Ellis’ paper provided the conceptual basis for the Marine Corps’ contribution to War Plan Orange versus the Department of the Navy’s pacing threat in the Pacific. For more than a decade thereafter, however, the Marine Corps’ exploration of Ellis’ ideas were constrained by a lack of money and a full haversack of operational commitments.

Twelve years after the publication of Ellis’ concept, things accelerated dramatically. In a key war game conducted at the Naval War College in 1933, the participants concluded, “a strategy that did *not* include seizing advanced bases en route to the Far East was doomed.”<sup>1</sup> Shortly thereafter, on 14 November 1933, Commandant of the Marine Corps MajGen John H. Russell tasked the Marine Corps Schools to develop the *Tentative Manual for Landing Operations*.

Incredibly, the faculty and students developed the manual in just under two months. Published on 9 January 1934, and apparently without any formal staffing, the Marine Corps Schools and the fledgling FMF immediately put the manual to use in both the classroom and in practical application. The first recorded live force experiment by the FMF occurred on the West Coast in February 1934.

Based on insights from initial experiments the original document, often referred to as the “Marine Corps School’s manual,” was superseded by a shared Navy-Marine Corps product with a slightly different title, *Tentative Landing Operations Manual*, on 25 May 1935. From 1935 onward, the Navy and Marine Corps expanded experimentation into full-scale Fleet Landing Exercises. By 1938, the Fleet Landing Exercises yielded sufficient insights to produce *Fleet Training Publication 167, Landing Operations Doctrine*, as well as a baseline understanding of the capabilities necessary for the successful conduct of amphibious warfare.

In retrospect, the development of the Marine Corps School’s manual and its rapid evolution into doctrine were key to translating the amphibious warfare concept into reality. Emulating that approach, last year the Deputy Commandant for Combat Development and Integration, LtGen Eric M. Smith, directed the Marine Corps Warfighting Laboratory to coordinate development of a *Tentative Manual for Expeditionary Advanced Base Operations (TM-EABO)*.

I am happy to report that the Commandant recently approved release of the first edition of TM-EABO. Its development was a multi-phased team effort, with subject matter experts from the Deputy Commandants for Aviation, Information, Installations & Logistics, Training & Education, and our own Combat Development & Integration, as well as the Fleet and FMF contributing to it at key points. Additionally, the contributions of the Navy Warfare Development Command, the Navy Expeditionary Combat Command, and the Navy’s Surface and Mine Warfare Development Center, particularly those offered “when the page was blank,” provided essential content and insights.

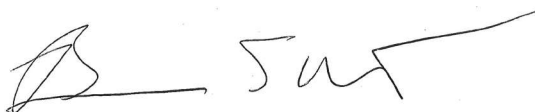
Unlike its historical precedent, which required thirteen years to go from concept to draft doctrine and then another seven years to field capabilities, we are moving out on EABO at a startling but necessary pace. We have gone from the *Concept for Expeditionary Advanced Base Operations* signed by the Chief of Naval Operations and Commandant of the Marine Corps in March 2019 to the recently released *TM-EABO* in under two years. We will begin initial fielding of new formations and equipment within the next two years.

The primary purpose of this first edition of *TM-EABO* is to provide a baseline of information to inform the live, virtual, and constructive experimentation that will help us test and refine *Force Design 2030* force structure and capabilities. The manual consists of both unclassified and classified portions that describe how naval forces will conduct EABO across the competition continuum. Since current force structure and capabilities are inadequate for conducting EABO as envisioned within the approved concept, this first edition lays out, for experimentation and assessment, the future force structure and capabilities associated with new formations such as Marine Littoral Regiments, as well as the naval vessels envisioned to support and sustain them. Between now and 2023, we will need to test and refine the ideas in this volume to enable development of the detailed tactics, techniques, and procedures for employment by the future force.

Secondarily, this first edition provides an educational primer on the ideas, logic, context, and terminology associated with EABO. Additionally, it provides a foundation for eventual expansion into formal naval doctrine. The information contained in the first edition is therefore authoritative but not definitive; it provides the official baseline of ideas to be tested but cannot be considered fully formed doctrine.

There is much work to be done, and we are moving out aggressively. It is an exciting time to be part of the Naval Service, and all hands at the Marine Corps Warfighting Laboratory are eagerly engaging with our force development partners throughout the naval supporting establishment, the Fleet, and the FMF to translate concepts into reality via wargaming, experimentation, science and technology initiatives, and rapid capability fielding. Toward that end, the subsequent articles in this edition of the *Gazette* seek to provide insights on our journey.

Semper Fidelis,



Benjamin T. Watson  
Brigadier General, U.S. Marine Corps  
Commanding General  
Marine Corps Warfighting Laboratory

## Notes

1. Norman Friedman, *Winning a Future War: War Gaming and Victory in the Pacific War*, Naval History and Heritage Command, Department of the Navy, (Washington, DC: 2017).



# FD2030 Infantry Battalion Experimentation

## Phase III of Force Design 2030

by Majs Edward J. Leslie, Bryan J. Boyle, Jesse D. Hume, &  
Capts Jonathan E. Inglett and Michael J. Hogan

***“The current force is not organized, trained, or equipped to support the naval force—operating in contested maritime spaces, facilitating sea control, or executing distributed maritime operations. We must change.”***

***—Gen David H. Berger,  
Commandant of the Marine Corps***

Following the publication of the *Commandant’s Planning Guidance (CPG)*, the Deputy Commandant, Combat Development and Integration (CD&I) established twelve functionally and organizationally focused integrated planning teams (IPT) responsible for developing future-force design recommendations. The overall IPT effort started in September 2019 and is part of a three-phase future-force design campaign plan led by DC, CD&I to bring to life the Commandant’s (CMC) vision of a

Marine Corps able to fight at sea, from the sea, and from the land to the sea; operate and persist within range of adversary long-range fires; maneuver across the seaward and landward portions of complex littorals; and sense, shoot, and sustain while combining the physical and information domains to achieve desired outcomes.<sup>1</sup>

During *Force Design 2030 (FD2030)* Phase I, key guidance and direction from the CMC set the stage for each of the IPTs as they tackled the difficult task of designing a future force capable

of competing against and, as required, defeating future peer adversary forces. The *FD2030* Phase II planning process included numerous wargaming events and follow-on IPTs to provide an analysis of Phase I decisions. This analysis led to the final modifications and decisions on force design, which were presented to the CMC at the end of Phase II. The results were published in *Force Design 2030* in March 2020. This article will focus briefly on the recommendations of the Infantry Battalion Design 2030 IPT and cover in detail the Phase III Service-Level Infantry Battalion Experiment Campaign Plan (IBX30) designed to assess the overall effectiveness and combat functionality of the *FD2030* Infantry Battalion design.

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**>>>>>Capt Hogan is a 1302 currently serving as the Assistant Team Lead for MCWL’s Infantry Battalion 2030 team, helping plan and coordinate the various experiments the team is conducting.**



**IBX30 builds on ongoing enhancement of infantry entry level training.** (Photo by Cpl Devon Tindle.)

The Infantry Battalion IPT recommended a future battalion designed to be lighter, more maneuverable and with enhanced command and control (C2), lethality, sensing, sustainment, and capabilities to operate in the information environment. Furthermore, in order to design a battalion agile enough to be able to mass effects rather than personnel from standoff, the IPT recommended a design with fewer Marines who are better educated, trained, and equipped. However, to be clear, the smaller design was not established as a cost saving criteria for the overall *FD2030* modernization effort.

In their report released in March 2020 and in follow-on briefings to senior leaders, the Infantry Battalion IPT presented a new Marine Corps table of organization (T/O) and table of equipment (T/E). The proposed T/O was designed to create a base unit for all mission sets—battalion landing teams for MEUs, littoral combat teams (LCT) in support of future Marine littoral regiments, and support to special-purpose MAGTF. This force should be both

distributed operations and expeditionary advanced base operations-capable, not a force that is solely able to conduct expeditionary advanced base operations. As the Nation's premier crisis response force, the Marine Corps will need to retain the versatility to respond across the competition continuum. This T/O, paired with the ongoing 03XX entry-level training pipeline enhancements, will create the organization the CMC envisions.

Though great progress was made by the Infantry Battalion IPT, assessments of the Phase I and II *FD2030* efforts, by both the IPT members and CMC, showed capability gaps may exist in the 2030 design:

I remain unconvinced that the specific proposed new construct makes the force more capable of distributed operations. We must conduct more live-force experimentation to ensure our proposed design results in a truly DO-capable force.<sup>2</sup>

As such, the CMC has not made the final decision on the *FD2030* Infantry design, resulting in the Marine Corps

Warfighting Laboratory's (MCWL) tasking to conduct IBX30 experimentation.

### **IBX30 Experimentation Approach**

The CMC formally tasked MCWL to take the lead on all experimentation within Phase III to evaluate and assess what is required to operate in a distributed manner against pacing threats. As such, IBX30 is a Service-level effort to fully investigate the recommended *FD2030* Infantry Battalion design. Multiple deputy commandants' staffs are playing an integral role in the overall design, staffing, and execution of the IBX30 Campaign Plan. The Deputy Commandant for Plans, Policies, and Operations tasked each MEF to provide one battalion per division to support IBX30 while providing overall planning guidance and prioritizing program of record fielding to the selected experimental battalions. DC, CD&I and Marine Corps System Command are working hand-in-hand with Plans, Policies, and Operations and the MEFs to ensure the most modern equipment available is provided to the IBX battalions. The Deputy Commandant for Manpower and Reserve Affairs is working with the MEFs and with Training and Education Command to ensure the IBX battalions are manned per the IBX30 Campaign Plan design and receiving the new 03XX Marines in the 3rd Quarter of Fiscal Year 21 (FY21). The Deputy Commandant for Information is supporting through the MEF information groups to ensure realistic and challenging information operations support to the overall live-force experiment plan. Finally, the Center for Naval Analysis, with the creation of the overall IBX30 Assessment Plan, is assisting with data collection and analysis during execution and will support final data analytics and report writing.

### **By, With, and Through the Marine Divisions**

The key to success for the IBX30 Campaign Plan lies within the Marine divisions. The Marine divisions are home to the most experienced and operationally current infantry Marines. To date, the divisions have played a

key role in the overall campaign plan build, selection of infantry battalions, experiment design and planning, and event alignment. This effort will continue into execution as the three experimental battalions conduct their pre-deployment training. The division will provide critical subject matter experts for participation and evaluation, with MCWL providing experimental expertise and assessment tools. IBX30 will leverage division pre-planned exercises as experiment venues selected in coordination with division planners to ensure experiments take place in the most complex and challenging environments and mesh with each MEF's operational requirements.

The IBX30 design is based around three standing infantry battalions and their life cycle. The decision was made to select battalions that will remain within the Global Force Management cycle to truly assess the impact of the new design on the surrounding MAGTF ecosystem and the Naval Enterprise. Every aspect of a battalion's life cycle, from initial build through pre-deployment training, deployment, and redeployment, must be evaluated to ascertain the impact of the new design. Battalions were selected based on their planned deployment assignments in order to provide a wide variety of operational environments and staggered life cycles to facilitate iterative experiments with each battalion's events and lessons learned being passed on to the next battalion.

Experiment Battalion 1 will deploy with a MEU as a legacy battalion landing team with additional manning and equipment support for enhanced C2, sensing, and enhanced capability for operations in the information environment. Experiment Battalion 2 (EXB2) will reorganize with the H&S company and two line companies, reflecting the *FD2030* design. EXB2 will also build a support platoon for each rifle company and a support squad for each rifle platoon. EXB2 will deploy in support of the unit deployment program in this structure. Experiment Battalion 3 (EXB3) will be built to the full *FD2030* TO/E of 735 Marines to the closest extent possible. EXB3 will support a unit deployment program deployment

as well, but they will gain additional structure to form the basis of the Marines Corps' first littoral combat team. EXB3 is the main effort in order to support the workup, deployment timelines, and experimentation in support of initial operational capability requirements for the development of the MLR. The variances in operational deployment environments and the structural differences between the infantry battalions will provide a wealth of information and data regarding the potential combat effectiveness of the *FD2030* design.

Both EXB2 and EXB3 will have a specialized T/E of MCWL science and technology bridging solutions for the battalion headquarters and one rifle company for their pre-deployment training and scheduled deployment. The bridging technologies act as surrogates for future program of record capabilities to conduct C2, sensing, and sustainment while enhancing lethality. This model allows for cost-effective vertical experimentation from the fire team to the battalion commander level and will accurately capture and evaluate the capabilities of the battalion and C2 architecture of the proposed T/O.

The focus of IBX30 remains on the T/O of the proposed infantry battalion. However, in order for these battalions to execute the mission expected of them in future operating concepts, they require supporting infrastructure. This enhanced T/E provides the C2 architecture, enabling them to distribute sensing capabilities to create intelligence-driven operations, kinetic and non-kinetic strike options to complete the targeting cycle, and expeditionary power and water to sustain operations. Supporting infrastructure for IBX30 will consist of organic precision fires, multi-domain sensing capabilities, data networked radios and digital communications, and expeditionary water and energy production down to the squad-level.

### IBX30 Experiment Objectives

The *FD2030* Infantry Battalion IPT highlighted four critical change areas that will become the backbone of the future infantry battalion: C2, sensing, lethality, and sustainment. These four

areas are the key drivers of the overall MCWL Assessment Plan and feed the seven IBX30 Experiment Objectives. The IBX30 Experiment Objectives are based on the experimental battalion's ability to perform the six warfighting functions in an all-domain, future-force conflict. They also serve as the focus for all *FD2030* Phase III infantry battalion wargames, modeling and simulation (M&S), and live-force experiments.

### Experiment Design

The IBX30 Campaign Plan is built on three critical areas of exploration that feed into the MCWL IBX30 Assessment Plan: Wargaming/M&S, studies, and live-force experiments. Each of these areas are designed to provide critical data points that in combination will provide a holistic assessment of the *FD2030* Infantry Battalion.

Wargames/M&S are being used to replicate the future operating environment by pitting the *FD2030* Infantry Battalion against future peer competitors, both in real and virtual environments. In October 2020, the MCWL Wargaming Division held the first of several planned *FD2030* Infantry Battalion wargames named Provident Forge. The game design placed the *FD2030* Infantry Battalion in a future naval crisis response scenario in order to perform traditional expeditionary mission essential tasks against a peer adversary. The Marine Corps Intelligence Activity and the MCWL Adaptive Threat Force cadre invested a significant amount of resources to inform both the friendly and enemy force structures and tactics, techniques, and procedures. The results of the wargame will be published via separate correspondence within the Service. MCWL's Assessment Branch is also running several models designed to assess the combat effectiveness of the *FD2030* technical enhancements versus estimated peer capabilities to understand lethality and survivability of the systems in a denied and contested future operating environment. Finally, the MCWL Adaptive Threat Force and Assessment Branch are injecting multiple in-person decision makers into tactical games to build on the outputs of systems modeling.





**IBX30 is developed and executed in partnership between MCWL and the Marine Divisions.**  
(Photo by LCpl Abrey Liggins.)

Studies are being used to provide data sets for areas too large or expensive for live-force experiments and to validate and challenge outputs from wargames and M&S activities. DC, CD&I's Operations Analysis Division is conducting a study using concepts of employment from the Provident Forge Wargame to examine the organic capabilities of the *FD2030* Infantry Battalion to conduct surveillance and acquire targets, provide lethal fires, and enhance survivability against a peer threat. The study will identify capability gaps and the conditions under which they occur and offer recommended solutions to achieve a more effective examination of the proposed *FD2030* Infantry Battalion TO/E. This study will also provide recommendations for enhancing the lethality and survivability of the *FD2030* Infantry Battalion during live-force experiments.

Live-Force experiments will provide the backbone of data collection for the IBX30 Plan. Using a crawl, walk, run methodology, MCWL planners will work with each division's planning team to create a series of events that incrementally increase in complexity, as the battalions gain maturity and confidence in their assigned tasks. First, the battalion's Marines will be trained on

new technologies and required tactics, techniques, and procedures to gain mastery of required skills and the ability to perform individual and collective tasks. Then, unit training takes place, and units will be evaluated on their performance as a team. Finally, a live adversary force utilizing future peer-competitor capabilities will be added to apply realism and combat-related friction to the experiments. During this process, MCWL and designated observer/controllers from the division or other supporting units will use MCWL-derived data collection and assessment plan guidelines to collect data, make SME observations, and provide critical after-action remarks to the participating units. Major exercises and other MEF/MEU and battalion training events will make up the full schedule for IBX30 experiments.

## Moving Forward

The structural framework of IBX30 provides a synchronizing method by which Headquarters Marine Corps and MCWL, working with the Marine divisions' infantry experts, will provide a holistic assessment of the operational effectiveness of the *FD2030* Infantry Battalion. Furthermore, collaboration between MCWL and the Marine divi-

sions will ensure that the overall assessment is well informed by a broad set of conditions and concepts of employment. Ultimately, the findings and conclusions from individual events will be used to evaluate and assess the validity of the *FD2030* Infantry Battalion design. This effort will conclude with an assessment conference in June 2022 and a final report to the CMC in August 2022.

The CMC has not yet decided on all the changes recommended by the *FD2030* IPT. The assessments conducted by the Marine Corps and the Naval Enterprise throughout IBX30 will provide him unbiased data, actionable recommendations, and a rudder steer for refinements to the proposed *FD2030* Infantry Battalion. The assessments will also provide the CMC with an accurate and thorough analysis of the operational effectiveness of the *FD2030* Infantry Battalion as a truly distributed operations capable force. The effort outlined in this article is the starting point for a focused multi-year campaign that MCWL/Futures Directorate will execute in coordination with the Marine infantry divisions to meet the CMC's *FD2030* intent. The goal, in support of this intent, is to create a technologically advanced, modernized infantry battalion capable of supporting the fleet, allies, and partners while deterring adversaries and defeating enemies during an armed conflict in 2030 and beyond.

## Notes

1. Gen David H. Berger, *38th Commandant's Planning Guidance*, (Washington, DC: 2019).
2. Gen David H. Berger, *Force Design 2030*, (Washington, DC: 2020).



# Fight Right Sustainment

Sustaining distributed operations

by Mr. Tom Russell

**T**he robust combat capability currently used by the Marines Corps is impressive, fast, survivable, and lethal. It is unmatched by any other fighting force in the world when combined with the discipline and tenacity of the Marine and is respected throughout the globe. Yet, as the 37th and 38th Commandants have expressed, we do not possess the capability we need to be successful in the future operating environment.<sup>1</sup> The sustainment of the force is an important consideration in the capability gap described by the *Commandant's Planning Guidance*. This article will address the question: "How will the Marine Corps' sustain distributed operations in future austere environments that will lack developed infrastructure?"

## Environment

The future operating environment is one that we will not own or dominate. It will be contested across all domains. Our mission will not be to defeat an adversary but to participate as an element of an integrated maritime defense in depth in order to contain, influence, and deter an adversary. To be successful, we will have to occupy key maritime terrain in proximity to critical sea lanes in order to control the use of those lanes. Much of this key terrain will be uninhabited or sparsely inhabited at best. To survive, we will have to be continuously mobile and deceptive while operating across these small islands.

Our current capabilities have one huge challenge: most rely upon developed infrastructure in order to be employed effectively. We need airfields with long runways and lots of bulk fuel.

**>Mr. Russell is a retired senior leader from the Marine Corps and a 34 year professional logistician.**

We need deepwater ports with container handling equipment in order to mobilize, generate the force, and process sustainment. We need hard surface roads that can handle heavy wheeled trucks to onward move and displace our force. We need hardstand, material handling equipment, and mobile electric power in order to enable operating bases to control and support combat operations. This infrastructure will be a luxury in the future operating environment and will be sparse across much of the area

that we will have to operate. Where it does exist, our adversary will be keenly aware of its presence, and it will survive at their leisure. Absent this infrastructure, the "Fight Tonight" technology that we currently own will have limited use and effectiveness to the warfighter.

## Nature of Tech

"Fight Right" technology needs to be optimized for the South China Sea and the China threat. Exquisite technologies that are extremely technical and capable, but few in number, are not suitable. Such capabilities will be targeted by the adversary and will rate an arrow from their quiver. Their loss will be a tragedy from the perspective of life, capability, and national treasure. The aircraft and the surface vessels we



**Fight right sustainment technologies must look like innocuous commercial shipping in order to hide in plain sight. (Photo by LCpl Trevor Rowett.)**



currently own fall into this category and are capable and expensive; therefore, we own only limited quantities. Their loss will make the evening news and involve someone knocking on a door to deliver tragic notification to a family.

“Fight Right” technology needs to be acquired with attrition in mind. It needs to be a simple, low-cost COTS-based technology that may only be able to do 85 percent of what we need, but we will be able to buy plenty of it. We need to know what our requirement is for these systems and then increase that number by 40 percent. Buying only what we need is a legacy notion. A plentiful, cheap solution can be swarmed and will not rise to the level that justifies an expensive arrow from the adversaries’ quiver.

“Fight Right” technology needs to be unmanned—where practicable. The distributed maritime nature of the future operating environment will require us to lean on the air and surface domains for sustainment distribution actions more than ever in our history. Everything that flies at the ragged edge of the first island chain should be operated by an onboard intelligent system, not a vulnerable and cognitively limited human being. Our surface watercraft need to be able to accept autonomous appliques when appropriate and have



**EABO will require new approaches to sustainment like “foraging” for supplies to include purifying seawater into potable water. (Photo by LCpl Trevor Rowett.)**

a contested arena, we will be watched at every turn. Despite this, we must be able to endure. Our technologies must be able to hide in plain sight. They must look like common commercial capabilities that will not raise suspicion. Whenever possible, they must be able to fit inside of a twenty-foot equivalent unit ISO shelter that can be easily moved, staged, and stored in an innocuous manner that will conceal the capability and intent. Any data emis-

be considered and that influence the way we train, equip, and organize to support EABO are discussed below.

*Logistics Subsidiarity.*<sup>2</sup> Logistics subsidiarity is the principle that a central authority should have a subsidiary function, performing only those tasks that cannot be performed at a more local level.<sup>3</sup> In this context, it is imperative that logistics requirements be resolved as close to the consumer as practical by dynamically synthesizing logistics information, materiel flow, and C2 to maximize operational effectiveness and survivability. Given adversary long-range precision fires, creating an “iron mountain” or relying on just-in-time resupply is not be a viable option. This requires minimizing the need for specialized logistics Marines and enabling self-reliance of operational entities. Self-reliant units will require certain capabilities such as foraging forward, contracting, harvesting, and composing. These are described below:

- *Foraging forward.* Units should forage for supply, within rules of engagement, by using available resources in the battlespace and eliminating the need to transmit demand or require distribution.
- *Contracting.* Local contracting provides a means to obviate distribution,

## ***The distributed maritime nature of the future operating environment will require us to lean on the air and surface domains for sustainment ...***

the ability to operate unmanned or in a leader/follower format. When manning is required, we need to ensure crews are minimally configured. If we lose an air asset, it should not be mourned and quickly replaced. If we lose a watercraft, it should not impede us, and we should have replacement craft waiting to fall in and fill the gap. Hopefully, that lost surface vessel was unmanned or at least minimally manned.

“Fight Right” technology needs to win the hider/finder competition. In

sions must be controlled and signatures managed. Everything we do needs to have a deception or decoy aspect to it in order to continuously thwart those that are trying to discern and disrupt our intentions.

### **Change in Philosophies**

Along with new and different capabilities, the EABO environment demands new operating approaches to persist and sustain operations. Some of the different conceptions that must



with the caveat that forces must be in an operating area where there are means to contract with a supplier. Contracting is an element of the unit's information signature but can be decoupled from the unit's physical maneuver.

- *Harvesting.* Commodities like water and fuel transported to the forward edge of battle increases costs exponentially and entails risk to supply convoys. Technology to harvest what is available and convert it to something usable instead of transporting forward reduces risk by eliminating information flow and distribution cost but at the expense of additional equipment burden to the forward unit.

- *Composing.* Units should have the ability to assemble or compose capabilities at point of need. Modular systems, software-defined capabilities, and additive manufacturing all provide tools to accomplish this function that internalizes and reduces information and materiel flows.

Logistics subsidiarity challenges conventional logistics assumptions based on efficiency and risk minimization with new assumptions to achieve survivability and agility. While this ambition may not be immediately feasible, it is nevertheless operationally desirable, and the tenets of logistical subsidiarity should undergird all future force development as intermediate or stretch goals. When these tenets are incorporated into the wider elements of force design, logistics will support enabling and expanding operations, rather than appended to our overarching operational design as a constraint.

Logistics subsidiarity requires the development and acquisition of capabilities that can be operated and troubleshot by the user. It will require diversity in training to broaden the scope of warfighter talents to enable them to not only perform their warfighting function but be able to sustain themselves as well. Smaller support elements comprised of logisticians capable of performing multiple specialties will be available to other EAB elements. The bulk of EAB sustainment will be provided by organic personnel using simple, maintainable hardware, and logistics will be pre-planned.

*Informatized Sustainment.*<sup>4</sup> Accurate and responsive situational awareness and optimal logistics operations will be essential in the ability to sustain Fleet operations in the distributed, maritime, and contested challenges inherent with the EABO environment. This will be achieved through sensing the battlespace to monitor consumption of critical supplies such as subsistence and water, fuels, ammunition, and parts. The prognostic and diagnostic condition of systems will need to be sensed and monitored to ensure the health and viability of capabilities. This will involve the conversion of operational characteristics into data or information that can be transmitted for consumption and analysis by algorithms that understand what is normal, what micro patterns indicate impending concerns, anomalies that likely need attention, and supply stockage levels that need replenishment. A fusion of this logistics data with intelligence and operational data will impact the machine generated list of recommended courses of action forwarded for consideration by the logistician.

Informatized sustainment will require free use of the "internet of logistics things" and assured connectivity. Emission signatures will have to be managed. The integration of logistics, intelligence, and operational data will have to be coordinated. Algorithms regarding the association between performance parameters and associated maintenance concerns need to be investigated, discovered, and documented.

### Different Rather than Better

If what we have is inadequate, why do we spend so much time, effort, and money trying to make it better? Replacing a Light Armored Vehicle with an Advanced Reconnaissance Vehicle represents only incremental improvement to what we have. Replacing a CH-53E with a CH-53K lacks any recognition that what we have today is not what we will need tomorrow. Relying upon the overseers of our current capability to define a new frontier of capability, often results with identifying something that is better instead of something that is different. This may correctly be described

as modernization, but it is not innovation. Making improvements to what we currently possess will never allow us to move to the next transformation.

The capability we require in our future is going to be different than what we currently own. Finding that different capability should be our focus. We need to recognize that our inherent inclinations are programmed to improve and modernize what we recognize and understand. That is what we naturally want to do. The notion of pursuing things that are different from what we know is a risky endeavor and will upset the natural order of things. That is something we want to avoid. Regardless, different is what is required.

### Conclusion

If your capability is effective and you are sure that it will continue to support your requirements, there is no need for innovation. Your focus should be on incrementally improving your current condition. But if what you have persistently fails to meet the operational need, your energy is wasted pursuing marginal improvements. Your efforts should be focused on innovation and significant change from the status quo. Significant change calls for new technology and operating concepts. However, as we embrace change, we need to maintain the discipline and tenacity of the individual Marine but equip them with fundamentally different technologies and approaches.

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### Notes

1. Gen David H. Berger, *38th Commandant's Planning Guidance*, (Washington, DC: 2019).
2. Headquarters Marine Corps, *Draft TM Manual for Expeditionary Advanced Base Operations (EABO)*, (Washington, DC: June 2018).
3. Art Corbet, "NEXLOG Newsletter," (Arlington, VA: NEXLOG, October 2019).
4. *Draft TM Manual for Expeditionary Advanced Base Operations (EABO)*.



# Wargaming with Command Professional Edition

A near-term tool to support wargames on littoral warfare

by Staff, MCWL Wargaming Division

***“Essential to charting our course in an era of strategic fluidity and rapid change will be the effective integration of professional wargaming in force design, education, and training.”***

***—Gen David H. Berger,  
38th Commandant of the Marine Corps***

In his *Commandant's Planning Guidance*, Gen Berger repeatedly underscored the criticality of wargaming in force design, training, and education. His wargaming “call to arms” placed significant emphasis on the Marine Corps Warfighting Laboratory’s (MCWL) vanguard role as the key “vehicle for change.” To support the Commandant’s intent, MCWL identified a wargaming tool capable of simulating modern warfare and producing quantitative data to support *Force Design* analysis. That tool is the commercial-off-the-shelf computer wargame called *Command: Professional Edition (PE)*.

Since January 2020, the MCWL has used *Command PE* to support the Ender’s Shadow iterative series of wargames to test and evaluate the Expeditionary Advanced Base Operations (EABO) concept and the proposed Marine Corps *Force Design*. Most recently, *Command PE* was leveraged during the Naval Services Game 2020 to support

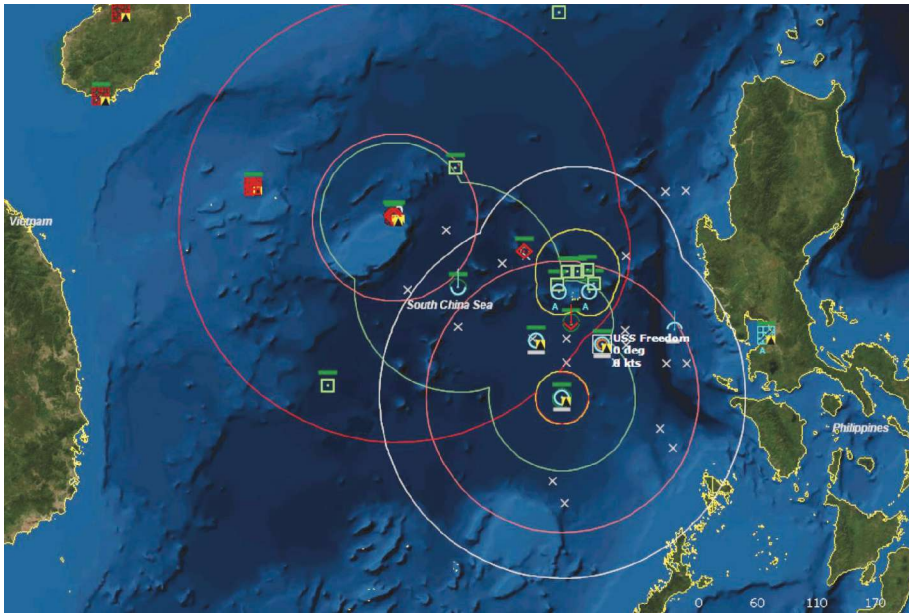
exploration of the integrated fleet command and control (C2) required to fight the fleet effectively. In Fiscal Year (FY) 21, *Command PE* will continue to be used to support wargames focused on concepts and force design challenges.

*Command PE*, commonly referred to as *Command*, is a commercial simulation of modern air, naval, and ground combat published by Matrix Games and Warfare Sims. One of the biggest strengths of *Command PE* is its ability to rapidly customize its open source database of platforms, sensors, weapons, and ground formations. It also offers an extensive array of analytic, after action, and visualization capabilities as well as simulation federation possibilities. With support from the Air Force Research Lab, which has used *Command PE* for several years, MCWL Wargaming Division adapted some of the *Command PE* database’s parametric data to the secret level to enhance the wargame’s accuracy and credibility. This remains a work in progress,

and efforts are underway to establish a Joint Community of Practice to further enhance the database with information from across the Services. In FY21, MCWL plans to continue to implement *Command PE* to better test and evaluate future nascent capabilities in the context of emerging naval and joint concepts.

The purpose for using *Command PE* is multi-fold. First, it adds a modeling and simulation (M&S) capability to the wargaming tool kit. Rapid scenario customization allows different excursions and vignettes to be easily explored. During a wargame, *Command PE* applies rigor in adjudication while enabling player immersion and decision making. Each action undertaken during the game and their associated effects are logged, thereby capturing quantitative data outputs to support analysis during and after the game. Ultimately, *Command PE* elicits the human decision making associated with nascent concepts and capabilities—the key output of any wargame—while delivering a body of data that can support quantitative analysis.

The base version of *Command PE* is single player only. In a typical professional wargame using *Command PE*, Blue and Red player cells develop their plans, which are then input into the scenario by a trained operator. The scenario is then run in accelerated time while players watch the battle unfold on the common tactical picture and make decisions as needed, which the operator applies.



**Command PE tactical picture.** (Photo provided by Wargaming Division.)

Given the rapidity of decision making, especially in larger scenarios, this single point of input methodology can slow game play—as pausing the game clock becomes more frequent while the operator applies new orders. To enable

simultaneous input of orders across multiple cells, MCWL via the support of Marine Corps Systems Command, contracted with Matrix Games to develop a multiplayer version of *Command PE*. This was completed during FY20. The

***Command PE will ensure MCWL is postured in the near term with an adaptive wargaming capability that can support Force Design efforts in advance of the future Wargaming Center's family of software tools programmed for IOC in FY24.***



**Command PE market research conducted in 2019 (Epsom, UK).** (Photo provided by the Wargaming Division.)

new multiplayer version enhances the utility of the game to support multi-cell, force-on-force wargame events at the task force, task group, and task unit levels.

*Command PE*, like other M&S tools, has certain limitations. The current version of the software is suboptimal when wargaming ground-centric operations. Further, since *Command PE* is a commercial product, complete transparency of adjudication algorithms is not possible for proprietary reasons. *Command PE* is a battle simulator not a campaign simulator. It is optimized for exploring battles and engagements spanning 12- to 48-hour time periods, and it does not automatically execute operational-level logistics functions such as replenishing airfields with ammunition and fuel.

To further enhance *Command PE*'s capabilities, MCWL, with the support of Marine Corps Systems Command Integration Division, is executing a Defense Technical Information Center development contract with Matrix Games. This multi-phased contract effort will improve data analytic capabilities, create an advanced mission planning tool to support more detailed strike planning, and enhance cruise missile behaviors and employment options. In addition, the contract seeks to develop advanced technology capabilities, such as loitering munitions and drone swarms; enhance ground unit behaviors and employment; strengthen amphibious operations; and improve logistics functions with a cargo mod to enable tracking of individual plane and ship cargos. This development effort, once fully funded, will span the next two years.

Additionally, MCWL plans to expand *Command PE* usage to the FMF. The capabilities associated with *Command PE* can be leveraged to enhance FMF planning, experimentation, and battle staff training.

All of these upcoming improvements will ensure MCWL has a near-term M&S wargaming capability to support continued force design wargames in advance of the future Wargaming Center capability that is currently in the prototyping phase of development with initial operating capability set for FY24.





MCWL wargame setup with Command PE for the Ender's Shadow Wargame in August 2020.  
(Photo provided by the Wargaming Division.)

In an era of dynamic change and operational fluidity, *Command PE* has potential to enhance wargaming across the Marine Corps with a set of capabilities ideal for scenarios focused on littoral naval operations. Its capabilities enhance wargaming across multiple use cases, including force design, FMF plans, battle staff training, and professional military education.



## MajGen Harold W. Chase Prize Essay Contest

### Boldness earns rewards...

The annual MajGen Harold W. Chase Prize Essay Contest invites articles that challenge conventional wisdom by proposing change to a current Marine Corps directive, policy, custom, or practice. To qualify, entries must propose and argue for a new and better way of “doing business” in the Marine Corps. Authors must have strength in their convictions and be prepared for criticism from those who would defend the status quo. That is why the prizes are called Boldness and Daring Awards.

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 Chase Prize Essay Contest entry and including the title of the essay and the author's name. Repeat the title on the first page, but the author's name should not appear anywhere but on the cover page. Manuscripts are accepted, but please include a disk in Microsoft Word format with the manuscript. The *Gazette* Editorial Advisory Panel will judge the contest and notify all entrants as to the outcome shortly thereafter. Multiple entries are allowed; however, only one entry will receive an award.

## Be bold and daring!

**Deadline: 30 April**

Send to: [gazette@mca-marines.org](mailto:gazette@mca-marines.org)

Mail entries to: *Marine Corps Gazette*, Box 1775, Quantico, VA 22134

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# An Advance to Joint Robotics

How MCWL's history in ground robotics illuminated the path to success  
by SSgt Matthew Foglesong, PhD.

The Science and Technology (S&T) Division of the Marine Corps Warfighting Laboratory (MCWL) identifies, develops, and delivers innovative capabilities for warfighter assessment and experimentation in support of the Marine Corps future force design and development activities. Additionally, the S&T Division assesses emerging commercial technologies with potential military utility. One focus area of development and assessment for the S&T Division since its inception has been on the use of robotic and autonomous systems to help enhance the capabilities and survivability of our warfighters. Unmanned aircraft systems always received a lot of the attention, but the S&T Division also has an extensive history developing unmanned ground vehicles (UGVs) and their ability to share a common controller to reduce redundancy, extraneous gear, and extra weight on the infantryman. Moving into the future, UGVs will increasingly proliferate the battlefield, especially in the highly dispersed and mobile operations that current force design efforts seek to address. One thing has become clear throughout S&T Division's development and assessment of UGVs. The key to efficiently developing and fielding the most effective UGVs for the Marine Corps greatly depends on close collaboration and integration with the other Services and defense agencies. The Marine Corps does not have the budget to develop its own unique UGVs. Just as important, Marine Corps' UGVs must be fully interoperable with the full spectrum of joint manned and unmanned systems and their corresponding command and control (C2) networks.

**>SSgt Foglesong is a 0321/Reconnaissance Marine, currently serving as the Robotics and Autonomous Systems Branch Head at the Marine Corps Warfighting Laboratory.**

Early robotics and autonomous system efforts at MCWL experienced relative levels of success but revealed a need for better inter-Service interoperability. The early-2000s saw the development of the Dragon Runner, a twenty-pound, tracked, man-packable robot, developed with Carnegie Mellon University's National Robotics Engineering Center and a small company in Pittsburgh, PA, by the name of Automatika, Inc. (Since acquired and known as Qinetiq North America). Designed to operate in areas too dangerous for or inaccessible to hu-

man operators, the Dragon Runner saw significant use by both Marine Corps and Army EOD units. The United Kingdom Ministry of Defense also ordered 100 units to augment their IED disposal efforts. Dragon Runner demonstrated the potential for how UGVs can greatly reduce the risk to warfighters on the modern battlefield, but it was simply a self-contained, rugged, remotely-operated vehicle with some sensors and manipulators. It was difficult, if not impossible, to do things like readily share sensor feeds with other units or pass control of the Dragon Runner from one team to another. This was due in part to the early maturity of the system but more so because interoperability had not been designed into the system at its inception. In a Global war on Terrorism scenario, Dragon Runner could have been much more effective



**Dragon Runner, first developed in the early 2000s, demonstrated how UGVs could reduce risk to EOD teams. (Photo: Courtesy MCWL.)**

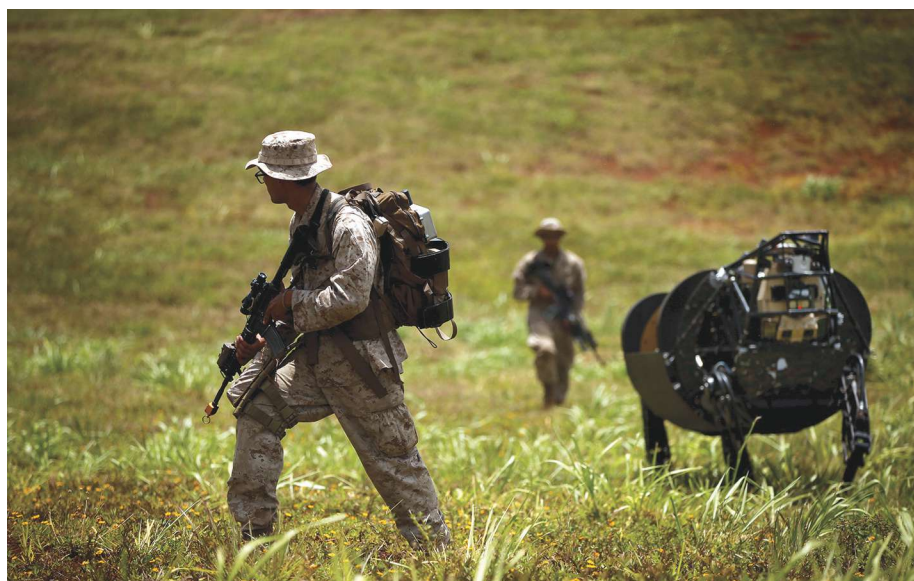


if a Marine rifle company was able to use it to conduct a reconnaissance of their patrol route. Then, if the company found something that looked like an IED, the company could pass the video feed from the Dragon Runner to a supporting Army EOD who could take control of the UGV and conduct a detailed assessment from their base before sending a team to destroy or render the device safe. In other words, while UGVs still required a greater level of technical maturity, the greatest need was for much better Service integration.

With the lessons of Dragon Runner in mind, beginning in 2009, MCWL S&T Division initiated an eight-year off-road autonomy and perception algorithms development effort that resulted in the development of two technologies: the Ground Unmanned Support Surrogate (GUSS) and the Legged Squad Support System (LS3). GUSS added autonomy systems to legacy Internally Transported Vehicles and prototype Polaris MRZR All-Terrain Vehicles, which proved that fully autonomous UGV technology was mature enough to significantly reduce the physical and cognitive burdens of Marines while achieving a level of manned-unmanned teaming with the potential to revolutionize ground operations. GUSS demonstrated that a UGV no longer needed a dedicated Marine to control every move of the vehicle remotely. Instead, the Marine could give GUSS a destination and the robot would find its way autonomously, or GUSS could follow in trace of a Marine or convoy completely autonomously. Similarly, the LS3 was a purpose-built quadruped robotic mule made by Boston Dynamics programmed to autonomously follow an operator over rough terrain, carrying heavy loads like ammo, personal gear, water, and food. GUSS and LS3 were Marine-centric prototype and experimentation efforts, but MCWL S&T Division shared the results of the multiple assessments and experiments with Army counterparts who were conducting similar S&T efforts. The GUSS and LS3 projects significantly advanced the level of autonomy and man-unmanned teaming for UGVs and also made clear that, given the costs, these



**The Ground Unmanned Support System (GUSS) showed that a UGV did not need to be “remote controlled” by a dedicated Marine. (Photo: Courtesy MCWL.)**



**The Legged Squad Support System (LS3) was purpose-built to “follow” dismounted Marines. (Photo: Courtesy MCWL.)**

were not systems the Marine Corps had the resources to develop and field in any significant quantities on its own. The Army and the other Services and Service Agencies were conducting similar UGV S&T projects, and the Marine Corps needed to better influence and leverage those efforts.

The existence of multiple Service UGV efforts, sometimes complementary and sometimes duplicative, was one of the primary catalysts for the creation in 2016 of what became known as the Joint Ground Robotics

Integration Team (JGRIT). Primarily an Army and Marine Corps team, the JGRIT sought to address UGV limitations and interoperability issues. It was through the JGRIT that S&T Division’s next UGV project, the Forward Robotic RSTA Experimentation and TTP (FERRET) system and an unmanned systems Tactical Robotic Controller were initiated. Taking the lessons learned from past UGV projects and operating under the hypothesis that autonomous drive to object and mapping technology in denied environments



would require significant cognitive loads by their human operators, FERRET was an attempt to build autonomous tactics, techniques, and standard operating procedures for small, unmanned ground vehicles. The joint S&T program explored semi-autonomous behaviors for reconnaissance, surveillance, and target acquisition (RSTA) UGV assets, the integration of autonomous capabilities with robotics controllers, and the understanding of human-machine interaction on the battlefield.

This closer, more formal UGV coordination through the JGRIT and with the Army, along with the lessons learned from MCWL S&T Division's past UGV development work, resulted in what can potentially be one of the most successful bottom up UGV innovation efforts for both the Army and Marine Corps. The MCWL S&T Division's Expeditionary Modular Autonomous Vehicle (EMAV) was created using a multitude of lessons learned from past and ongoing UGV efforts across the DOD to create the Marine Corps' first fully autonomous and adaptive UGV. Using the autonomy hardware and software developed for the GUSS project, EMAV includes a modular payload integration architecture that provides the ability to rapidly change payloads for a variety of missions across multiple warfighting functions. EMAV is capable of remote controlled or fully autonomous operations and provides combat forces with a highly mobile, MV-22 transportable, multiple payload UGV for use at the tactical level in a multitude of missions while retaining the ability to off-board stored electrical power. In March 2018, the Army Futures Command Ground Vehicle Support Center hosted a Robotics Rodeo in College Station, TX. There the EMAV outperformed all other UGVs in its size/weight category and demonstrated a level of modularity far beyond the other participating UGVs. After an additional series of successful demonstrations, developmental tests, and assessments, MCWL, with support from Pratt & Miller Engineering, entered the EMAV as a contender for the Army Robotic Combat Vehicle-Light (RCV-L) Program. The collaborative

efforts from developing this highly mobile, modular, and expeditionary platform led the Army to down select EMAV as the RCV-L vehicle of choice for further experimentation and tactics, techniques, and procedures as well as standard operating procedure development. While the Army pushes ahead with capabilities documentation and development aspects of the RCV-L program, the Marine Corps is leading the way in multi-mission payload development, warfighting integration, and man-unmanned teaming experimentation. The long-term success of

the RCV-L program, however, will rely on highly collaborative cross-service coordination and free sharing of data across the Services and developmental partners. In order to drive cost down, reduce developmental risk, find new avenues of approach, and ensure a common lexicon, the Marine Corps and the Army owe it to the warfighters of tomorrow to pave this road together.

The future of UGVs is joint. The future is purple. The JGRIT, a cross-DOD consortium of robotics and autonomous systems subject matter experts and uniformed stakeholders,



**The Forward Robotic RSTA Experimentation and TTP was an effort to develop standard operating procedures for autonomous UGVs. (Courtesy Photo Defense Media Activity.)**



**Joint Marine and Army coordination on UGVs produced the Expeditionary Modular Autonomous Vehicle—the first fully autonomous and adaptive UGV. (Photo: Courtesy MCWL.)**

# THE MARINE CORPS GAZETTE

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**Updated versions of Dragon Runner are still employed by joint and allied forces. (Photo by Spc Ryan Lucas.)**

provided significant credibility to UGV programs and projects throughout the DOD. Prior to the JGRIT, projects were joint only by personality and through individual collaborative efforts. That is to say, for many years, personal connections alone determined programmatic success in the robotics world. Unfortunately, the last JGRIT meeting occurred the fall of 2017. Although the JGRIT effort was brief, the relationships solidified by this formal integration team formed the bedrock for the ground robotics programs seeing success today. Joint collaboration at the action officer level has continued, and the Army's selection of the EMAV as their RCV-L development platform is a result of this continued collaboration. However, a more formal, higher-level, and enduring construct like the JGRIT is essential for the future of UGVs across all the Services. Advancing joint programs is more complicated but worth the effort, especially for the Marine Corps. In a fiscally constrained environment, joint coordination and development can lead to lower system costs through economies of scale and facilitate cross-Service systems integration. The Services need to reinvigorate the JGRIT and reap the benefits of programs that are inherently interoperable and aligned with national strategies.

Key documents and experimentation campaigns, such as the Office of Naval Research's Intelligent Autonomy Strategy, the Marine Corps' Expeditionary Advanced Base Operations concept, the Army's Project Convergence experimentation campaign, all directly call out the necessity of interoperability during joint operations. True success in the future combat environment, however, will rely on much more than discreet thinking and good intentions. A cross-functional team of technologists, acquisitions professionals, systems engineers, and systems integrators is integral for developing a joint system-of-systems that give combat commander's faith in the UGV technologies through interoperability, high-fidelity information, and system reliability.

The current ad hoc working relationships between the DOD's UGV subject matter experts must be solidified through engaged Service leadership with a common vision and guidance. It is only through this level of joint collaboration that UGVs can truly achieve the significant warfighting capabilities they have the potential to bring to the battlespace of the future.





# Innovation in the Information Environment

An educational perspective

by the Staff, Marine Corps University

***“The information space is global, instant, persistent, and inclusive of all domains.”<sup>1</sup>***

In 2014, amidst the carnage of war in Ukraine’s Donbass region, one particularly gruesome story stood out—Russian television reported that Ukrainian forces had tortured and crucified a three-year old child. The following year, another Russian news outlet claimed that Ukrainian artillery bombardments had killed a ten-year-old girl. These stories were sufficiently horrifying that international news groups sent their own reporters to learn more about this apparently casual cruelty on the part of one of the combatants. Instead, they learned that both stories were false. When pressed on why Russian media had spread the story about the murdered girl, a Russian reporter simply replied, “We had to broadcast it.” Similarly, the Russian outlet that first spread the story about the crucified child eventually gave a half-hearted retraction—though it also claimed that if the story were indeed false, it was still the fault of Ukraine for shattering the psyche of the (not)-dead child’s mother with its unrelenting military violence.<sup>2</sup> These two incidents made clear the contours of the information space: global, instant, persistent, encompassing, and increasingly a field of contest.

The information space has indeed gained increasing importance. The 2018 *National Defense Strategy (NDS)*

charged that “the Joint Force must gain and maintain information superiority.” A year later, Gen David H. Berger noted in his *Commandant’s Planning Guidance (CPG)* that the Marine Corps had “yet to fully develop a robust capability necessary to maintain advantages in the information environment across all seven warfighting functions.”<sup>3</sup> This operating environment—complex, ever-changing, and increasingly contested—required

a “highly educated force” to deter bad actors or, failing that, to support naval and joint force operations inside the adversary’s weapons engagement zone.<sup>4</sup>

Education Command takes its role in developing that highly educated force very seriously. Just as the information environment encompasses all others, so too does the professional military education (PME) continuum provided under Marine Corps University (MCU) weave operations in the information environment (OIE) through every element of the student learning experience. This article will highlight a few of the many efforts undertaken in this regard as well as illustrate the myriad educational tools



***The colleges and schools of MCU are designed to conduct PME across a continuum of student requirements from multiple officer and enlisted grades. (Photo: From video by Cpl Kaitlynn Hendricks, Cpl Quinn Hurt, Sgt Kristiana Montanez, Charles Wolf, and Sgt David Diggs.)***



leveraged to accomplish this. It will also discuss educational enhancement programs provided by MCU's Krulak Center that bring OIE instruction to all of MCU's resident and non-resident PME programs. While each school's approach is different, tailored to the learning outcomes for each student body, the endgame is the same: that the Marine leaving their PME school and returning to the FMF is indeed a highly educated warfighter, approaching the information environment with "a competition mandate, but a conflict mentality."<sup>5</sup>

## OIE and PME

Defining the information environment is a challenge in itself, though Lt-Gen Lori Reynolds, Deputy Commandant for Information, (DC-I) offered a comprehensive description in a speech this spring. She defined the *information environment* as the aggregate of individuals, organizations, and systems that collect, process, disseminate, or act on information.<sup>6</sup> In this space, adversaries were "seeking to sow disinformation, probing cyber defenses, stealing intellectual property, [and] conducting reconnaissance in places we wouldn't even consider part of the battlefield."<sup>7</sup> Verbally or electronically, encrypted or in the clear, the information environment is an expression of human

willing to challenge us asymmetrically within this maneuver space. Finally, she warned that if the United States could not expand its understanding of power projection beyond the kinetic and into this maneuver space, it would ultimately "fail to compete" there.<sup>8</sup> Failing to compete is not an option, so the schools at MCU use OIE to contextualize the other domains of modern warfare.

## Expeditionary Warfare School

This generation of Marine Corps leaders have grown up in that "global, instant, persistent, inclusive" information environment and understand the habit patterns needed to navigate it as instinctually as they breathe. It is thus appropriate that when young company-grade Marine Corps officers get their career-level PME at Expeditionary Warfare School (EWS), they experience a curriculum in which information is fully incorporated as the seventh Marine Corps warfighting function. Students and faculty also receive professional development on the fusion of innovation and the information environment. For instance, 5 of the 6 courses taught in the 41-week EWS curriculum have touchpoints linking the information environment with broader warfighting concepts. In particular, the Military Adaptation and Innovation and MAGTF

lessons learned from a panel of recent practitioners of OIE who operated at the MEU level. These efforts reinforce each other across the curriculum, ensuring young officers leave EWS with a strong foundation of OIE upon which to build as practitioners themselves.

## Command and Staff College

As their careers advance, our students expand their operational perspective, so the educational approach to OIE expands as well when Marine Corps officers return to the PME continuum at Command and Staff College (CSC). In the CSC curriculum, "Information" has been elevated to a formal Program Outcome with associated learning outcomes in 2020. As such, upon graduation, CSC students are expected to understand the human, physical, and informational aspects of the security environment; apply options that integrate informational, cyber, and physical capabilities and activities in operations; analyze how the Joint Force executes operations in the information environment and modifies those operations as audiences respond; and recognize the opportunities and vulnerabilities created by widespread information dissemination enabled by emerging media.

The CSC curriculum integrates educational touchpoints with OIE in several other ways. The direct role and support of the DC-I in several of these efforts is significant. LtGen Reynolds provides introductions to three blocks of instruction focused on Information: Information as the Seventh Warfighting Function, Planning in OIE, and Planning in Cyber. Beyond the DC-I's direct involvement, these instructional blocks also include lectures and staff assistance from the Commanding General, Marine Forces Cyberspace Command; the Director of the Marine Corps Intelligence Activity; the Commanding Officer of the II Marine Expeditionary Force Information Group; and the Director of the Marine Corps Information Operations Center.

Additionally, the CSC exercise continuum reinforces and extends our students' OIE education. The capstone Joint Task Force-level exercise Pacific Challenge X features simultaneous in-

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***Failing to compete is not an option, so the schools at MCU use OIE to contextualize the other domains of modern warfare.***

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thought. This includes the thoughts of the United States and its allies, adversaries and competitors, and independent third parties. Moreover, with the growing proliferation of artificial intelligence and machine learning, this environment encompasses non-human thought as well. LtGen Reynolds argued that this amalgamation of the information environment and the activities within it was a form of power beyond kinetic combat power. She further noted that our competitors were increasingly

Operations Afloat courses include modules that focus on OIE. Among these modules is a lecture session from Col T.X. Hammes, USMC(Ret) on the Fourth Industrial Revolution and its effect on the character of war.<sup>9</sup> Other modules include a historical case study on the Tet Offensive as an illustration of both the battlefield and wider geopolitical impacts of OIEs as well as a battle study on the Russia-Ukraine conflict and tactical OIE effects. New this academic year, students will receive

formation wargaming, with the allied and adversary groups using “dueling narratives” of realtime OIE to gain advantage. The actions are adjudicated with the help of experts from DC-I, Marine Corps Information Operations Center, Training and Education Command, and MCU, and these actions affect outcomes in the larger digital wargame. Other lessons in security studies and war studies discuss information as a specific aspect of the great power competition while using wargames; this year Dr. Craig Hayden, Associate Professor of Strategic Studies at CSC, introduced a hex-based information wargame allowing students to conduct OIE to gain advantage in a security studies scenario.<sup>10</sup>

The electives program is another formative part of the students’ overall experience at CSC, and the information realm is well represented in the elective offerings. Of the 50 electives, 10 offered directly relate to information as a warfighting function, and they run the gamut of elective options: secret and unclassified topics, U.S. and adversary capabilities, electronic warfare, cyber, OIE, space, and historical examples of each are woven throughout the electives. All told, the operational perspective at CSC is increasingly the informational perspective as well.

### School of Advanced Warfighting

Consistent with the joint concept for OIE, the School of Advanced

Warfighting (SAW) takes a multiregional, multirole, and multifunctional approach that emphasizes great power competition from peacetime confrontations to escalation and major combat operations.<sup>11</sup> Exercises and curriculum critically examine joint doctrine on deception, introducing students to political psychology and theories of decision making that help planners understand how to gain an advantage through surprise.<sup>12</sup> Historical cases help students reenact key decisions and how inaccurate and incomplete information and competing narratives shape operations. In the Changing Character of Conflict course and future war research program, students examine the role of cyber operations alongside inform and influence activities as they relate to shaping operations and the new concept of dynamic force employment. Students study Chinese force structure, such as the Strategic Support Forces, and emerging concepts like Systemic Confrontation, as well as studies on how China signals adversaries and behaves during crises.<sup>13</sup> Also covered is the Russian concept of New Generation Warfare, in which multiple states combine instruments of power with active measures and flexible deterrent options to alter how targets see the world and make decisions.<sup>14</sup> Seminars include statistical analysis of past disputes: for example, how Chinese leaders use particular outlets to create a narrative during brinkmanship.<sup>15</sup> SAW builds in

opportunities for students to experiment with integrating OIE into operations through wargames.<sup>16</sup> Students fight each other in dynamic competition exercises and wargames, learning first-hand how to integrate OIE into the competition continuum.<sup>17</sup> They also learn red teaming techniques to challenge assumptions, explore alternatives, and detect deception—all consistent with OIE. The net result is a better appreciation not just of OIE but modern great power competition in general.

SAW faculty also maintain an active research agenda and advisor role related to OIE. Dr. Benjamin Jensen served as the senior research director and lead author for the U.S. Cyberspace Solarium Commission. Faculty publish on OIE and how it relates to contemporary warfighting in the *Marine Corps Gazette*, *War on the Rocks*, and *Lawfare*.<sup>18</sup> These efforts included co-authoring major think tank monographs for the CATO Institute and the Atlantic Council with fellows in the Krulak Center.<sup>19</sup> Faculty have even received research support to work with other universities to develop new OIE-linked great power competition wargames that examine how states use cyber operations during crises and early stages of combat operations.

### Marine Corps War College

The Marine Corps War College (MCWAR) curriculum focuses on the “strategic-level” of operations; that is, “The level of war at which a nation, often as a member of a group of nations, determines national or multinational (alliance or coalition) strategic security objectives and guidance, then develops and uses national resources to achieve those objectives.” Information is an important lens through which to view elements of national power, so OIE is woven throughout the MCWAR curriculum.

MCWAR’s curriculum consists of core courses in Diplomacy and Statecraft, Warfighting and Economics, Leadership and Ethics, National Security, and Joint Warfare. These core courses are supplemented by an Advanced Studies Program, which enables a “deep dive” into specific topic areas. The study and application of infor-



**The School of Advanced Warfighting produces Marine, joint, and allied officers uniquely skilled in critical thinking, problem solving, and deliberate planning. (Photo: MCU.)**



*The Krulak Center for Innovation and Creativity is the MCU community's an engine of change, and their PME portal, "The Landing," serves as the platform for sharing ideas. (Photo: MCU)*

mation operations is not confined to a single seminar, or even a single department, because that would give the subject short shrift. OIE applies across all departments, and the nuances of it are more readily brought forth in seminar discussions with senior military leaders and faculty members.

This supports MCWAR's program outcomes, which aim to develop leaders able to frame ambiguity, evaluate information and arguments, ask the right questions, challenge assumptions, and find creative solutions to the challenges of a complex and dynamic security environment. The information maneuver space is part of that complex environment, which is why the MCWAR curriculum integrates it in all coursework.

### Krulak Center

The Krulak Center occupies a unique position within MCU; it is not a school with its own curriculum, but its talented cadre of military and civilians act as "general support artillery" to enhance the student experience at all schools while also engaging external partners to make their specific expertise available to students as well. So, just as the student experience varies depending on the program of instruction, so too are the Krulak Center programs quite varied in their content. But despite the variance, innovative approaches to OIE are a consistent component of the Center's offerings.

Some of these offerings are targeted to specific schools—for example, the Center's Bren Chairs, funded by the

Marine Corps University Foundation, teach several of the CSC electives that explore the information environment. Mr. J.D. Work, Bren Chair for Cyber Conflict and Security, offers a yearly elective on "Cyber Operations, Intelligence, and Conflict." Mr. Donald Bishop and Dr. Brandon Valeriano (Bren Chairs for Strategic Communication and Military Innovation, respectively) offer a joint elective on "Modern Political Warfare: Cyber and Information Operations," which links the narrative messaging aspect of OIE with the ones and zeroes flowing through digital networks. This academic year, the Center is also providing a new elective in partnership with the Massachusetts Institute of Technology's Lincoln Labs, a "Survey of Artificial Intelligence and Machine Learning." As mentioned above, "information" can include "thought" exchanged—even generated—by sufficiently advanced algorithms and machines.<sup>20</sup> Non-human players in the information space deserve attention of their own.

Yet, most Krulak Center programs are open to students from any PME program. This both increases the opportunities for the Center to act in direct support and creates a cross-pollinated learning environment in which students can share knowledge with, and learn from, a much broader experiential array than they would encounter in their standard PME curriculum. One example of this is the Gen Robert H. Barrow Fellowship, which includes students from all MCU schools, along with Marine Corps entities in the National Capi-

tal Region. The theme for this year's fellowship is the space domain and its criticality in great power competition, including the access to, and denial of, the information realm. This past spring, the Center had the opportunity to liaise with students and instructors from several non-MCU schools. Center representatives participated in a two-day wargame with members of the Army War College and Marine Corps Civil-Military Operations School, with the game focusing specifically on OIE following a theoretical collapse of the North Korean regime.

The Krulak Center has also joined with a number of partners outside MCU to creatively explore the information realm, for the benefit both of PME students and Marines across the FMF. This summer, the Center collaborated with the *Marine Corps Gazette*, Ender's Galley innovation website, and Marine Forces Cyberspace Command in an OIE "Call to Action." This project used targeted questions, and both fictional and non-fictional written pieces to drive discussions aimed at helping Marines make sense of new and old terms, potential operating models, and emerging doctrine in the OIE world.<sup>21</sup> The Center has also utilized the unconventional medium of the graphic novel as a platform to help Marines dive deeper into the information space. The "origin story" of *Destination Unknown* as a grassroots innovation effort is a tale in itself, but in two volumes already published, a digital "holiday special" released December 2020, and a third volume in the planning stages, the Marine Corps author/



artists teams of *Destination Unknown* used art and fictional narratives to examine the potential future impacts of artificial intelligence, cyber, the space domain, and their nexus in the world of information.<sup>22</sup> From the lecture to the comic book, the Krulak Center provides a plethora of perspectives to student on OIE.

## Conclusion

If information—the expression of thought, both human and machine—encompasses all the domains of the current and future operating environments, then Marines must be educated in its many aspects and applications. As seen throughout this article, we are seeking to ingrain such education—along with innovative and unconventional approaches to conveying it—into all PME curricula and enhancement opportunities at MCU. Marines leaving these schools must leave armed with the awareness of the absolute imperative to gain and maintain a competitive advantage in the information space—and the knowledge to do so. Inside or outside the weapons-engagement-zone, the “highly educated force” must understand that in a realm that is global, instant, persistent, and all-inclusive, OIE is not episodic—it does not start or stop in neat phases. It endures, so our Marines are taught that OIE encompasses and endures, from competition to conflict and the gray zones in between.

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# Inside the WEZ, 2026

Some history from the future

by Donald M. Bishop

**M**arine Corps Deployed Historical Team F  
**Transcript of Interview**  
Date: 15 June 2026

Interviewer: 1stLt Simmons L.A. Marshall, USMCR

Interviewee: GySgt Alejandro “Zorro” Hernandez, USMC

Location: U.S. Naval Hospital, Guam

[Beginning of Audio file 1]

**Q:** GySgt Hernandez, I am one of the field historians looking at the recent operations inside the first island chain. There is a crowd of historians at Quantico looking at all the messages from III MEF, Seventh Fleet, MARFORPAC, INDOPACOM, the Pentagon, and the White House. And to piece together what the other side was doing, they have thousands of intercepts to translate and read. But what we really need to learn is what was going on with Marines inside the WEZ (Weapons Engagement Zone). At the headquarters, they were thinking and planning; you Marines were the ones who would have to fight.

**HERNANDEZ:** You got that right, lieutenant!

**Q:** So, you and your detachment were in Okinawa when Chinese Marines took that Philippine ship that had been grounded on the shoal in the Spratlys—the one with Philippine Marines aboard to enforce their sovereign maritime claim—as well as the next day when the USS *George C. Foulk* was surrounded and rammed by vessels of China’s “maritime militia” as it moved through the South China Sea. Some of the Foulk’s Sailors were casualties.

Were those incidents just a few more salami slices or were they opening

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moves in a larger plan? While Washington was debating how to respond, and our diplomats got no sleep getting our allies, partners, and some reluctant nations to clear their decks, the admiral at INDOPACOM and LtGen Hahne at III MEF did not wait. Fearing that the purpose of these incidents was either to discourage us from countering a People’s Republic of China move against Taiwan

***The littoral regiment’s units should move to their pre-planned fighting locations along the first island chain ...***

or a showdown for control of the South China Sea, he ordered that all his Marine units disperse from the vulnerable big bases in Okinawa and Japan. The littoral regiment’s units should move to their pre-planned fighting locations along the first island chain to stand inside China’s WEZ. And your detachment went to ...

**HERNANDEZ:** I never did learn the real name of that island. Actually, it had several different names in different languages. I guess the person who wrote the plan decided to give the islands “American” names. In our outfit, different detachments went to “Kodiak,” “Manhattan,” “Nantucket,” “Largo,” and “Catalina.” So yes, your map is right; we were on “Catalina.” You can

see it is well positioned to block the strait and cramp any adversary moves through that part of the littorals. At least that is what I understood.

**Q:** Had you been there before?

**HERNANDEZ:** We had twice deployed the detachment, but both times it was to islands in the Okinawa chain. This was to practice movement and setup under field conditions. We were due for evolutions to the actual islands in the plan, but that had not happened before the balloon went up. I remember Gen Hahne visited us during one of the practice setups near Okinawa, and he said the Marine Corps hoped to be ready for this new kind of fight in 2030. I guess things moved faster than he and the other big shots expected.

**Q:** How long did it take your detachment to get from Okinawa to Catalina?

**HERNANDEZ:** I cannot tell you much about the whole big plan, which had all our detachments moving, some to ships, some to smaller craft, and some to islands and shore points. This push came to shove before we were completely reconfigured and ready to fight inside the WEZ. Our detachment, for instance, had not been married up with the new vessels—so we had to get to our designated location by air.

Things were a little crazy in Okinawa, lieutenant. We knew we were part of a naval campaign—Sailors and Marines together. Our pals, the Sailors, were busy loading weapons and fueling all the new boats, tenders, and underwater vessels—some with crews, some without—and putting them to sea. The Marine and naval aviators were deploying aircraft and many different new-model

unmanned aerial vehicles to ships and forward locations. The logistics Marines had long been working to reinvent their business to make it agile and resilient to support Marines in so many dispersed detachments and aboard so many ships, and Gen Hahne's order was the whistle to get on the field for the big game. Everyone was busy!

Of course, there were not enough transport aircraft—Marine, Navy, Air Force—to execute the whole Expeditionary Advanced Base Operations war plan and to move all the detachments and the gear by air. Fortunately, someone arranged to give our detachment a movement priority. Once we got moving on the third day, things were pretty well executed, I thought. The C-130s got us, the vehicles, our weapons packages, the air defense detachment, and the supply containers to the unimproved air strip on the island—even if the pilots were sweating the landing on the short “runway.” Even one of the new flying boats joined in. Once we landed, we were operational the next day. We were congratulating ourselves on our success, but then the problems began.

**Q:** Problems?

**HERNANDEZ:** Not just the normal goat rope!



**Training, building relationships, and operating “among the people” will be critical to winning inside the WEZ.** (U.S. Navy courtesy photo.)

The captain, the lieutenant, and the first sergeant were focused on the mission: get the comm and the weapons set up, and get ready for any adversary moves—air, sea, submarine, missiles, swarms, a landing, whatever. And they were thinking ahead about how we could make a quick move to another fighting location. What they found was that all those intentions were jacked up by having to deal with the local population.

**Q:** Tell me some more about the island.

**HERNANDEZ:** It was about twelve miles long, southwest to northeast. In the center, facing the mainland, was a small town. The harbor had a few dozen small boats, a jetty, and a slip for ferries. It was about a 90-minute ferry ride from the mainland.

On our first trip into town, I took a good look at the ferries. We might, after all, have to move from the island by ferry if no air or sea lift were available as any fighting unfolded. The ferries reminded me of the landing craft in the World War II movies but a little larger and a lot rustier. That the crews kept the old tubs operating was a small wonder.

We were at the north end of the island where there was enough flat land for the air strip. There were hills and a

few small mountains between us and the town, which was five or six miles away, as well as more hills south of the town. We initially figured that we could “shoot” from the north end and then “scoot” to the south end. There were also a few hidden coves that could provide other locations for us to set up before we would have to go to another island.

A few hundred people lived at the town. Some of them fished, farmed, or ran little restaurants and places for tourists. As for local government, there was an elected island mayor and a village clerk. There were three policemen and someone from the national fisheries authority. We did not know it at first, but the population included some reservists and some veterans. There was a small church, a temple, a mosque, and some local shrines in or near the town. There was no doctor, but the government provided a nurse practitioner in a small clinic.

When the national internet program had been set up, the island was pretty much forgotten. There was spotty cellphone coverage that depended on a single tower sending and receiving signals from the mainland. They had electricity, of course, but the island's electric grid had been planned with the needs of a small and remote rural economy in mind.

Well, you asked about problems.

First, on the map, it looked like we were a good distance from the town, with hills between us and them, but there was actually a gravel track between the town and the air strip. After all, the townspeople visited the airfield whenever an aircraft came in. Also, we did not know that the island was regularly visited by tourists who roamed all over.

Next, because airlift was so scarce, we jury-rigged our own supplemental logistics. Would you believe there was a FedEx pickup at the town across the water on the mainland? We ended up sending stuff on the ferry to the Fedex shop and waiting for the ferry to deliver



shipments to us. No one had anticipated this, so until the contract and finance folks back on Okinawa made arrangements, the captain had to pay the FedEx fees with his own credit card. I am not confident that he has even been paid back yet.

Third, we discovered that almost no one on the island spoke English. None of us spoke the national language, not to mention the island dialect. We had always exercised around Okinawa where you can find locals who speak enough English. Here we were, in another country, out on a far-off island with a few hundred people. We wished they would just stay away, but who knew if we might need their cooperation? Either way, we could hardly communicate. Even the “English teacher” on the island’s school was tongue-tied with spoken English.

**Q:** Had you not been issued one of those handheld translation devices?

**HERNANDEZ:** It might have worked if the local people spoke the standard national language. But they spoke something else. I never want to be dependent on a device for that kind of work again.

Next problem: We assumed the government would send us someone who would, on one hand, interpret and translate—dang, the two are not the same—and also be our liaison with the islanders. Such a person did not arrive for three days after we did, and when he arrived on the ferry in his necktie, he put off the island’s leaders. He was too “capital” and too “office,” and he did not speak the local dialect. He had soft hands, and you could tell that he had not spent much time in the sun. He did not want to eat MREs, for sure, and he expected us to drive him into town for meetings and meals. When he went to the—shall we say downscale—local restaurants, he acted all high and mighty. He was used to giving orders, not persuading.

Problem number five: Before we went, we had not thought about tourists—maybe a hundred each day. They came

on the ferries for excursions to smell the unpolluted sea breezes, I guess, and eat fresh seafood and drink the famous local yellow lightning. The kind that has a snake in the bottle, too. We were surprised to learn that some of those tourists came from other countries. Those of us who had been on Okinawa for a while knew Japanese when we heard it. LCpl Nguyen grew up in the United States, and she did not speak Vietnamese, but she could hear Vietnamese being spoken among the tourists. The same for Cpl Huang—he recognized individuals were speaking Chinese, even if he did not know what they were saying. In any case, these tourists enjoyed hiking all around the island, sometimes along the shore, sometimes in the hills. Some came to the end of the island to gawk at us. We began to worry about spies among the tourists.

And who knew? There were two part-time reporters on the island: one from a national daily in the capital and another from the province newspaper. They knew how to report by video, too. In the glamorous national media, these two were at the very bottom of the greasy pole. For years, they had sent humdrum local stories to their mainland editors—the fish catch, school graduations, local elections, blessings of the fishing boats by the monks, or an occasional visit by a movie star or famous soccer player. With the arrival of Marines at a time of international tension and crisis, they were now on scene to report a big story.

The local journalists were troublesome enough, but soon every ferry brought Japanese and Korean television crews. They are very aggressive. They also hired local aircraft to fly over our position, so they could send back visuals.

Sixth, we did not know that the islanders heavily supported the opposition party at each election. They could get pretty heated about it—like in Okinawa. And who knew that even a small place like Catalina had in its population dissidents, touchy environmentalists, and antiwar activists.

Our unexpected arrival caught the islanders by surprise. The mayor seemed unaware that his island was to have a role in regional defense against a great power. We guessed the central government may never have told him because they did not want to face adverse local reactions.

**Q:** Remember that their national government had long been trying to avoid “taking sides,” and they had resisted any planning for operations along the island chain. They were late to see the need to join the regional effort and to give permission for detachments to set up in their territory. When in the capital, they tried for so long to wish away the threat; it is no surprise that local leaders were not in the loop.

**HERNANDEZ:** It was only the third day after we arrived that one of our vehicles swiped the wall of a small store located on a sharp corner in the town. In Okinawa, everyone relied on the MEF to handle such local problems, expressing sympathy and making an initial recovery payment. A claim would follow. But we did not have any civil affairs Marines who knew how to handle such an incident, and soon the irate shop owner was joined by some friends at the entrance to our little camp at the air strip, demanding restitution for damages. They made quite a scene, all of it recorded by the two reporters. Capt Perkins did his best to calm them down, but he was baffled by this unexpected flareup with local people, and he was unclear how the faraway MEF might help out. Then, the two reporters turned on their cameras and put microphones in his face. He looked like a deer in the headlights.

The island’s member of the National Assembly lived on the mainland and only visited the island during election campaigns, but seeing the sensationalized news reports—and maybe some social media posts planted by a nation that does not wish us well—prompted him to make a trip. As a member of the opposition party, he told the islanders that any supposed threat was overblown. He got wound up and said the Marines

were the real threat, and the real danger was that innocent island residents would soon be the target of attacks.

So, many locals got riled up, encouraged by a few radicals who came over from the mainland. We had people with peace placards at the air strip. That was what we could see.

What we did not see was that a small team broke through the chain link fence around the island's small power station at night, entered, and shut down the island's electricity. Whether they were local radicals or infiltrated "tourists," we did not know. Maybe they thought cutting the island's power would leave our detachment without. We had our own power, though, so our readiness was not directly affected. But without power, the townspeople began to panic, and they didn't blame the radicals, the "tourists," the country that deployed the "tourists," or the country that seized that Philippine ship—but us.

**Q:** When did the action begin?

**HERNANDEZ:** It was clear to us all that we deployed as a deterrent only, that none of us would fire the first shot. It was the morning after the power cut-off that we learned of ship movements. Breaking into the open water beyond the first island chain seemed their most likely intent. They must have known Marines would be in their way, but maybe they did not know how quickly and thickly dispersed our detachments would be.

Lieutenant, I do not know any of the big picture or what your historians are learning, but from Catalina, we did a pretty good job. A missile came over the horizon, but Sgt Washington blasted out some of that directed energy, and it came down. The missile did not get to wherever its target was, but it fell on the town. A few buildings were demolished, but thankfully none of the townspeople were hurt.

When an adversary frigate locked on us, we unlocked their lock and let them know our rockets were ready. It

changed course. Our weapons provided the cover for one of our littoral ships while it moved to a more advantageous position to bring to bear its weapons. I never learned where the UAV swarm came from, but we killed most over the water. But we could not get them all, and three put some of our weapons and sensors out of action. That was when the "tourists" fired RPGs down on us from the mountain slope. There were wounded.

**Q:** You included, I see.

**HERNANDEZ:** Yes, my bad luck. Doc knew there was not going to be a chopper to get me to a hospital within any "golden hour," so soon after we landed he had been sure to take a look at that island clinic. After the RPG attack, it was he who piled me in a vehicle and drove hellbent to that clinic at high speed. He and the nurse practitioner pulled me through. I hope he gets a medal.

After the missile fell on the town, those three local policemen and the dozen and a half local reservists got mad and organized. They knew every crick and holler on the island, and they terminated the "tourist" threat. All's well that ends well, but I wish we had been to the island before and worked out things like perimeter security with the local authorities ahead of time.

I guess you know the rest of the story.

**Q:** Yes, the Marine detachments on the islands were the stationary aircraft carriers, and the ships of the fleet were mobile bases in the naval campaign. So thick was the web of ISR, sensors and signals, and overlapping fields of fire by many different weapons, those "adversary" vessels withdrew, not without some damage. We historians are going to have plenty to keep us busy: the role of submarines and mines, how we and they used swarming, how all the different new naval platforms worked, how information operations made a difference, and how dispersed units were supported.

I will come back for a second session tomorrow to go over how the comm, system, and weapons worked. As for what we covered today, do you have any special points to make, your own personal "lessons learned"?

**HERNANDEZ:** Dang, lieutenant! Where to start? You must have interpreters, and I do not mean a pick-up team! If we are going to fight from islands or onshore again, we need a lot more information on the place—not just terrain but social and cultural knowledge. Our planning needs to think through how the national government and local communities will support us. Maybe they need to provide more local police, for instance. They need to know we are coming and on their side! We needed someone from civil affairs in our detachment to handle relations with the locals.

Finally, our officers needed to have gone through some kind of media training. Some short course and practice interviews, maybe? No one from Fox or MSNBC came to Catalina, but all the local, Japanese, and Korean media that descended on the island were just as troublesome! I do not remember any of these things being included in our simulation exercises and our practice deployments. They ought to be!

**Q:** What do the docs say about your recovery?

**HERNANDEZ:** Maybe I will be out on crutches next week. The colonel says I might be able to join him when he visits Catalina to show our appreciation to the islanders. Maybe I can take a few days of my convalescent leave there. The nurse practitioner and I have become social media friends, and I am looking forward to thanking her in person.

[End of Audio File 1]



# The Many Roles and Phases of Innovation

More than a new idea

by Donald M. Bishop & Brandon Valeriano

**W**hen theorizing about innovation and creativity, it is common to think first of a few exemplars: men and women like Thomas Edison, Steve Jobs, Marie Curie, George Washington Carver, Norman Borlaug, Ross Perot, Grace Hopper, Thomas Watson, or Bill Gates. The Marine Corps has exemplars of its own; Victor “Brute” Krulak and Earl “Pete” Ellis are the most noted. Yet, exemplars are just the tip of the spear of innovation.

Looking at even this short list reveals that there is more to innovation than a new idea, a light bulb in the mind, a vision, or an invention. Individuals who also proved themselves to be strong organizers, natural planners, and vigorous entrepreneurs were those that built strong organizations capable of producing real innovation over a long duration.<sup>1</sup>

Compare the success of Mark Zuckerberg, for instance, with the failure of other innovators. It was Edmund Drake who drilled the first oil well in Titusville, PA, in 1859, but he died in poverty while others became rich. Drake, unlike John D. Rockefeller, lacked the business acumen to form and lead the corporations that enriched Rockefeller and his principal division chiefs, which gave livelihoods to thousands of employees and enabled a widespread rise in the American standard of living when Standard Oil steadily reduced the price of petroleum products like kerosene and gasoline.<sup>2</sup>

There are negative examples from military history, too. LtCol Ellis is today honored as a prophet of amphibious warfare, but he died in Palau in 1923, likely of alcoholism and depression.<sup>3</sup>

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**BG Billy Mitchell's vision on an Air Force would not be realized during his career.**  
(Photo by National Museum of the Air Force.)

It was others who shaped the Marine Corps for its role in the Pacific War two decades later. In the Army Air Corps, BG Billy Mitchell expounded his concepts of air power too aggressively; after his court-martial, it was others, his acolytes, who finally created the independent Air Force that Mitchell had envisioned.<sup>4</sup>

It is true that luck and timing can have as much impact on innovation as the actual idea. Innovations in frequency hopping and spread-spectrum technol-

ogy were conceived by the Hollywood actress Hedy Lamarr, who worked as a mathematician and engineer during World War II. Her intended wartime application was to encrypt torpedo control signals, but they were ignored at the time.<sup>5</sup> It was decades later that others used the technology for GPS, Bluetooth, and Wi-Fi, which all became central to the third offset strategy of the U.S. military.<sup>6</sup>

## Many roles in innovation

Visiting the Wharton School at the University of Pennsylvania for a conference on leadership, we noticed prominent banners that listed twelve different roles or functions of innovation: trailblazer, visionary, trendsetter, early adopter, change maker, achiever, expert, inventor, legend, influencer, connector, and philanthropist.<sup>7</sup> The list can help enlarge our thinking about innovation. It gives testimony that innovation moves in phases, in waves, and it gives us a better sense of the variety of roles that can spark and drive innovation.

*Inventor, achiever, expert, visionary, legend.* These are people who innovate and originate. Drawing on military and naval examples, we can see John Browning, Werner von Braun, John Holland, Howard Hughes, Hyman Rickover, and Igor Sikorski in these roles. These men were innovators of weapons and weapons systems, but there can be other kinds of innovation too. The concentra-



tion of Marine Corps schools at Quantico by MGen John Lejeune soon after the end of World War I is now recognized as an important organizational innovation that developed new tactical concepts and educated a new generation of Marine leaders for World War II.<sup>8</sup>

*Trailblazer, early adopter, trendsetter, change maker.* These are people who implement innovations. Two of Billy Mitchell's acolytes, Carl Spaatz and Ira Eaker, pioneered aerial refueling in a 150-hour flight in 1929, just one part of Air Power's future.<sup>9</sup> They went on to high command in World War II, reporting to Hap Arnold—another Mitchell disciple.

In the early twentieth century, the new radio technology found many applications, and across America many young people toyed with crystal sets, but it was Robert Sarnoff who combined the technology of radio with the commerce of advertising to form RCA and the first nationwide radio networks, opening the "radio age" in the 1920s.<sup>10</sup> In the 1930s, when the cowboy, Hollywood star, and humorist Will Rogers joined aviator Wiley Post on his long distance flights, he popularized the progress of aviation. Marine Corps LtCol Victor Krulak did not invent the helicopter, but he foresaw how it might work a revolution in tactics.<sup>11</sup> He encouraged experimentation at Quantico and other Marine Corps installations, drawing the attention of many more to the new rotary-wing technology.

*Influencer, connector, philanthropist.* These individuals widen the reach of innovation. Although Alexander de Seversky was himself an innovator in military aircraft design, his 1942 book, *Victory through Air Power*,<sup>12</sup> inspired a wartime Walt Disney film that integrated animation to communicate air power doctrine to millions of Americans.<sup>13</sup>

Sometimes sparks fly when two different innovators meet. The course of World War II was shaped when the innovator of small, shallow draft boats, Andrew Higgins, met the Marine officer, Victor Krulak, who saw the value of the bow ramp. The result of their collaboration was the Higgins boat.<sup>14</sup>

Closer to home, the California philanthropist Donald L. Bren, a Marine

Corps veteran, has energized innovation at Marine Corps University by funding Marine Corps University Foundation chairs in Military Innovation, Cyber Conflict and Security, Great Power Competition, Strategic Communications, Russian Military and Political Strategy, and Non-Western Strategic Thought. These chairs are now housed in The Krulak Center at Marine Corps University, the innovation think tank of the Marine Corps.<sup>15</sup>

To this list, we can add a few specialized functions that most fail to recognize as critical to innovation. One is evaluators: those who do the operational research that can assess the impact of innovations. These quantitative scien-

enlisting large teams of people who join them to push inventions forward. Facebook was driven by Mark Zuckerberg, but the more interesting story is the team he developed that put the idea in motion—along with the cascade of new firms, software, and applications his company's success inspired.<sup>17</sup>

Yes, these teams may be working to advance a central visionary innovation, set in motion by an Edison, Gates, or Krulak. A cascade of innovations—new inventions, organizations, and structures—follow. Many of these innovations are themselves pioneering.

Looking at Air Force history, the air power vision set in motion advances in engines, airframes, wing slats, con-

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***Bill Gates and Mark Zuckerberg had some big ideas, but even they may have been surprised by the unexpected direction that their innovations took.***

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tists and mathematicians produce the metrics and measurements that provide the proofs that innovative ideas work. They can also flag shortcomings and failures.<sup>16</sup>

Another missing function is the communicators. From unit public affairs officers; to military magazine and journal editors; to biographers of such innovators as Curtis LeMay, John Boyd, and Edward Lansdale; and to communication giants like Henry Luce of Time-Life (who did so much to promote space flight), all develop public support for innovation. Individuals—whatever their background, educations, and talents—can join and advance innovation.

### **Teams**

If the Wharton School's list has shortcomings, the first is that it is still too personalized, elevating the role of a few "heroic" individuals. It mutes the contribution of teams: innovation units, testing teams, engineering and manufacturing groups, sales and marketing teams, maintenance depots, distribution networks, or legal units.

An innovator's insights will not go very far in generating change without

trols, instruments, navigation, navigation aids, bombsights, fuels, guns and gunsights, ground control, radar, statistical control, weather forecasting, flight safety, and hundreds of smaller innovations.<sup>18</sup> One airframe may embody thousands of different patents. Hundreds of new procedures and skills were hammered out by assembly line innovators. This means that every maintenance lance corporal on the flight line is part of a larger web of innovation.

Bill Gates and Mark Zuckerberg had some big ideas, but even they may have been surprised by the unexpected direction that their innovations took. Many Silicon Valley firms were launched to meet a specific IT need, such as video sharing. Along the way, entrepreneurs and their teams struck out in new directions, founding such companies as YouTube, TikTok, and Netflix.

A second shortcoming of the list is that its focus on individuals perhaps shorts the importance of the larger environment of enterprise and profit in democratic, contract-based societies.<sup>19</sup> Abraham Lincoln, as far back as 1859, hailed how the patent system "added the fuel of *interest* to the *fire* of genius."<sup>20</sup>

By interest, he meant profit. The history of military innovation is a history of partnership between the armed Services on one hand and corporations and contractors on the other. It was the *Vought* F4U Corsair that kept back the Chinese at the Chosin Reservoir and the *Bell Boeing* V-22 that now carries Marines into combat. When the threat of IED's made evident the need for Mine-Resistant Ambush Protected vehicles in Iraq and Afghanistan, it was a dozen corporations that designed vehicles and competed for the contracts.<sup>21</sup>

The prospect of profit leads corporations to find, hire, and develop creative people; partner them with employees who are experienced veterans; innovate; and compete to produce the best product. The potential for profit also leads venture capitalists to fund innovations.

## Every Marine an innovator

The Marine Corps must move beyond the skewed historical view of innovation that gives credit to a few individuals and lean into the idea that innovation is collaborative, and it requires evaluation and communication. Facing future challenges, for instance, a spirit of “every Marine an innovator” could help the Corps focus on how it needs the contributions of all to grow stronger.<sup>22</sup>

The *Marine Corps Gazette*, the *U.S. Naval Institute Proceedings*, and *Joint Force Quarterly* are performing their valuable functions as forums for new and innovative ideas as they discuss and debate expeditionary advanced base operations (EABO), so are the cutting edge websites like *War on the Rocks*, *The Strategy Bridge*, and *The Landing*.

The vision of the *38th Commandant's Planning Guidance*—especially its focus on EABO inside the weapons engagement zone—is creative and innovative.<sup>23</sup> So is the guidance provided by *Force Design 2030*, which calls for “an ambitious force wide transformation.”<sup>24</sup> It also provides an example of how successful innovation cascades down. Think of the many kinds of follow-on implementation these documents require. The Commandant challenges Marines across the Corps—in every specialty, every theater of operations,



**The Navy and Marine Corps have experimented with HIMARS, re-purposed to contest sea denial. (Photo by Petty Officer 2nd Class Matthew Dickinson.)**

and both up and down the chain of command—to innovate.

Among dozens of examples, the Navy and Marine Corps are considering the design, acquisition, and deployment of new vessels.<sup>25</sup> Repurposing weapons like HIMARS for anti-sea denial is another form of innovation.<sup>26</sup> A new generation of seaplanes may play a role.<sup>27</sup> So might airships.<sup>28</sup> The traditional platforms that transport MEUs may be too vulnerable to deploy inside or near the first island chain, so the Navy and the Marine Corps must be creative to find new ways to move through contested waters.<sup>29</sup> The need to seize small islands without a traditional amphibious landing offers yet another example of the need for new and innovative operational concepts.<sup>30</sup>

There are many other areas the CPB leads to demands for new innovations. EABO will not allow the luxury of “a golden hour” to evacuate casualties; the Navy medical corps must reconfigure itself for “mobile, farther-forward surgery.”<sup>31</sup> The need to provide assured communications is shooting adrenaline into communications Marines.<sup>32</sup> Supplying many different small detachments operating inside the WEZ calls for new logistic delivery methods including UAVs.<sup>33</sup> Relationships with allies and partners will be as critical

as before, but bilateral relationships will take a new shape—relying less on big bases.<sup>34</sup> The entire EABO concept requires a revision in thinking about naval campaigns,<sup>35</sup> and evolving Marine Corps cooperation with the Navy and the Coast Guard will shake up old habits.<sup>36</sup> On the horizon must be new innovations about integrating operations in the information environment and civil affairs into campaigns.<sup>37</sup> All these changes, moreover, require advances in training and education.<sup>38</sup>

New-generation “Krulaks” will always be helpful, but working through all the coming challenges driven by an innovative concept will owe as much to doers as to thinkers; to seasoned Gunnery Sergeants and young riflemen; to old salts and young sailors; to those on the flight line and in the operations centers as well as those in the air; skippers and crews of little ships as well as deep draft combatants; and Marine Raider team NCO's as well as MEU commanders. Sparks of innovation can animate the Marine Corps when all understand there is a multitude of roles that one can play. Necessity may be the mother of invention, and a few gifted thinkers may conceive large innovations, but it is organizations, processes, and teams that produce outcomes that change the world.



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# Innovation and the Proper Context of Cyber Operations

The path to avoid cyber war

by Brandon Valeriano & Benjamin Jensen

**M**isunderstanding Innovation and the Future Battlefield

Most stories of innovation and invention for the military are filled with messianic projections about the evolving future of warfare. The slap of reality destroys these projections with the dirigible and drone as twin examples of the failure of new innovations to alter how coercion occurs on the battlefield. Instead these options are/were better served for reconnaissance and espionage than war. The dreams of the future provided few hints for what was to come.

The idea of a coming Cyber Pearl Harbor is more than just a warning, it has become trope built on an intellectual fallacy.<sup>1</sup> The Cyberspace Solarium Commission (which we served on) understood that many of its critical recommendations on cyber security reform would only be implemented after a cyber disaster, a break glass in case of emergency scenario that would change everything.<sup>2</sup>

The grand cyber wars everyone fears never materialize because the military, strategic, and policy community fail to understand the utility of cyber weapons. In this article, we will examine the utility of cyber operations in the context of crisis bargaining and warfare outlining the limited coercive potential of cyber weapons. Instead, cyber operations can provide pathways to de-escalate conflicts minimizing the possibility of war.

## Cyber Doom

The United States acquired cyber

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**Why have we not experienced the “Cyber Armageddon” envisioned and predicted since the early 1980s? (Photo by SSgt Jacob Osborne.)**

technology quite some time ago. Reaching popular consciousness with the 1982 movie *Wargames*, Ronald Reagan began outlining the origins of a cyber strategy.<sup>3</sup> The dangers of cyber catastrophe were illustrated quite vividly with the fear associated with Y2K at the turn of the millennium.<sup>4</sup> Fast forward through the War on Terror, and we are back

where we began, waiting for Cyber Armageddon to unleash doom on the international system.

Why have we failed to witness cyber doom?<sup>5</sup> Rather than being used as a tool to disseminate the opposition, cyber capabilities instead do more mundane things like leveraging left of launch operations in the hopes of disrupting the

math of our adversaries.<sup>6</sup> Some have begun to argue that cyber operations just represent an intelligence contest or operate mainly in the domain of espionage.<sup>7</sup>

The reality of cyber operations is much different than the prognosticators of the new might lead one to believe. The mythical cyber war everyone fears will never come to fruition because analysts have continually misunderstood the nature of innovation and fail to apply critical analysis required to evaluate perceived offset technologies. Cyber operations act as substitutes or complements for other options in the foreign policy toolkit.<sup>8</sup> When substituted for military operations, cyber options can provide pathways to peace and enable de-escalation of an emerging crisis.

#### The Failure of the Offense in Cyber Security

The real world comes for us all at some point, and it must come for the strategic community as it confronts the reality and purpose of cyber operations.<sup>9</sup> We are not “under siege” on all sides in cyber security.<sup>10</sup> Cyber operations instead flow with the course of international politics, ebbing and rising with the strategic currents of the international system.<sup>11</sup> Discard an agreement with an adversary and that same adversary will respond with increased cyber actions. End negotiations on trade and the target responds by increasing their attacks globally to demonstrate strategic will and credibility. It is not complicated.

Cyber operations are not tools of coercion or power projection, rather cyber operations are forms of deception and espionage that seek to attack information, command and control, and manipulate perceptions.<sup>12</sup> To understand the nature of cyber conflict, we have to understand the purpose of cyber operations. If cyber options are useless in changing the behavior of an adversary, then they are not especially useful as tools of coercion central to the conduct of warfare.

Too often we conceive of strategy as a means to an end without considering how that end is achieved. If cyber operations are the means, what are the

ends? What is the goal exactly? It is not clear what the goal is with the vision of persistent engagement; there is no end state identified by the strategy.<sup>13</sup> This is likely because cyber operations have a limited ability to impact the outcome of battles. Cyber options can change things around the edges, help shape a battle, deceive decision makers, but rarely will these sort of modern forms of political warfare be decisive for victory.

Cyber operations fail to trigger escalation dynamics, and instead offer a pathway away from war during crisis interactions.<sup>14</sup> Escalation is simply an

offensive operations and focuses more on the ability of cyber options to enable defensive bulwarks and to manipulate information asymmetries between disputing powers.<sup>22</sup> By making it near impossible to attack, the aggressor is forced to resort to other traditional options to destabilize the target.<sup>23</sup>

Enabling defense by denial is but one of the few strategic advances on offer from cyber tools. Rather than expanding attack surfaces, cyber options instead can make it more likely that an attack will never happen in the first place if the target is hardened. Chris

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***Too often we conceive of strategy as a means to an end without considering how that end is achieved. If cyber operations are the means, what are the ends?***

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increase of intensity or the tempo of a conflict suggesting rising hostility over time.<sup>15</sup> Generally, cyber operations do not even provoke responses, let alone escalatory responses in or out of domain limiting the potential for escalation.<sup>16</sup>

Overall, there is a limited utility of offensive cyber operations in the cyber domain.<sup>17</sup> Cyber options failed to make much of a dent on the operations of terrorists because actors like ISIS do not depend on digital methods of communication or power projection.<sup>18</sup> A nibble and low-tech adversary is not a suitable test case for cyber operations.

What has been cited as the great testing ground for cyber operations in modern warfare, the ongoing conflict between Ukraine and Russia has rather resulted in stalemate.<sup>19</sup> Instead, Russia attacks power plants for a few hours or devastates the tax software of Ukraine causing global confusion but not advancing an inch on the battlefield.<sup>20</sup> There is no great strategic advance enabled by cyber operations in an active combat zone.<sup>21</sup>

#### Cyber for the Defense

The real innovation in cyber strategy will come when the community moves away from grand projections of cyber

Krebs, former head of the Cyberspace and Infrastructure Security Agency, noted that the core strategy of protecting the United States during the election of 2020 was not hunt forward operations but deterrence by denial.<sup>24</sup>

Even in discussing recent US-CYBERCOM hunt forward operations in Estonia during the 2020 election, the main point seems to be to discover and splash out Russian malware tools into the public domain to prevent these options from being used on the attack.<sup>25</sup> Signaling knowledge of the opposition actors capability sometimes is enough to prevent further violation. Cyber operations paradoxically provide for methods of de-escalation in an ongoing conflict.

#### Cyber Operations as Off-Ramps from War

Cyber operations are not prone to escalation, in fact, cyber operations are likely off-ramps from the road to war.<sup>26</sup> The role of cyber operations during a crises or conflict event is either as a substitute for more traditional options that might be escalatory, such strategic bombing, or as a complement to ongoing operations, like ammunition or fuel. Cyber options either add or subtract,



they do not multiply or divide, a perspective that has enormous ramifications for cyber strategy moving forward.

Cyber operations expand the range of strategic options, moving beyond the typical construction of DiME: diplomatic, information, military, and economic. The manipulation of digital signals makes the information component of strategy more meaningful through added options, but it does not fundamentally revolutionize the nature or character of war. The effects tend to be fleeting or limited due to the ambiguous nature of covert operations, which include cyber and information operations.<sup>27</sup> As weak signals that can be denied, cyber operations preserve flexibility in a crisis situation demonstrating resolve in the face of opposition.

When challenged by a provocative move by the opposition, the defender has many options to respond. If the desire is escalation to maintain dominance against the opposition, a military option is obviously the choice. But this assumes a desire for war that few would ascribe to, given the complexities and dangers of modern battle. If the choice is to respond and demonstrate capability in the face of opposition so the adversary backs down, diplomatic, or economic options are limited and demonstrate a weak commitment. Military options are too escalatory, but information options are just right in the Goldilocks sense. By signaling to the opposition commitment and limiting their ability to respond with further military measures, a limited amount of force can be applied to shape the conflict away from escalation.

We discovered this unexpected pattern during a series wargame experiments while doing research for our next book. With a sample of 400 individual wargame decisions bolstered by an experimental treatment of 3,000 international respondents to an experimental survey battery, we have been able to demonstrate the stabilizing influence of cyber operations.<sup>28</sup> We knew that cyber operations were unlikely to be escalatory based on past research but were unsure just how this process occurred.<sup>29</sup>

In a scenario where there was a high likelihood of escalation (long-term rival-

ry over territorial claims), respondents who leveraged cyber options intended to respond proportionally and manage escalation because they did not see the initial violations as worthy of escalation towards war.<sup>30</sup> Respondents tended to use information warfare options, including cyber options, more often than military options to respond to an initial cyber operation because the violation was not serious enough to necessitate a conventional response.

A simple demonstration of our theory comes from an examination of the U.S.-Iranian Summer Crisis of 2019. A long simmering rivalry in the region seemed to escalate after the United States pulled out of the Joint Comprehensive Plan of Action in 2018. Concern about Iran's use of proxy forces in the region, particularly Yemen, and fears of a nuclear weapons program animated the animosity directed at Iran. Attacks on shipping in the region led to the deployment thousands of troops the region including an aircraft carrier.

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### ***Cyberspace is likely not a domain of coercion and warfare.***

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On 20 June 2019, Iran shot down a U.S. R1-4 Global Hawk UAV.<sup>31</sup> President Trump first ordered a military strike that was called off due to either the threat of collateral damage or the fear of escalation to war, or both.<sup>32</sup> Instead of escalating, the United States responded proportionately by using cyber tools to disable Iran's ability to track ships in the region.<sup>33</sup> Another operation hacked Iran's missile defense systems making it vulnerable to an attack.<sup>34</sup>

The cyber operations signaled risk to the Iranians and preserve further options for the United States if the situation escalated. Instead, the conflict de-escalated over the summer until on 27 December 2019 when a rocket attack on a U.S. base in Iraq killed a contractor.<sup>35</sup> On 3 January, Gen Solemani was assassinated, which then led to Iran launching a conventional missile strike on U.S.

facilities—injuring many. While there was limited escalation in the Winter of 2019, the Summer crises of 2019 was distinctly different and separated by over six months, suggesting the Winter crisis was an entirely new phase of the conflict.

During the summer crisis, cyber options substituted for military options allowing both sides for space to maneuver away from outright war. When challenged with a continuing series of provocations in the region, the United States responded with cyber actions that limited the conflict and served as pathways toward de-escalation.

Evidence seems clear that cyber actions can dampen a crisis, helping states locked in competition avoid dangerous conflict spirals. Others are discovering similar patterns, noting that there is a decreased demand for retaliation in response to a cyber operation.<sup>36</sup> Mutual vulnerability can promote mutual stability over time as operations in the gray zone can convey information and signal intent to the opposition, lessening the fog of war. Cyber options can create new risk profiles, but they can also mitigate risk by demonstrating resolve pushing the other side to either de-escalate or respond with proportional moves that do not escalate the competition.

### **The Impact on the Marine Corps and USCYBERCOM**

What exactly all this means for the Marine Corps and the DOD is an open question. Cyberspace is likely not a domain of coercion and warfare. Instead the domain is developing up much differently than the futures community thought. It is likely that the competition space will be dictated more by the dynamics of political warfare than outright warfare, moving around the edges of conflict manipulating information asymmetries.<sup>37</sup>

Marine capabilities in cyberspace need to be enhanced and developed through MARFORCYBER, but we also need to shift position. Instead of a domain that “is under siege,” we must recognize that ongoing fires contain communications and information about adversary intentions. Understood as such, cyber becomes a domain of information management helping signal

expectations and shaping the future of the battlefield.

Properly understood as an adjunct capability that can substitute for more escalatory options, cyber operations have a clear role to play in modern conflict. Maintaining and enhancing capability is critical because falling behind to a more advanced technological adversary promotes weakness and overreaction to unknown threats. Losing a digital edge can lead to a state acting like a cornered animal with few strategic options.

The force needs to enhance its cyber capabilities to remain relevant and complement convention operations. More importantly, a modern military force needs to maintain cyber capabilities to deny digital attack paths to the adversary. The disasters envisioned through the loss of command and control due to digital intervention will be a consequence of inadequate defense, not the ingenuity of the attacker. Cyber operations provide a method of defensive control over lines of communication and method of

modern reconnaissance that can be used to understand adversary intentions.

### Technology and Innovation

There is a difference between a technology being innovative for society and a technology becoming a transformative for military conflict. Digital communication and the internet surely are transforming society, reshaping how we connect, work, and view the world. Yet, just how important has cyber technologies been for transforming war? There is little evidence much has changed at all so far, 30–40 years into the use of the technology. Even if we consider cyber immature and start our new era in 2001 or 2010, there is little evidence in a change in the methods of coercion enabled through cyber pathways.

The joy in innovation often comes through the unexpected developments. We all can envision a fantasy world where cyber technologies reshape conflict, this is typical in our popular fiction from *Battlestar Galactica* (2004) to even

the *Fast and the Furious* (2001–) series. But actualizing these transformations on the battlefield is difficult when the innovation of cyber technologies is broken down to its bare bones.

We must ask how the means can achieve an end, answering this question through the framework of cyber operations leads to intellectual dead-ends. Properly understood, the innovation of cyber operations is to limit and forestall escalation leading to stability. Not at all what we expected when we started this research and likely not the final word on the subject.

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We want to thank you for your commitment to our Marines.



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# Drone Wars

sUAS interoperability: past, present, and future

by Capt Erick Capulong

Within the past year, the Marine Corps has experienced drastic changes regarding force design. Some of these changes lend credence toward fundamental ideas, such as operating within the WEZ, using low signature and affordable platforms, and conducting distributed operations with focus towards independent small unit operations. Already, the Marine Corps has invested in proven systems that exercise these key fundamentals, to include the XRQ-13 Skyranger and the RQ-20B Puma. Low cost and easily deployable, these systems can be utilized to drastically improve a small team's capability in the "recon/counter-recon contest." Not to mention, the payload capability on these systems have high fidelity in examining targets on both the electro-optical and infrared spectrum. Employing small unmanned aircraft systems (sUAS) will enable units to exercise these fundamentals at the lowest levels. However, merging sUAS into the future tactical construct will require a level of aptitude akin to a Marine employing his rifle or executing a call for fire. Unfortunately, the fleet's programs are inadequate as current training and program management does not prepare an individual to employ sUAS as it was intended. The Marine Corps needs to change in this respect because a sUAS-proficient small unit team can quickly deploy their assets, conduct reconnaissance tasking, and collect targeting data which would enable the employment of long-range precision fires in the battlespace as well as system interoperability.

Currently, large UAS such as a MQ-9 or MQ-1 in the Fleet Marine Force is a high-demand, low-density asset. While extremely capable and reliable system, UAS rarely gets allocated below the bat-

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**The RQ-7B Shadow can be employed to augment a Division's ISR collection plan. (Photo by LCpl Jesse Carter-Powell.)**

talion level. Recent large-scale exercises have shown that high-end collections assets, such as UAS, will always go to the highest bidder. During MAGTF Warfare Exercise 1-20, 2d MarDiv held a force-on-force exercise that included two regiments and six battalions with attachments that augmented the major subordinate elements.<sup>1</sup> In addition, two MQ-9 Reapers, one MQ-1C Grey Eagle, and four RQ-7B Shadows were assigned to bolster the division's collection plan. These assets enhanced the collections plan at both the division and regimental levels but were only assigned

to battalions on a case-by-case basis. For the battalions, accessibility to these assets was sporadic, and support was only given to those with operational necessity. This anecdote highlights the status quo of collections in the Marine Corps. Thus, battalions cannot rely on external collections assets but must instead leverage those organic to their units. As the Marine Corps continues through its force redesign, operating in numerous but small littoral strike teams,<sup>2</sup> the need to streamline information across disaggregated units will be more prevalent. To remain rel-

evant, battalions will look to leverage equipment that provide faster and agile means of collection. This is where sUAS will find its niche and bolster a battalion's collection network as the RQ-7 did for a regiment or a MQ-9 for a division.

To illustrate how this capability could fit within a battalion's construct, envision a scenario involving a highly mobilized, combined anti-armor team (CAAT) equipped with a RQ-20B Puma and a well-trained sUAS operator. This team has an objective approximately ten km away, separated by dense micro-terrain that would take hours to navigate. With the ability to

through the community as a whole. This highlights an organizational issue within the community. As Force Design continues on its trajectory, sUAS capabilities, integration, and innovation will remain uncoordinated and incomplete unless substantial changes occur in how future sUAS operators are trained. This requires a personal investment and ownership from the units themselves and how they see their integration with current technology in the future fight.

Small UAS integration began when the Marine Corps proliferated sUAS during Operation IRAQI FREEDOM and Operation ENDURING FREE-

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### ***... sUAS integration began when the Marine Corps proliferated sUAS during Operation IRAQI FREEDOM and Operation ENDURING FREEDOM.***

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fly to a max distance of twenty km, the CAAT's Puma launches within minutes in order to identify named areas of interest and reconnoiter avenues of approach. The Puma's ability to fly long distances gives the CAAT considerable standoff without compromising its position. Simultaneously, the CAAT can collect targeting information with high fidelity. Furthermore, if the company or battalion's command and control (C2) node has a working Network-On-The-Move Point of Presence vehicle, the C2 node would be able to receive the Puma's video feed through the vehicle's VideoScout software suite, providing instant, shared situational awareness throughout the battalion. As the Marine Corps begins the shift toward the Pacific, units will need to assess their collections network and how information is shared between small unit teams scattered across the littoral battlespace. Drawing on the aforementioned CAAT scenario, sUAS possesses untapped potential. Units throughout the FMF have conducted isolated testing of these capabilities through internal small unit exercises, but rarely are these practices and procedures shared

DOM.<sup>3</sup> Regiments were outfitted with the Dragon Eye, which provided organic intelligence and surveillance. As technology advanced, the platforms increased in number and changed in capability. The growth in the program created standards in which sUAS operators could follow to face the Marine Corps' future challenges. In 2012, PMA-263 and Marine Special Operations Command (MARSOC) came together to institute the *Group 1 sUAS Training and Readiness Manual (T&R)* that spearheaded the curriculum taught at the schoolhouse today. While MARSOC currently acts as the program's syllabus sponsor, Training and Logistics Support Activities East and West (TALSA-E and TALSA-W) controls the training given to sUAS operators who will employ these systems in future conflicts. In the midst of Marine Corps Force Redesign, TALSA finds itself unable to keep up with the high demand required in producing operators that will supplement the FMF. School seat quotas are limited based on the number of available instructors and are prioritized based on operational necessity. Prioritization of school seats favor primarily Navy sUAS

operators, deploying sUAS operators, and those from MARFORSOC. After these seats have been filled, students from units that rate the system, students from operational units, and students from formal schools fill the remaining seats. Additionally, TALSA runs the seat allocations through a conference with sUAS program managers from other units and allocates seats based on the aforementioned priorities. Because of the limited availability of seats and competing priorities, operational units tend to receive seats when they deploy. This creates gaps in a unit's operator base as program managers are unable to accurately plan for manpower shortfalls because of either sUAS operators leaving the unit or the outsourcing of operators because of competing unit priorities. This leaves the program managers with an inconsistent program and an operator base that is subject to seat availability and unit operational tempo.

An increase in TALSA's manpower personnel requirements would benefit the organization greatly. More specifically, TALSA needs a direct investment to its instructor base. Currently, school seats are prioritized because of small class sizes. Class sizes are small because smaller classes do not dilute the quality of instruction given per student. More instructors would equate to an increase quota on school seats without diluting the quality of the curriculum. As more instructors are made available to teach, this would increase the potential class size that instructors could handle during a given period of instruction. Subsequently, larger class sizes would open the aperture to meet the operator demand for the Navy, MARSOC, and the fleet Marine Force. More school seats will allow program managers to accurately handle their operator base due to manpower shortfalls within their respective units. As mentioned in the 2019 *Marine Corps Gazette* article "The Squad-Copter Dilemma,"<sup>4</sup> the Marine Corps can "drastically increase the size of its TALSAs" by enabling Marines to become instructors. By bringing in Marine instructors, TALSA can increase their manpower and leverage the instructor's first-hand experience brought on through their deployments

and operations. Additionally, a Marine instructor's tactical expertise can help refine the curriculum to be more relevant for that future fight.

In addition to the manpower perspective, the sUAS community needs to improve on the training and the processes in which training is standardized. Foundational training is brought on by the TALSA's. However, as mentioned previously, the curriculum does not go beyond basic system application and the function of its uses. The aforementioned *Gazette* article, "The Squad-Copter Dilemma,"<sup>5</sup> highlights the implications of these issues by mentioning that "battalions must reinvent the wheel when it comes to deconfliction and hold repeated classes with all of its operators." Having experienced this first hand at 2d Tank Battalion, I found that I had to reinvent my battalion's sUAS training curriculum, despite the program's existence since 2012. Currently, the schoolhouse only trains its students for one to two weeks—dependent on the system—before qualifying and releasing the operators back to their respective units. As an aviator who's flown and lead crews in Norway and the mountainous regions of Central America, a single week is not adequate to teach airspace deconfliction, practice crew resource management, and create the instinct to understand how to operate complex systems in uncertain environments. Additionally, the curriculum does not cover skillsets fundamentally important to how Marines should use this system such as call-for-fire integration, reconnaissance and collections, or targeting data acquisition for those Company fire support teams (FiSTs). The onus of training falls on the unit's program manager, which can vary in quality per unit. A new training curriculum, at a minimum, should cover these topics and be provided during a period of instruction longer than the current duration.

The entire Marine Corps would benefit from a standardized curriculum that could enable an operator to be tactically lethal. Small UAS operators need to be proficient in call for fire, target acquisition, airspace deconfliction, intelligence collections, battle damage assessment, and enemy recognition in

order to be useful. All these hard skills enable the appropriate firing agency, intelligence agency, or the battalion Forward Air Controller (FAC)/AirO. Additionally, understanding these skill sets develops awareness in mission planning requirements, communication and environmental considerations, and lost-link/contingency planning—all skills which vary by unit. While these skills are partially embedded in the Group 1 sUAS *T&R Manual*,<sup>6</sup> units are not held accountable for its standards. To be effective in the fight of tomorrow, sUAS operators need to understand their systems and their applicable uses just as well as a Marine who can conduct a call for fire or fire his weapon. Having Marine instructors would help spearhead the curriculum, as they can help lead conferences in tactical development and refine the tactics, techniques, and procedures (TTPs) relevant to the units they support. This model could then be tested and refined until it matches the capability that the Marine Corps requires. Coming out of the schoolhouse, the goal should be that a Marine knows the system and be effective as he or she would with their weapon. This not only requires serious investment into training procedures but also personal investment from the units themselves, ranging from the person selected to manage the sUAS program to the manpower decisions invested into training potential operators.

Additionally, the sUAS community would benefit if units equally take ownership of the problem as quality and organizational ownership can vary. Small UAS Program Manager, in most units, is considered a collateral billet that garner's less attention than it requires. After graduating a sUAS course, the operator returns to a unit whose sUAS tactical acumen is only as good as the quality of the sUAS program he returns to. At best, the operator returns to a unit whose program manager is ran by an experienced FAC with an aptitude in UAS training and management.<sup>7</sup> At worst, the operator returns to the program ran by a junior officer who is still figuring out the nuances of his primary billet. Not every unit has the luxury of an air officer/FAC. Lack of understanding of the billet, the nature of this

billet as a collateral, and the constant rotation through the billet does not help the program to become successful and enduring. Coupled with unit anecdotes of poor system use and functionality, the system's advantages are greatly undermined. However, examples across the Marine Corps have shown there are units who continue to innovate and improve on current sUAS system capabilities. In 2018, Marine Operational Test and Evaluation Squadron 1 (VMX-1) developed procedures in integrating sUAS with rotary-wing close air support. 2d Assault Amphibious Battalion conducted a proof of concept in 2018 of integrating sUAS operations with their Amphibious Assault Vehicles as they went ashore. At 2d Tank Battalion, we tested sUAS integration with a mobile fighting force, experimented in sUAS-provided video feeds at designated C2 nodes, and conducted data-downlink handoffs;<sup>8</sup> 3/3 Mar pushed the envelope in further developing infantry/small unit sUAS integration.<sup>9</sup> Unfortunately, these TTPs remain disaggregated and uncoordinated. As a community, the Marine Corps needs to crowdsource these TTPs and invest in the community as a whole. In order to maximize sUAS capability, we need to look beyond what the system currently provides and see the capabilities of what it could be. Only then can we stay driven to work through the issues that inhibit us from getting there.

As a collective organization, we can do better in providing the resources TALSA needs in developing a more robust capability. Currently, TALSA is oversaturated with high demand for sUAS training and responsible for seven different sUAS systems, four of which are overshadowed in capability by newer systems that need to be divested. They need less systems but more people. Additionally, at the battalion and regimental levels, program managers can do more in developing their unit's curriculums. Gen Berger highlighted in his planning guidance,

A likely vision of warfare centers on the recon/ counter-recon contest. This demands an agile, stealthy tactical system employing forces that are able to locate, target, and fire precisely first.





**Additional MQ-9 Reapers in the Marine Corps inventory can provide capable, low-risk ISR platforms for the recon-counter-recon fight.** (Photo by Senior Airman Isaiah Soliz.)

Exponentially greater precision and lethality of threat weapons demands we reduce exposure of our most expensive platforms and reduce exposure of Marines wherever possible.<sup>10</sup>

In the context of his comment, the Commandant was most likely referring to recent developments in UAS technology,<sup>11</sup> using UAS as a low-risk platform, and the additional acquisition of MQ-9s into the Marine Corps' inventory.<sup>12</sup> However, regiments, battalions, and companies can practice that "recon/counter-recon contest" in execution with current sUAS technology. This is key in staying relevant for the future fight.

In order to maintain relevance with the direction of Marine Corps Force Design, the sUAS program needs to radically adapt. The status quo of the sUAS Program is not adequate to keep up with the demand nor is it functionally relevant to train operators in which it is intended. Capts Welsh and Webb, co-authors of the "Squad-Copter Dilemma," describe similar issues when they mentioned that the Corps "will need to drastically increase its investment in the support structure behind sUAS."<sup>13</sup> For now, the Marine Corps does not need newer investments in the latest quadcopters or fixed-wing sUAS. The systems are adequate to conduct the

necessary reconnaissance for a fifteen-man squad. Before introducing new technological assets, the Marine Corps needs to heavily invest in the program's support structure. More specifically, these investments should start at the program's foundation: the people it employs (manpower) and their product (training). All across the Marine Corps, different units have been testing and refining sUAS capability and integration. Case studies and experimentation of new sUAS TTPs are constantly being innovated. These anecdotes illustrate that units have not given up on these systems and are instead finding new ways to integrate and improve on current capabilities. We need to improve on the development and foundation of the community, TALSA, by investing in their support structure. We need to invest now in order prepare for the future fights of tomorrow. In doing so, we will be able to maintain relevancy for the future fight and operate as the Commandant had intended, bolstering our capabilities within that recon/counter-recon contest, reducing our exposure of our Marines, and enable the delivery of lethal and non-lethal effects on both land and sea.

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# Swarming

## Application of lessons from World War II patrol torpedo boats

by Maj Scott Caton

Nations with sophisticated militaries are capable of detecting and engaging adversaries utilizing large ships and aircraft with advanced air and surface radars, sensors, and precision-strike weapons.<sup>1</sup> The United States, like other nations, uses distance to increase survivability while investing in more powerful radars, sensors, and weapons to maintain lethality—a seemingly endless cycle. This problem only worsens in the future. In response, the U.S. military is exploring “stand-in” and “insider” asymmetric capabilities and concepts—such as swarming—that can operate within enemy threat rings, the anti-access/area denial (A2/AD) environment. Swarming is the systematic and simultaneous temporary massing of dispersed and connected forces and fires against an adversary from all directions. The objective is to destroy adversary physical and psychological strength and increase friendly force survivability.<sup>2</sup> Operational and tactical swarming of the Marine Corps and Naval force and fires is essentially articulated in the Distributed Maritime Operations, Littoral Operations in a Contested Environment, and Expeditionary Advanced Base Operations concepts. It is critical to examine the concept of swarming and evaluate a historical example to inform the debate over the above concepts and tasks within the *38th Commandant's Planning Guidance* to create a Naval Expeditionary Force.

During World War II, allied Patrol Torpedo (PT) boats utilized swarming tactics at night with great effect against axis power coastal supply ships, cruisers, and destroyers.<sup>3</sup> While submarines likely had an even more significant impact, they did not employ swarming tactics in the same way at the PT boats. Nor did they utilize radars as PT boats

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did, which created superior situational awareness for the group of PT boats. Submarines were very effective in countering the German and Japanese Navy and continue to be critical in future Naval campaigns. With the incorporation of radars—designed primarily to detect surface ships and occasionally some aircraft—and radios, PT boats were able to detect adversary forces and coordinate dispersed attacks by employing swarming tactics.<sup>4</sup> Radars and radios on PT boats provided superior situational awareness that facilitated improved survivability and coordination, enabling the swarming of forces and fires on adversaries and enhancing the capabilities of larger, more conventional military forces. The lessons of World War II PT boats can be applied to help the Marine Corps conceptualize future combat operations and better support the future Naval Expeditionary Force.

The reality is that swarming is not a dramatically new way of warfighting for the Marine Corps. Today's iteration is a response to the evolving future operating environment that is defined by complex terrain, technology proliferation, information warfare, electronic signatures, and an increasingly contested maritime domain.<sup>5</sup> Swarming is in line with *MCDP 1, Warfighting*, as it abstractly can be found in maneuver warfare.<sup>6</sup> *MCDP 1* states that the Marine Corps doctrine is

rapid, flexible, and opportunistic maneuver ... action to generate and

exploit some kind of advantage over the enemy ... generate a faster operating tempo than the enemy to gain a temporal advantage ... bypass these defenses in order to penetrate the enemy system and tear it apart ... shattering his moral, mental, and physical cohesion.<sup>7</sup>

Swarming supports all of those things by combining fires, maneuver, and information in a unique way.

According to multiple RAND Corporation reports on swarming, there are five core variables to successful swarming: superior situational awareness, elusiveness, standoff, envelopment/encirclement (multi-directional attacks), and simultaneity.<sup>8</sup> Out of those five, superior situational awareness, elusiveness, and standoff are deemed to be the most important. This enables survivability while retaining lethality. Superior mobility (speed) and concealment (prevent detection) contribute to elusiveness, which is the ability to avoid the enemy until fires and forces decide to converge on the adversary, creating simultaneity, from multiple directions. Standoff relates to the ability to inflict damage on the enemy while using distance to increase survivability. Superior situational awareness enables superior decision making, enabling coordination, and the simultaneous convergence of forces and fires to achieve destruction criteria and surprise.

Based on the above five core variables, there are two requirements for successful swarming. First, swarms must have

many small dispersed units capable of quickly and effectively coordinating and striking an adversary from multiple distances and directions. Second, units must serve as sensors and communicators to generate situational awareness and simultaneity.<sup>9</sup> Figure 1 shows the influence between important variables.<sup>10</sup> A robust network of sensors, sharers, shooters, and deceivers are required to stimulate and collect on adversary forces and coordinate attacks when desired. To accomplish this, commanders must not let their access to greater situational awareness lead to centralized command and control (C2); they must intervene sparingly and move resource that enable self-organization and rapid action. Commanders must reflect on their role in a dispersed and decentralized battlefield. Is it to command and control every aspect of battle, or is to provide clear commanders guidance and tasking and then ensure that subordinates have the resources and information they need? Imagine sensor and sharer nodes that connected various types of shooter and sustainer nodes that have access to superior situational awareness and given greater autonomy. Swarming requires a resilient command, control, communications, computers, and intelligence system. The overall objective of swarming is to improve friendly survivability and weapons effectiveness to defeat the enemy where they are weak over time in a series of smaller victories, adding up to an operational and ultimately strategic victory.<sup>11</sup>

U.S. PT boats belonged to one of the 47 U.S. Navy Motor Torpedo Boat (MTB) Squadrons formed during World War II. Each squadron consisted of ten to fifteen PT boats that typically operated in divisions of three.<sup>12</sup> The British similarly developed Coastal Forces, which utilized their own PT boat variants. British PT boats were defined by their primary weapons capabilities, either a Motor Torpedo Boat or Motor Gun Boat (MGB). The British did not combine both capabilities until 1942, with the introduction of the Fairmile D boats MTB.<sup>13</sup>

PT boats were designed to be fast, heavily armed, lightly armored, and maneuverable while being relatively low

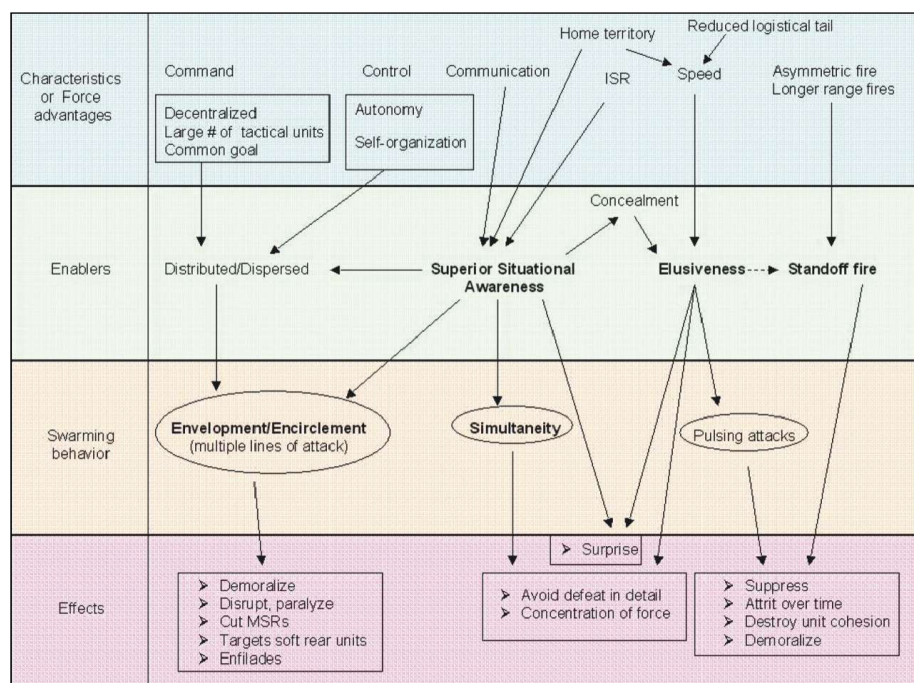


Figure 1.

cost compared to other Navy ships. They had a low profile, could function in shallow waters, and operated at night to avoid detection and being hit by enemy fire while within effective torpedo range. Night time operations reduced the likelihood that PT boats would be visibly detected. They also took advantage of the relatively low performance of enemy radars and the fact that they were not as prolific as today.

The primary mission of U.S. PT boats was to attack surface ships; however, they were also capable of attacking submarines, rescuing vessels, escorting other ships, laying mines, and supporting commando operations.<sup>14</sup> Additionally, PT boats rescued downed pilots and scouted and screened for larger ships.<sup>15</sup> They carried torpedoes, machine guns, and depth charges. Their small size, speed, and maneuverability—combined with their ability to detect ships at night and employ smoke—made them perfect for conducting surprise ambushes.<sup>16</sup> They mostly targeted supply and support ships, light cruisers, and light destroyers.<sup>17</sup> PT boats operated from distributed advanced naval bases, in groups near the coasts, and utilized radars and radios to locate, converge, and attack adversaries—quickly leaving to avoid a sustained engagement.<sup>18</sup>

The tactics employed were similar to what a fighter direction officer would use in the British Royal Air Force to control aircraft swarms against German Air Force aircraft over Great Britain.<sup>19</sup> Coastal radars, larger ship radars, or PT boat radars were used to direct other PT boats. American and British PT boats attacked ships with heavy machine guns and torpedoes (their standoff ship killing weapon), defended themselves from low flying aircraft, and used smoke to obscure their egress.<sup>20</sup> The larger lesson is that surface radars and radios were utilized to direct PT boats, and once engaged their collective situational awareness allowed smaller formations to conduct reattacks from various directions as part of a larger swarm. While not all cases involved larger numbers of PT boats, the general tactics and use of technology remained the same.

Larger naval ships were highly capable of destroying other similar ships but had difficulty operating in the shallower coastal waters and targeting small boats. They were also readily detectable by enemy forces. Enemy supply ships avoided deceive engagements by moving along the coasts with protection from smaller escort ships and shorebased weapons. PT boats operated where larger Navy ships could not and inflicted tremen-



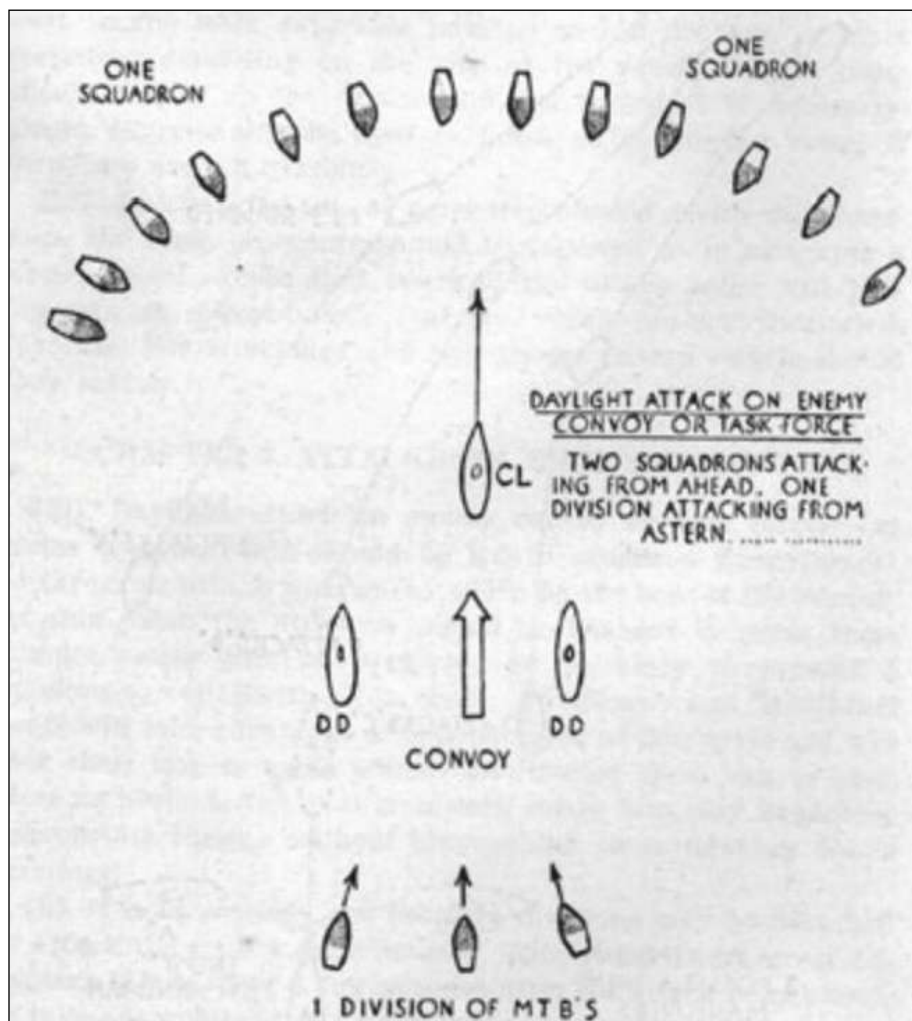


Illustration.

dous damage on German and Japanese supply trains. Early during World War II, air and surface surveillance and targeting radars were developed for use on land and on large navy ships. By the mid-1940s, similar capabilities had made their way to PT boats.

Surface and air surveillance radars and radios on PT boats provided superior situational awareness that facilitated improved elusiveness, standoff, encirclement, and simultaneity. They enabled the swarming of forces and fires on adversaries and enhanced the capabilities of larger more conventional naval military forces. World War II PT boats exercised sea control in the littorals.

During the interwar period, radars made huge technological advancements but remained large and heavy, which presented one of the biggest obstacles for

adoption on PT boats. For the British, surface radars were first added to the MTBs and MGB in 1941, with their most advanced version (Type 291U) added between 1942 and 1943. The Type 291U was able to provide aircraft warning and navigation in the daytime as well as surface warning and limited torpedo control at night.<sup>21</sup>

All U.S. PT boats, in contrast, came equipped with the 10cm type "SO" radar with a Plan Position Indicator (PPI) display and power-rotation by 1943, which were superior to the British radars.<sup>22</sup> Later, newer "SJ" radars were fitted on new PT boats while electronic friend-or-foe identification devices were also added towards the end of World War II.<sup>23</sup> Both U.S. radars were 3,000 MHz with 50kw pulse surface search Raytheon radars capable of detecting

ships out to 25 nautical miles.<sup>24</sup> The U.S. SO radars with PPI displays allowed PT boats to not only find adversary ships but also more accurately and quickly vector boats.<sup>25</sup>

Radars and radios provided U.S. and British PT boats with the ability to locate, converge, and attack adversaries.<sup>26</sup> PT boats utilized an AM VHF radio that transmitted between 1.5 and 12 MHz frequencies, which provided them with a long-range communications capability up to 70 miles on a good day.<sup>27</sup> After identifying adversary ships, PT boats would coordinate multi-direction pulsing attacks against cruisers and destroyers or would form a column and engage the broadside of barges that operated near the coasts.<sup>28</sup> Radio direction finders were utilized in conjunction with radars to help locate other boats at night, as it was difficult to see and coordinate in the dark.<sup>29</sup>

PT boats would often move in a mass and then break up before the final approach on the adversary. One tactic often involved the combining MGB feint attack with multi-directional striking blows from the MTBs.<sup>30</sup> The following two historical events depict the usefulness of surface radars and radios in coordinating PT boat swarming attacks.

On the nights of 24 and 25 April 1944, a combined force of three British Landing Craft Gunboats, three MGBs, three MTBs, and seven U.S. PT boats departed Bastia, Corsica, to attack German supply convoys off the coast of Italy near Elba, Capraia island, and the Vada Rocks.<sup>31</sup> The boats left at different times because of the different speeds and courses, planning to converging within their operating area near the Vada Rocks.<sup>32</sup>

Once en route, Commander Robert Allan of the United Kingdom's Royal Navy Reserve provided vectors to the other ships from the U.S. PT boat.<sup>33</sup> In doing so, he was able to set up ambush positions from which to attack two convoys of German F-lighter barges, tugs, and trawlers pulling barges from multiple directions. Over the course of two nights, the combined force sunk five barges, one tug, and one German torpedo boat, which hit its mine during the engagement.<sup>34</sup> Given the weakness

of British MTB/MBG radars, the British often utilized Coastal Forces control ships, which were destroyers and frigates with much more capable radars, and shorebased coastal radars to vector PT boats to swarm the adversary.<sup>35</sup>

One of the best examples of U.S. Navy PT Boat swarming utilizing radars occurred on 24 October 1944 when the boats ambushed the Japanese Navy's approaching southern force led by Vice Admiral Shoji Nishimura at the Surigao Strait in the Philippines during the Battle of Leyte Gulf. The day prior, fifteen PT boats were forward positioned at Liloan on Panaon Island, at the entrance to the Surigao Strait.<sup>36</sup> The fifteen PT boats, five divisions of three ships each, were deployed in the eastern portion of the Mindanao Sea.<sup>37</sup> Each division served as a forward scout (sensors and communicators) for their assigned sector and helped to develop superior situational awareness for the rest of the Navy. They then were given mission-type orders to attack as divisions to break up the cohesion of the Japanese force, to not become decisively engaged, and report the location of southerly approaching adversary forces.

Meanwhile, during the day of 24 October, 24 PT boats operating as 8 divisions were deployed along the western and eastern coasts of the straight to report on enemy ship positions and help degrade their capability, softening them for the final battle in the Leyte Gulf.<sup>38</sup> At approximately 2215, PT boat 131 detected multiple radar contacts south of the strait and passed a report of visual contact, but it could not raise anybody on the radio.<sup>39</sup> Throughout the night and morning, as the battle raged, PT boats reported enemy ship locations, conducted pulsing attacks from each side of the strait, and sowed confusion in the Japanese southern force. The PT boats effectively utilized their radars and radios to navigate and coordinate swarming attacks against the Japanese Navy as well as provide situational awareness to the rest of the U.S. 7th fleet lying in ambush.

The use of radars alone was not the only novel characteristic of PT boat tactics. PT boats combined on-

board and offboard radars and their unique boat designs to remain elusive and achieve surprise. Boat and shore-based radars and radios provided them with superior situational awareness, allowing them to encircle adversaries and prepare stealthily for a multi-directional simultaneous attack. PT boats had to slip into the threat rings of many adversary ships stealthily to utilize their primary stand-off weapon: the torpedo. PT boats operated best in the littorals, where the coasts and islands provided locations to hide and from which to search for the adversary. The use of Coastal Force Control Ships and shorebased coastal radar and radios provided extended surface surveillance capabilities beyond that found on PT boats. PT boats demonstrated that distributed elusive forces with superior situational awareness can surprise the enemy and engage with a combination of close-in and standoff fires with destructive effect.

A lesson from the use of PT boats is that units do not necessarily need to be the complete package of sensor, sharer, and shooters. Nor is it to argue that the Marine Corps should adopt PT boats; rather, it is the overall lesson on swarming. A PT boat today that is a complete package would likely be a vulnerable target. However, the way they worked together and utilized the full range of their capabilities certainly provides important lessons to the modern military. It is the networked collective that provides effects that are far beyond that of the a single highly capable and large piece of equipment. Elusive dispersed forces with superior situational awareness and standoff weapons are capable of operating within an adversary WEZ and inflicting superior damage.

Radars do not necessarily have to be with the main force to conduct attacks, but superior situational awareness does facilitate swarming forces and fires to effectively engage the adversary. Sensors and fires can be spread out on the battlefield and do not need to always be co-located with maneuvering swarming forces as long as they are communicating and contributing to situational awareness. Unmanned surface and air surveillance drones could contribute as

part of a network to provide superior situational awareness of enemy and friendly forces, allowing for large distributed force and fires to swarm.

The *38th Commandant's Planning Guidance*, Distributed Maritime Operations, Littoral Operations in a Contested Environment, and Expeditionary Advanced Base Operations suggest forward employing mobile and relatively low-cost air and surface surveillance sensors and C2 capabilities in austere and temporary land and surface locations as integral elements of the fleet/JFMCC operations.<sup>40</sup> Operating from expeditionary locations, these unmanned air and surface surveillance sensors employ in the air, unmanned aerial systems, on land, unmanned ground vehicle, and the surface, unmanned surface vehicle USV. They screen and scout in hostile areas that may be considered too risky for manned critical forces and assets to operate. These scouts, paired with decoys, "impose increased battlespace complexity on the adversary and confound his decision calculus by forcing him to allocate sensors and shooters against a wider—and more dispersed—set of threats."<sup>41</sup>

Scouts have historically been utilized to develop superior situational awareness so that commanders at various levels can make timely decisions. Scouts provide reports based on information requirements, which connect to important decisions. For the MAGTF as part of a naval force, it deploys capabilities to win the "scouting competition" to establish a maritime balance sufficient enough to accomplish key missions.<sup>42</sup> Employing superior scouting capabilities, which can include manned and unmanned sensors or human reporting, is only part of the competition formula. Equally as significant is the impact of corrupting or providing misleading information and data that compels the enemy to act in a way that is advantageous to friendly forces. For forces to employ long-range precision weapons, scouting forces are critical—deploying more friendly assets while corrupting the adversary allows friendly forces to temporarily paralyze the enemy long enough to conduct swarming attacks and then disperse for survival.

While superior situational awareness is critical, it is only effective when irrelevant data is filtered out and only information related to decision making is presented. There must be a balance between realtime continuous fire-control quality data that shows everything in the air and on the surface and only seeing high quality data when targets of interest have been found. This data quality can improve once the decision to engage has been made, which would enable swarming and distributed engagement. It is important to keep this in mind as communications increases one's signature, thus, knowing when to transmit and at what level of quality is important. This is similar to how one would utilize deep reconnaissance or scouting units.

Surface and air surveillance radars and radios on PT boats provided superior situational awareness that facilitated improved elusiveness, standoff, encirclement, and simultaneity—enabling the swarming of forces and fires on adversaries and enhancing the capabilities of larger, more conventional naval military forces. Throughout World War II, PT boats operated in groups of three or more, utilized radars and radios to find the enemy, and employed swarming tactics to attrite adversary forces over time. The lesson for today is that surface and air surveillance radars that can produce fire control quality data when needed can aid in modern swarming attacks of forces and fires. Radars do not necessarily have to be with the forces to conduct attacks, but superior situational awareness does aid swarming forces and fires in effectively engaging the adversary. Sensors and fires can be spread out on the battlefield and do not need to always be co-located with maneuvering swarming forces as long as they are communicating and contributing to situational awareness. Unmanned surface and air surveillance drones can contribute as part of a network to provide superior situational awareness of enemy and friendly forces, allowing for large distributed force and fires to swarm.

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# Go All In

## The Marine Corps guide to maximizing the ACV

by Maj Justin Davis

***“The Marine Corps must be able to fight at sea, from the sea, and from the land to the sea; operate and persist within range of adversary long-range fires; maneuver across the seaward and landward portions of complex littorals; and sense, shoot, and sustain.”<sup>1</sup>***

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family of vehicles (FoV) that provides the requisite lethality, maneuverability, and survivability to fight and thrive in support of naval concepts.

The Marine Corps has benchmarked maneuver warfare in its ethos. While the term “maneuver” can manifest itself in multiple domains, for our infantry, it implies gaining a positional advantage to place an adversary in a dilemma.<sup>2</sup> Armored vehicles enhance maneuverability, facilitate speed and tempo, and provide armor-protected firepower. Effectively removing armor capabilities will relinquish maneuver capability in the water and on land; the ability to maneuver at speed in a vehicle while protected should warrant further analysis. Let us not forget that the infantry, armor assets, and others within the GCE are the only ones that can seize territory (defined as “clear a designated area and gain control of it”)—a must if you want to establish expeditionary advanced bases (EAB).<sup>3</sup> The Marine Corps would be arrogant to think it could always be in a position of advantage before the first shot is fired. From a historical context, you need not look further than every major battle the Marine Corps has fought that included armor. From Tarawa to Okinawa to Inchon to Hue City and Fallujah, Marine armor has decisively tipped the scales in many a battle. Suffice it to say, an infantryman never opined, “I don’t want armor over my shoulder in a fight.” Historical times may have changed, warfare may evolve, weaponry ranges are ever increasing, but the Ser-

vice must have focus; that focus cannot lose sight of ground combat warriors deserving armor-protected firepower that will do our bidding. As such—in a relatively small Service and to reach economies of scale—the Marine Corps must take its latest platform, the Amphibious Combat Vehicle (ACV), and use it as a common type chassis with multiple variants to suit multiple mission roles and needs: enter the ACV FoV.

### Commonality

Future littoral combat will be highly complex, material intensive, and risky. The Marine Corps, as the nation’s expeditionary force and advocate for amphibious warfare, must develop the capabilities in concert with the Navy to conduct such intensive operations. Armored platforms are required that are capable of independent littoral maneuver; possess the capabilities to fight in air, sea, land, and cyber domains; and support the naval services’ latest concepts. An ACV FoV would prioritize type commonality while offering waterborne, self-deploying abilities from shipping. Further, it facilitates significant progress toward reducing logistical burdens and the requirement for naval connectors.

The ACV marks a major shift in armored vehicles, as it employs wheeled technology instead of the tracked technology that is typically associated with armored vehicles. The adaptation of wheeled technology to a chassis that can be used as an armored vehicle drastically diminishes the overall weight of the vehicle. Circumstantially, it frees the ACV of weight to bring an optimal solution to self-deploying amphibious requirements while providing potential growth. The ACV offers a single-chassis platform with the ability to achieve an

**R**evolutionary changes are occurring within the Marine Corps as it grapples with a drastic force composition change to a Service that is heavily rooted in its current design, which was established during the Pacific Island-Hopping Campaign of World War II. The Marine Corps future force design composition is being driven holistically by modernized naval concepts that shaped the current *Commandant’s Planning Guidance*. This guidance is now manifested within *Force Design 2030 (FD30)*, published in March 2020. *FD30* articulates cuts to structure and capabilities while recognizing the requirement for new structure and capabilities. The direction to divest itself of its tank force, reduce the assault amphibian force, and question the viability of light armored reconnaissance brings up a myriad of questions and warrants further investigation. As a result of *FD30*, the Marine Corps requires and should acquire an optimized, modular

optimal balance of lethality, mobility, and survivability based on revisited and all-new requirements. It facilitates complementary variants that rely on the same basic hull but vary in optimization for specified roles, all developed to enhance the ability to execute expeditionary advanced base operations (EABO) and, where need be, support a gamut of operations outside of EABO—lest the Service become one-dimensional. The ACV currently has a capacity of 10,000 pounds; moreover, if the vehicle's structure is changed, this will increase as less internal, under armor capacity will be required to transport Marines. In plain speak, that is 10,000 pounds to add turrets, cranes, missile launchers, and more; the possibilities are limitless. This capacity must be used to develop personnel, air defense, missile, logistics, scout, and fire support variants. If done, these variants will replace all amphibious assault, light-armored reconnaissance, and tank platforms in the Service and consolidate them into one platform.

### Amphibious Connector Reliance Today

The Marine Corps relies on a multitude of organic and naval connectors to move the majority of its tracked and wheeled assets ashore and further sustain them. Naval connectors currently consist of Landing Craft Utilities (LCUs) and Landing Craft Air Cushions (LCACs). While these platforms provide lift, their employment is cumbersome and limited. They require swaths of well-deck storage space and are relatively defenseless, which is not useful in a semi-permissive environment or worse. They bring vehicles ashore a handful at a time and take significant time to maneuver and unload, thus negating speed and tempo—an archaic practice at best. While the LCAC and the LCU will be replaced with modernized versions, LCAC-100 and LCU-1700 respectively, their funding priority rests at the bottom of the Navy's priority list.<sup>4</sup> It is highly unlikely that either program will remain fully funded in light of continuing budget compression. Neither program will adequately address the inadequacies of their predecessors,



**Lethality would be greatly enhanced by adding a Javelin system like the CROWS-J to every ACV. (Photo by Markus Rauchenberger.)**

each only having marginal increases in speed and tonnage capacity. Alternatively, the Marine Corps can move smaller equipment and provide sustainment via its assault support vertical lift platforms to include the new CH-53K and MV-22. While these platforms are excellent in their own right, they require some level of escort and, by that margin, air superiority and/or supremacy to maneuver. Furthermore, their extravagant procurement prices make their utility even more marginal in combat against a peer adversary with legitimate air-to-air detection and prosecution capabilities. The Services insistent reliance upon these connectors hamstring its ability and makes it vulnerable. As such, support to EABO with naval connectors should be reduced to the minimal extent possible.

### ACV Today

The ACV is executing final testing prior to a fielding decision on its most basic variant: ACV-P (Personnel). This vehicle provides evolutionary capability over the legacy vehicle it was designed to replace. Key Performance Parameter documentation currently articulates the requirement for a command and control, recovery, and gun or 30mm cannon variant.<sup>5</sup> While these requirements are a baseline, they almost mirror the

legacy platforms requirements with little thought given to today's naval concepts and force design requirements. The following should be the vision for an ACV FoV procurement in support of EABO to include personnel, air defense, missile, logistics, scout, and fire support variants.

### ACV–Personnel (P)/Priority #1

***“Maneuver across the seaward and landward portions of complex littorals.”<sup>6</sup>***

The ACV-P is the base version for the platform and offers a common chassis for all other proposed variants. ACV-P incorporates a crew of three and is designed to maneuver a squad of thirteen Marines while providing a stabilized weapons platform to support maneuverability and drastically increasing force armor protection. ACV-P fields an XM153 Protector Remote Weapon Station (RWS) that facilitates a fully stabilized weapons platform while the vehicle is maneuvering, and thus ACVs can provide direct fire gunnery under all maneuver circumstances. The RWS

provides the capability to engage adversarial aviation assets, to include unmanned aerial systems and surface born threats, such as fast attack craft and fast inshore attack craft. While the ACV-P enhances the lethality of the infantry squad for which it embarks, it is reliant upon weapon systems that are legacy weapons in themselves: the M2 .50 Cal machine gun is very much the same weapon it was when designed in 1918; the MK-19 grenade launcher is very much the same weapon it was when designed in 1966. While both weapons are viable, they lack the range and lethality to combat adversarial fixed fortifications, armor, and even naval vessels. An immediate solution is that all ACV-Ps incorporate a FGM-148 Javelin missile launcher that is already fully compatible with the XM153 Protector RWS. This will remove the requirement for the infantry to carry missile systems when operating in a mechanized environment while simultaneously doubling the range of the ACV-P's lethality radius at minimal integration and procurement cost.

#### ACV-AD (Air Defense)/Priority #2

***"We have shortfalls in medium- to long-range air defense systems; short-range (point-defense) air defense systems."*<sup>7</sup>**

Against a peer adversary, our warfighters will face a myriad of airborne threats to include fixed/rotary wing and unmanned aerial systems. The Marine Corps has stepped out smartly with regard to the pursuit of a medium caliber weapon system and corresponding turret for use in an ACV-Gun variant. Currently, the Service is assessing two vendor turret options for the incorporation of a MK-44 30mm cannon. This variant is said to be optimized for infantry support while harnessing the ability to destroy adversary armored vehicles.<sup>8</sup> While this variant is

a step in the right direction, it is one dimensional with regard to infantry support. The ACV-30 must be taken a step further and become the ACV-AD, which answers the Commandant's call for enhanced air defense systems with the integration of an Avenger/Stinger missile system. While the Stinger Missile, first developed in the late 1960s, is a relative legacy platform in itself, its capability, through extensive life-cycle modifications, is still on par with other short-range air defense missile systems. The ACV could mount a larger missile system if necessary, but there is a large capability gap between the Stinger Missile and the next step-up in capability—the Patriot Missile. The Marine Corps divested itself of its medium-range air defense systems long ago in what was the MIM-23 Hawk system, which was traded for naval assurance of air defense via the Aegis system coverage.<sup>9</sup> The incorporation of an Avenger system, in addition to a medium caliber weapon system, will greatly enhance air defense to the infantry and its supporting apparatus. The genius of an AD variant is that the medium caliber cannon and its co-axial medium or heavy machine gun can be used in the direct fire gunnery role thereby making this platform multi-functional in its support to ground maneuver.

#### ACV-Missile (M) / Priority #3

***"We have shortfalls in expeditionary long-range precision fires."*<sup>10</sup>**

Senior leadership has strongly advocated for long-range precision fires—essentially, missiles capable of striking surface targets to include waterborne ones. This procurement is an integral portion of the Service's contribution to the greater naval mission to include sea-control and sea-denial. The Marine Corps has been quick to initiate procurement of a system that supports the use of the Kongsberg Naval Strike Missile, a proven missile already in use by our own Navy and other allied partners. While the missile procurement itself is sound, the Service has done so with a holistic focus on a truckbased solution that will require vulnerable connector platforms or vertical assault support to facilitate littoral maneuver and sustainment. Alternatively, the Service should utilize its newest armored vehicle as a platform for missiles. ACV-M would incorporate a system similar to what is currently optimized in the HIMARS



**An ACV-AD would look comparable to the Army's quest for short-range air defense replacement for the Avenger. (Photo by Sgt Anthony Hewitt.)**



but adapted to facilitate the use of anti-ship cruise missiles, such as the Naval Strike Missile. Missile launcher and ammunition weight will be the only limiting factor as to how many launchers and missiles can be carried. To optimize this solution, ACV-Ms would be incorporated into unit compositions that include other ACV variants who can provide the requisite ammunition and, more importantly, the required lift apparatus to reload the launcher. These ACVs can be provided in a small but comprehensive force package that can self-sustain without the need for naval connectors, runways, or vertical replenishment. Further, these armored vehicles would incorporate additional weapons from pintle mounts that would enable them to defend themselves. Moreover, the ACV's integral armor provides far superior force protection measures than any truck solution could hope to achieve.

## ACV-L (Logistics)/Priority #4

***"Forces that cannot sustain themselves inside the Weapons Engagement Zone are liabilities."*<sup>11</sup>**

An undoubtedly important piece of any equipment's sustainment is its maintenance requirements and ability to replenish. While requirements documentation already supports the procurement of a recovery variant of the ACV, the requirements need to go further in order to make this a true logistics vehicle instead of just a recovery vehicle. First, its crane and winch package must be modular; the crane and winch should be able to be removed from the vehicle when they are not required. When these apparatuses are removed from the vehicle, the Service would have a large flatbed self-deploying amphibian that can be loaded with ammunition, including Naval Strike Missile reloads, to replenish ACVs and equipped EABs. Undoubtedly, testing will need to be



**ACV-M could bring self-deploying long-range fires to the GCE without footprint of HIMARS or Patriot. (Photo by Jason Cutshaw.)**

done with all the various load packages to ensure center of gravity requirements are met when conducting waterborne movement. This concept is simple, feasible, and achievable if the ACV Recovery requirements are enhanced into a logistics variant with built-in modular adaptability. A chassis like this, with an open bed when the crane module is not mounted, would also serve as the base for ACV-M. Multiple ACV-Ls will allow a self-sustained force the ability to reload large-scale ammunitions without the requirement for external support.

## ACV-S (Scout)/Priority #5

***"All-domain reconnaissance and counter-reconnaissance will be a critical element of any future contingency."*<sup>12</sup>**

The Service is well into its search for a Light Armored Vehicle (LAV) replacement; these efforts have manifested themselves in the Advanced Reconnaissance Vehicle (ARV). Currently, two vendors are building technology demonstrators that will go through a

gamut of testing to inform requirements documentation for the LAV replacement. The ARV contenders are currently optimized to replace the LAV but do little to enhance commonality with a comparable other system already coming to fruition—the ACV. The LAV replacement should be based on the ACV and manifest itself in a Scout variant. ACV-S will have a self-deploying, ship-to-shore maneuver capability, which will negate the need for connectors. The requirement to maneuver ARVs on a connector, similar to what is done today with LAVs, is constraining the weight and dimensions of the ARV and, therefore, reducing the platform's capability. Naysayers of an ACV-S vehicle will claim that its size makes it unnecessarily large as a reconnaissance vehicle. To counter this claim, one need not look further than our partners in Australia who are procuring the Boxer eight-wheel platform for their reconnaissance requirements to directly replace their Australian LAVs (ASLAVs), an LAV variant.<sup>13</sup> An ACV-S will enable commonality across armored platforms, realize economies of scale in manufacturing and parts procurement, and increase the propensity for personnel to be proficient across all future armored platforms within the Service.

***“Attrite adversary forces, enable joint force access requirements.”<sup>14</sup>***

With the recent announcement that the Marine Corps will divest itself of its M1A1 tanks, and thus its tank battalions, it is worth a look at alternative options that could provide type commonality with the ACV while providing the direct gunnery fire support that the infantry has come to expect from a tank platform. What an ACV fire support variant cannot do is replace a main battle tank; it does not have the armor or weight characteristics to do so. However, it can provide comparable lethality and mobility that the infantry has come to expect from tank support. ACV-FSV



***Like the LAV, a logistics/recovery variant of ACV would bring great modular utility in the GCE.***  
(Photo by Sgt Tatum Vayavananda.)

would give the Service an ability to engage adversarial armored vehicles and fixed fortifications, all within the confines of a self-deploying amphibian. The

Service should, at best, field a vehicle within this realm or at least, conduct a trade and industry analysis of comparable eight-wheeled fire support vehicles

## *Call For Papers*

Marine Corps University and the Marine Corps Association & Foundation are pleased to announce a call for papers for the annual President's Lecture Series essay contest. This year's lecture series is entitled "Great Power Competition," and the associated essay contest challenges participants to consider how leaders might respond to the security challenges posed by the reemergence of great power competition.

### **Essay Topic**

*How might the tenets of Maneuver Warfare inform the Nation's approach in responding to the reemergence of great power competition?*

Essays should be at least 1500 but no more than 3000 words in length. Essays are due by 12 February 2021 and must be submitted via email to Ms. Angela Anderson, Director, Marine Corps University Press at [angela.anderson@usmcu.edu](mailto:angela.anderson@usmcu.edu). Winners will be announced in April 2021.

## *Prizes*

### **Winning Essay in Each Category**

- Cash award and plaque provided by the Marine Corps Association & Foundation
- Publication in *Leatherneck*, *Marine Corps Gazette*, or *Marine Corps History*
- Recognized at a Marine Corps University Lecture Series Event

Two Honorable Mentions in Each Category with a cash award provided by the Marine Corps Association & Foundation.

### **Contest Categories and Eligibility**

Active Duty and Reserve E5 & Below  
Active Duty and Reserve E6 & Above  
Active Duty and Reserve O3 & Below  
Active Duty and Reserve O4 & Above



to determine if further procurement is valid, warranted, and achievable.

### Cancel ACV-C

There is a current requirement for a command and control variant for the ACV platform; this is a misplaced effort. For one, all variants of ACVs will field far superior communication and battlefield management systems than what is currently used in an Amphibious Assault Vehicle (AAV) today. Additionally, with the call for disaggregated operations at small unit levels, the likelihood is small to none of regimental and battalion level staffs wanting to establish command posts from an ACV-C. The vehicles electromagnetic signature will likely cause a disproportionate response from adversarial forces that will make it a hazard on the future battlefield. Ad-

of today's AAV-C—a vehicle that is a misutilization of taxpayer funds and will be under-utilized at best.

### Conclusion

The advent of the ACV presents a remarkable opportunity for the Marine Corps and the greater naval Service. It provides an effective and timely option to address existing critical capabilities gaps in an armored and thus more survivable platform that is already in production. It is imperative to break the mental model of what we consider an ideal amphibious force now and instead evolve our expeditionary mind set to meet future challenges that exceed our relative understanding. In concert with *FD30* and the naval Services' latest concepts, the time is here and now to develop the ACV into an FoV that is suitable

**... all variants of ACVs will field far superior communication and battlefield management systems than what is currently used in an Amphibious Assault Vehicle (AAV) today.**

ditionally, it is foolish to create a variant that, in correlation with the current AAV-C, is only used by the infantry and tank communities. The tank community is already being divested as previously stated. The infantry community simply does not use the vehicle to the proficiency that they should; thus, the platform is shied away from. A cursory review of the last five years of after action reports from integrated training exercises leads to a litany of negative comments and misuse towards the platform from the Infantry community.<sup>15</sup> This leads to the simple question, if the end user does not utilize it, why would the Marine Corps procure such a vehicle? The habit of utilizing pre-existing requirements associated with legacy platforms as a basis for new systems needs to cease. The Marine Corps would do well to pay attention to end user feedback and comments and delete this variant from thought. Its continued pursuit will lead to a path that is comparable to the use

to the probable conflicts of the future while still be able to prosecute those that are unforeseen. Recapitalizing its capabilities with a mutually supporting ACV FoV is the only way the Marine Corps will be able to conduct contested amphibious operations in the future with the staying power to be a viable threat to peer adversaries. The ACV FoV provides a multi-variant platform that can fulfill a multitude of naval force needs with minimal developmental, integration, fielding, and sustainment costs. It will bring unsurpassed maneuver and lethality options for a commander with an ability to generate heavy to light force packages based on the same platform. An armored force maneuvering from the sea that can defend itself and exert sea control and denial in contested littorals will facilitate the Marine Corps' ability to conduct EABO and truly embrace disaggregated operations with the staying power to be a credible force.

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# Standby Five Line

## The future of Marine light attack

by Capt Brendan O'Donnell

**A** H-1 Cobras and UH-1 Hueys have faithfully served over-head Marine riflemen for five decades. From the jungles of Vietnam to the deserts of Iraq and Afghanistan, “Skids” have admirably served as a highly responsive and lethal close air support platform. Changes in how the Marine Corps structures itself and fights in the 21st century demand a reexamination of how Marine Light Attack fights, trains, and deploys—acknowledging the changing and increasingly lethal operational environment while continuing to refine and develop our strengths. Since the last H-1 left Afghanistan half a decade ago, the Marine Light/Attack Helicopter Squadron (HMLA) community has been intensely focused on how it can contribute to the renewed emphasis on great power competition. This is a difficult problem against a peer competitor. This year, Gen Berger acknowledged the decreas-

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ing relevance—in the context of a Pacific fight—of the H-1 platform in his *Commandant's Planning Guidance* and then more directly in the *Force Design 2030* message, which characterized the H-1 as “operationally unsuitable for our highest priority maritime challenges” and called for a divestment of two of seven squadrons.

H-1 helicopters are indeed operationally unsuitable in a mutually contested battlespace characterized by highly proliferated, long-range, modern air and coastal defense systems. The aircraft's short-range, vulnerability, and limited firepower (in the context of a Naval fight) combine to make a platform ill-

sued to support the Navy and Marine Corps' concept of Distributed Maritime Operations (DMO) against a peer-level adversary.<sup>1</sup> DMO calls for U.S. naval forces (to include embarked Marines) to

operate at sea in a less concentrated, more distributed manner, so as to complicate an adversary's task of detecting, identifying, tracking, and targeting U.S. naval forces, while still being able to bring lethal force to bear against adversary forces.<sup>2</sup>

This places a necessary design emphasis on speed and range for supporting aircraft to expand the “blanket” of fires and logistics coverage that DMO attempts to create.

Therefore, in the era of DMO, we must examine how we think the HMLA should deploy and shift our focus to where our strengths remain—close air support in a low-to-medium threat environment in the CENTCOM and AFRICOM Theaters—while still leveraging the advantages presented by seabasing: the principle character of our Service and a unique capability we can bring to the joint force commander.<sup>3</sup>

### Range & Threat: The Challenges of INDOPACOM

H-1s have an extremely limited capability to maintain a persistent forward presence in a mutually contested environment. The countertactics required to deny acquisition and lethal engagement by 21st century surface-to-air missiles (SAMs) prevent H-1s from meaningfully contesting a peer-level competitor without significant shaping by other assets. While detailed discussions on adversary threat capabilities and required countertactics must be limited at the unclassified level, it is imperative to acknowledge the fundamental problems with seabasing H-1 Helicopters



**All H-1 helicopters have a limited capability to maintain forward presence in a contested environment. (Photo by Petty Officer 3rd Class Ryan Breedon.)**

***"Visions of a massed naval armada nine nautical miles off-shore in the South China Sea preparing to launch the landing force in swarms of ACVs, LCUs, and LCACs are impractical and unreasonable."*<sup>4</sup>**

***"Mobility inside the WEZ is a competitive advantage and an operational imperative."*<sup>5</sup>**

against a peer adversary in the Pacific. The threat problem is simple: Chinese anti-air and anti-ship capabilities in the South China Sea, both in static positions and on surface combatants, present prohibitive interference to ship-launched helicopters and the L-Class ships hosting them. Highly lethal, long-range, and widely distributed anti-ship and surface-to-air missiles create a weapon engagement zone (WEZ) that extends from their launch sites many times beyond the combat range of helicopters. Range—really, *standoff*—is the ultimate defense against missile systems: a capability that is better enabled by fixed-wing and tiltrotor platforms.

The relatively short combat range of H-1s and the exposure to amphibious shipping required to launch them, combined with the significant SAM threat to helicopters, creates a compelling case to prioritize longer-range platforms on the deckspace H-1s traditionally occupy to better leverage these low-density ships. Commanders should strongly consider this change to the traditional MEU/ARG structure in the Pacific fight.

In current ARG/MEU constructs, the H-1 detachment is usually embarked on a *San Antonio*-class LPD,

the only other air-capable ship in the ARG besides the LHA/D.<sup>6</sup> MV-22Bs have occasionally deployed a small detachment on the LPD but are much more frequently composited as a "full up" squadron on the big deck. A return to the "split-deck" MV-22 posture by pushing some of these assets to the small deck to replace H-1s has immediate advantages for aviation flexibility within the ARG.

A two-ship of MV-22s can provide a long-range, credible contingency response package, *without interrupting fixed-wing flight operations on the LHA*. With skids embarked on the LPD, MV-22s dedicated to contingency response cannot laager on deck and still allow F-35 flight operations; they must either be "slashed" and folded, preventing alert times inside of a 60-minute response, or airborne, which leads to other complications from a fuel and embarked troop welfare perspective. Conversely, a section of Ospreys laagering on deck on an LPD can provide sustained, quick response, long-range tactical recovery of aircraft and personnel/personnel recovery support to fixed-wing strike operations, *without interrupting LHA flight operations*.<sup>7</sup> Embarked Marines can remain outside of the aircraft, keeping their legs fresh until called upon. This can extend beyond just the ARG as well, as a carrier strike group in its current construct lacks any organic capability for long-range over-land combat search and rescue/tactical recovery of aircraft and personnel.

Prolonged maintenance of L-Class ships as the platforms age, combined with the renewed emphasis on distributed operations in the Pacific, will act in concert to prioritize the MV-22 over H-1s on increasingly limited deck space. The *2019 Commandants Planning Guidance*, *Force Design 2030*, and DMO all place an emphasis on distributing long-range, shorebased anti-ship and surface-to-air missile systems while simultaneously keeping forces ashore as agile and lightweight as possible. Any long-range missile will by nature be very large and extremely heavy—the Naval Strike Missile, a top acquisitions priority and key enabler for dispersed long-range fires, weighs 900 pounds—and keep-

ing forces ashore resupplied with missiles and fuel beyond what they debark with will necessitate aerial delivery to maintain any sort of lightweight footprint. Replacing the H-1 detachment with MV-22s on the LPD will allow the MEU commander to resupply forces ashore from two separate ships simultaneously—which themselves can distribute over a large area—multiplying the ARG's effective area of influence.

To free up space on shipping while maintaining HMLA in the AOR, a commander could elect to push H-1s ashore to forward-postured expeditionary advance bases (EABs) in the First Island Chain. This introduces more problems. Using a MEU HMLA detachment as an illustrative example, a 4 x AH-1/3 x UH-1 ashore detachment will incur a logistics footprint including food and water for at least 100 Marines, 5000lbs of fuel per section per sortie, and a very substantial ordnance, supply, and petroleum, oil, and lubricant allotment. This will all serve to hamper the EAB's mobility and create further dependence on heavy lift assets and engineering support, all for an at best suspect offensive capability against adversary surface combatants.

***"The imperatives of maritime competition, deterrence, and conflict in an era of warfare dominated by the emergence of a mature precision-strike regime demand change."*<sup>8</sup>**

### **The Fight Beyond INDOPACOM & The Case for Skids**

While the H-1's continued effectiveness is doubtful against a peer-level competitor, especially in INDOPACOM, the aircraft can still excel in other conflict areas and do so off of amphibious

shipping. But we must first rethink both how a MEU ACE is structured and how Marine aviation, in particular H-1s, are employed in support of the joint force. We must move away from compositing just for tradition's sake; a large, complex unit such as the current ACE *is not always the answer*. It is OK for the ACE's primary customer to be units beyond the MEU BLT.

***"We have had one framework, one construct for a MEU: all seven of them had to be mirror image for the last couple of decades because they were largely flowing to the Middle East to do a mission in Central Command. Going forward, what they were originally designed for, where they're global, now we should have the latitude for a Marine Expeditionary Unit in one place may look different than another Marine Expeditionary Unit." (Eckstein, 2020)***

Other Marine Corps aircraft have precedent for deployments as a single squadron or detachment—notably the TACAIR and MV-22 community, which have provided consistent support to Operation INHERENT RESOLVE since its inception within the Special Purpose MAGTF structure. However, outside of major combat operations, the Marine Corps has had

a relative hesitance to "package" rotary-wing aviation support to the joint force outside the traditional composite ACE built around a Marine Medium Tiltrotor Squadron (VMM) or to hange up the traditional ACE structure outside of small adjustments to numbers of aircraft. While a return to a full-squadron "dirt det" is certainly the dream of many HMLA ready rooms (and should not be completely ruled out as a capability), there are challenges of intermediate-level maintenance support, diplomatic clearances, political optics, force protection, and logistics support outside the capabilities organic to a squadron. Many of these issues are mitigated or altogether eliminated at sea. This ability to provide flexible, sustained, rotary-wing close-air support fires within the littorals is unique in the armed forces. We must leverage this capability and enable support to the customer—whether he is wearing MARPAT or MultiCam—from seabased platforms.

Many of the world's population centers, especially in the Middle East and Eastern Africa, lie within the combat range of seabased H-1s in international waters. A MEU expected to spend most of its deployment tasked in support of CENTCOM and AFRICOM can make a good case to retain the H-1 detachment as an extremely effective CAS aircraft in a low-to-medium threat environment while mitigating the challenges of a "dirt det." Are low-intensity conflicts in these areas the primary focus on the *National Defense Strategy* and the *Commandant's Planning Guidance*? No, they are not, but the last twenty years have repeatedly shown us that great harm can be done to Americans as much from the Syrian and Libyan deserts as it can be from Beijing. While the Marine Corps can and should posture for the pacing threat, we cannot turn a blind eye to maintaining our substantial capabilities to fight elsewhere.

Indeed, in one of the only combat operations conducted by H-1s since Afghanistan, 22nd MEU H-1s successfully conducted dozens of strikes against ISIS-Libya in 2016 as a part of Operation ODYSSEY LIGHTNING. With the exception of this admirable

example, Marine Corps rotary-wing aviation's contributions to the primarily SOF fight in CENTCOM and AFRICOM have been sparse compared with our sister Services. While there has been a persistent joint demand for conventional rotary-wing CAS in both CENTCOM and AFRICOM—Army AH-64s have been consistently present in Western Iraq and Syria supporting Operation INHERENT RESOLVE—H-1s have been absent from this theater in favor of maintaining a seabased presence on a MEU to support contingency response. While a MEU is characterized by persistent, flexible contingency response, requests for joint support should be realistically explored—in some sense, contingencies in and of themselves.

A potential compromise to maintaining a seabased HMLA and freeing up deck space for more capable assets for the INDOPACOM fight is the *Lewis B. Puller*-class expeditionary mobile base. These ships provide hangar space and deck spots similar to that of a *San Antonio*-class LPD, which would allow sustained operations afloat in essentially the same posture as on a traditional amphib. If threat to shipping is not a major concern, these ships could provide seabased H-1s with an excellent capability to provide prolonged contingency response packages. This has not been lost on the Army, who have experimented with basing AH-64Es on the *Puller* in a demonstration of the capability.

***"Two skids in the overhead—ready for work!"***

Over their 50-year operational history, H-1s have performed with distinction in "every clime and place." Many Americans under fire lived to fight another day because of accurately delivered fire support from a section of H-1s. This mission endures. Joint operations in Western Iraq, Africa, and Syria have demonstrated a persistent need for forward deployed rotary-wing fire support. The continued deployment of AH-64s in support of OIR, including National Guard units, have demonstrated this. H-1s could be a viable supplement to this enduring mission and future conflicts in CENTCOM and AFRICOM.



Both the AH-1Z and UH-1Y are well-suited to low- to medium-threat CAS:

- Powerful engines and a large power margin, allowing carriage of a full complement of precision and unguided munitions, including up to 16 AGM-114 Hellfire on the AH-1Z.
- High fidelity sensors: the Target Sight System on the AH-1Z is one of the highest-fidelity helicopter mounted sensors in the world, capable of detecting targets up to 30km away.
- The “mixed section” capability, unique in American aviation: the Cobra-Huey team provides a ground force commander with two fully-capable CAS aircraft replete with both PGMs and low-collateral door guns, as well as an inherent capability to provide limited utility support, troop lift, and CASEVAC.
- The *only* conventional force RW forward air controller (airborne) (FAC) (FAC[A]) capability, which is core mission essential task. As legacy fixed wing platforms transition to the F-35, the AV-8, and F/A-18 FAC(A) mission essential task will move to a core (plus) status, leaving the H-1 as the *only* Marine Corps platform with FAC(A) as a core mission essential task.

Admittedly, there *are* substantial capability gaps with several mission systems: the lack of SATCOM radios, active IR countermeasures, joint datalinks, and video downlink are significant obstacles to joint integration. However, H-1s have the capability, right now, to perform and excel in this mission set, and procurement efforts are underway to close these gaps.

The Apache’s continued Operation INHERENT RESOLVE deployment is the largest example of the ongoing demand for a capable, low-intensity CAS asset. SOCOM also has an active request for proposal (February 2020) for an armed overwatch program with the following capabilities:

Will provide Special Operations Forces deployable and sustainable manned aircraft systems fulfilling CAS, Precision Strike, and SOF Intelligence, Surveillance & Reconnaissance in austere and permissive environments.<sup>9</sup>

While this program is framed in the context of a hypothetical fixed-wing

platform (this request for proposal was announced shortly following the Air Force’s cancellation of the AT-6/A-29), it should be noted that specifically delineated mission sets are CAS, armed reconnaissance, strike coordination and reconnaissance, and forward air controller (airborne).<sup>6</sup> *All four of these* are HMLA mission essential tasks. Discussions on integration of Marine Corps aviation fires in support of SOF are available at higher classification levels.

Persistent demands for rotary-wing fire support in Operation INHERENT RESOLVE as well as the Armed Overwatch program demonstrate that the desire for an “H-1-like” capability is clearly present. Marine commanders should consider more aggressively advertising H-1 support, whether from a MEU or dirt det, on a strictly defined basis to theater commanders if there is a demand.

## Recommendations

We must acknowledge the limitations of the H-1 platform in the future fight in INDOPACOM, especially within the construct of DMO. We must also realize its untapped potential supporting joint operations in other conflict areas throughout the world and the community’s low-density, high-demand capabilities—in particular rotary-wing

CAS and FAC(A). The following efforts would leverage these capabilities while making necessary changes to force structure elsewhere to best enable the Marine Corps’ contribution to DMO:

- Continue the demand signal for mission system improvements to better enable contributions to the joint fight and aircraft survivability—namely, SATCOM, Link-16, and DAIRCM.
- Replace the Okinawa Unit Deployment Program with established “packaged” HMLA detachments, of a similar Squadron (-) construct, structured to support specific close air support force requests as they are developed.
  - Beyond tactical considerations, the divestment of two squadrons, if current deployment structure remains unchanged, will begin to create issues with MET proficiency maintenance among remaining squadrons. Decreased CONUS dwell time will aggravate existing issues, particularly with FAC(A) certification.
- Particularly in 2d MAW, the consolidation of Marine Corps Special Operations Command in Stone Bay creates an excellent opportunity for MAG-29 HMLAs to build and foster a continued, mutually beneficial relationship in CONUS. Predeployment training for both an Marine Special Operations Battalion and a hypotheti-



**The H-1 Cobra-Huey mixed section provides a ground commander with two flexible CAS platforms with multiple complementary capabilities. (Photo by Cpl Claudia Nix.)**



**Continued deployments of the AH64 Apache gunships to Operation INHERENT RESOLVE shows the ongoing need for a RWCAS capability.** (Photo by Sgt Thomas Stubblefield.)

cal supporting HMLA could mirror each other, providing the supported commander a team of highly trained raiders with an existing relationship with an HMLA. Predeployment training would provide both elements with a level of air-ground familiarity without equal across the joint force.

- Continue to foster relationships with non-Marine Corps fires support agencies. Both 3d MAW and 2d MAW HMLAs already do this at the squadron level, with frequent detachments for training supporting the Air Force Joint Terminal Attack Controller Weapons School, U.S. Army Special Forces training, and Naval Special Warfare deployment workups. This should be sustained and enabled at a MAG-level, with invitations extended to these agencies to attend Service-level evolutions like Weapons and Tactics Instructor Course and the semi-annual FAC(A) exercises hosted by MAG-39.
- Explore the long-term viability of HMLA deployment onboard *Puller*-class ESBs to provide seabased contingency response outside the construct of a traditional MEU. This support would be OPCODE to a theater-level MEB and TACON direct to the supported commander. This frees up more L-class ships while maintaining the advantages seabasing confers.

The capability of the H-1 platform to fight and excel in the Pacific is at best as a secondary enabler, providing force protection to EABs or ship point defense. These are important tactics, techniques, and procedures that must be explored at the squadron, group, and wing level, as well as at MAWTS-1. But the aircraft's significant capability as a joint CAS asset in theaters beyond INDOPACOM cannot be denied and should be enabled by all levels of command, up to and including task organized reinforced HMLAs to deploy supporting specific force requests.

Marines want to fight. While the changing operational environment must force us to realistically assess our capabilities to do so against a peer competitor, history has shown us that future conflict will not be limited to great power competition. Marine Light Attack remains a highly capable close-air support asset and is ideally suited to fill operational demands in CENTCOM and AFRICOM. They need only to be set loose.

#### Notes

1. DMO has two additional enabling concepts: EABO and littoral operations in a contested environment. While these operational concepts merit extensive discussion on their own merit,

this paper will focus on the specific application of HMLA within the broader DMO framework and assume reader familiarity with expeditionary advanced base operations and littoral operations in a contested environment.

2. Ronald O'Rourke, "Navy Light Amphibious Warship (LAW) Program: Background and Issues for Congress," (Washington, DC: Congressional Research Service, May 2020).

3. Low-to-medium threat refers to an operating environment where the adversary's air defense capabilities, or lack thereof, allow friendly aircraft to either freely operate or with a minimal impact on tactical employment.

4. Gen David H. Berger, *38th Commandant's Planning Guidance*, (Washington, DC: July 2019).

5. Headquarters Marine Corps, *Force Design 2030*, (Washington, DC: March 2020).

5. An "Air Capable Ship" refers to an L-Class surface combatant specifically designed to sustain long-term aviation operations. In the current ARG structure, the *San Antonio*-class LPD, *Wasp*-class LHD, and *America*-class LHA are considered air-capable. LSDs can accommodate aircraft for a short time but lack the facilities to perform all but the most basic maintenance. They also typically cannot support aircraft ordnance operations.

6. While MV-22s can temporarily laager on the *Whidbey Island*-class LSD—and will be able to on its replacement class—LSDs are not air capable ships, and deck space is frequently not available to fit a two-ship. This capability is nothing close to what permanently basing the aircraft on the LPD affords.

7. Department of Defense, *Armed Overwatch Other Transaction for Prototype Industry Day Announcement*, (Washington, DC: February 2020).

8. Gen David H. Berger, "The Case for Change," *Marine Corps Gazette*, (Quantico, VA: June 2020).

9. Megan Eckstein, "Marines' Force Design 2030 May Allow MEUs Tailored for Different Geographies, Adversaries," *USNI News*, (April 2020), available at <https://news.usni.org>.



2020 Kiser Family Irregular Warfare Contest: First Place

# Closing the Gray Zone Gap

Future Marine Corps civil-military operations in the South China Sea

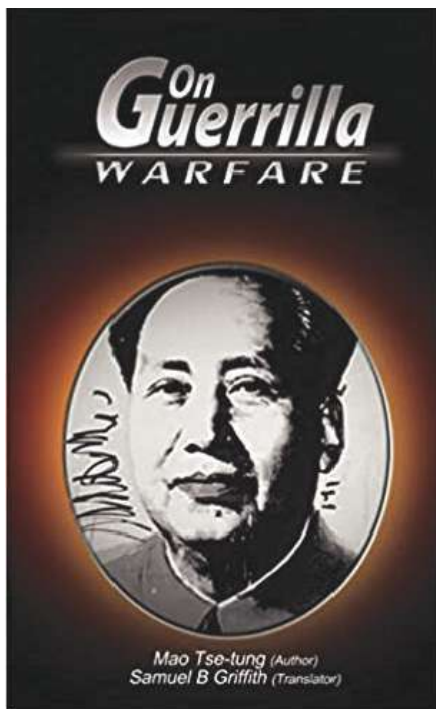
by 1stLt Matthew Beattie-Callahan

According to Mao Zedong, We must unite the strength of the army with that of the people ... Thus the time will come when a gradual change will become evident in the relative position of ourselves and our enemy, and when that day comes, it will be the beginning of our ultimate victory.<sup>1</sup>

While Mao was referring to combatting a militarily superior Japanese enemy in his 1937 book, *On Guerrilla Warfare*, his words would be just as apt today in describing Chinese strategy in the South China Sea (SCS). In this region, China has proven extremely adept at mobilizing civil capabilities (“the people”) in concert with the limited application of hard power (“the army”) to achieve “gradual change” that now amounts to a substantial departure from the status quo of two decades ago. Chinese success in synergizing civil and military capabilities has occurred in a portion of the conflict continuum frequently referred to as the gray zone, where the American military is ill-equipped doctrinally and operationally to act.

In response, Marine Corps civil-military operations (CMO) must shift away from its traditional stability-centric model and focus on leveraging civil capabilities to facilitate military action in the gray zone. Relying on their understanding of both the military and civil society, civil affairs (CA) Marines can identify, plan, and coordinate mutually reinforcing or joint actions between the two domains. Among the Services, the Marine Corps is especially well suited

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***Mao Tse-tung On Guerrilla Warfare originally published 1937. Translated and introduced by Gen Samuel B. Griffith. USMC, also available as FMFRP 12-18 Mao Tse-tung on Guerrilla Warfare. (Public Domain.)***

for this task in the littoral environment of the SCS; Marines can serve as the vital connective tissue linking military actions in the maritime arena with the landbased economic, political, and social

orders affected by them. This is a radical shift from our traditional understanding of CMO and CA, yet it is necessary to close a widening non-traditional capability gap that has left our Service and country floundering to re-gain initiative in a vital maritime environment.

## The Gray Zone Gap

Even as China strives to build its conventional military arsenal, it is clear China does not seek a frontal confrontation with the United States. Instead, China again looks to Mao, who advises (in true maneuver warfare fashion), “strike the weak spots in the enemy’s flanks, in his front, in his rear.”<sup>2</sup> China finds these American weak spots in the gray zone. The gray zone is alternately defined by the Center for Strategic and International Studies as:

a form of conflict that: pursues political objectives through integrated campaigns; employs mostly nonmilitary or nonkinetic tools; strives to remain under key escalatory or red line thresholds to avoid outright conventional conflict, and; moves gradually toward its objectives rather than seeking conclusive results in a relatively limited period of time,

or more succinctly, “the contested arena somewhere between routine statecraft and open warfare.”<sup>3</sup>



The existing gray zone gap between China and the United States is in large part because of cultural differences in their military doctrine and civil society. While the American military establishment has only recently looked beyond the traditional binary of war and peace toward a new conflict continuum, the Chinese state was born

lawfare campaign in support of its “9-dash line,” which arbitrarily claims 80 percent of the SCS.<sup>5</sup> China’s civilian fishing fleet is one of its most visible and oft used gray zone tools. These civilian vessels have been central to some of China’s most high-profile actions in the SCS, including the *USNS Impeccable*, Scarborough Shoal, and *Viking II*

and hybrid warfare arsenals are weak at best, poorly organized, and grossly under-resourced. There is clearly a strategy mismatch between China and the Western allies.<sup>8</sup>

In other words, the United States is unable (or unwilling) to fully utilize its hard power and lacks the doctrinal and operational ability to leverage soft power or civil capabilities. This has left the United States with no credible strategy to counter Chinese gray zone actions. While most of the American military establishment remains hyperfocused on preparing for a future conventional conflict, China is winning that future fight now. With a full-throated conventional response considered too bellicose, and no response an unacceptable surrender, we must look to Marine Corps CMO to lead the way in developing a new more aggressive strategy that leverages civil capabilities to not only blunt but also push back against Chinese actions in order to close the formidable gray zone gap.

### **The Wrong Answers**

The Marine Corps has a large collection of recent CMO experience to draw on: two decades of counterinsurgency (COIN) operations where CMO played an integral role in winning “hearts and minds” and a Pacific Combatant Command whose real-world experience since Vietnam consists almost exclusively of humanitarian assistance/disaster relief (HA/DR) operations. Yet, to think that we should look backward at this substantial portfolio of experience in order to discern the path ahead is patently incorrect. In their *Gazette* article, “Forward and Enduring,” CWO4 James Jabinal and Col Valerie Jackson write, “the Marine Corps needs to break free from the prevailing misconception that CA relevancy exists only during post-combat stability oriented operations or ... HA/DR operations.”<sup>9</sup> Nowhere is this statement more relevant than in the SCS.

The SCS is a radically different environment than Iraq and Afghanistan. Because of the Marine Corps’ logistical capacity in austere environments and higher risk tolerance for personnel, CA Marines in Iraq and Afghanistan

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## ***The existing gray zone gap between China and the United States is in large part because of cultural differences in their military doctrine and civil society.***

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from two decades of insurgency where front lines were fluid, combatant definitions were ambiguous, and enemies one year became allies the next. This insurgent experience, less than a century old, has allowed a growing conventional Chinese military to remain rooted in Maoist guerilla doctrine and embrace the irregular strategy and tactics required of the gray zone. Similarly, China’s disregard for international law and ethical norms gives it greater flexibility. This Chinese outlook is again best described by Mao who writes that there is no use for “stupid scruples about benevolence, righteousness and morality in war.”<sup>4</sup> From a civil perspective, the authoritarian, centralized Chinese government can bring to bear civil capabilities (economic, informational, industrial, scientific, etc.) that typically belong to private entities outside the government’s control in a liberal democracy like the United States. These factors allow China to pursue a unified course of civil-military strategic action in the SCS, simultaneously leveraging civil and military capabilities in pursuit of regional hegemony.

Examples of Beijing’s creative combinations of civil-military actions in the gray zone are numerous. The combined threat of Chinese naval action and economic isolation is used to discourage international oil companies from working with smaller Southeast Asian countries to explore oil fields inside their exclusive economic zone (EEZ). Military information operations complement Beijing’s

incidents. While fishing trawlers played the lead role in these incidents, military vessels lurked off-stage nearby, underscoring how China’s gray zone strategy incorporates both soft and hard power.

The National Security Strategy clearly identifies the threat of these gray zone actions that operate “below the threshold of open military conflict and at the edges of international law,” stating,

such actions are calculated to achieve maximum effect without provoking a direct military response from the United States. And as these incremental gains are realized, over time, a new status quo emerges.<sup>6</sup>

Despite this, the U.S. military still has not formulated a coherent doctrinal or operational response. Kathleen Hicks of the Center for Strategic and International Studies writes,

too often the U.S. approach has been reactive and ad hoc. In particular, the United States lags in necessary capabilities in indications and warning; decisionmaking quality and speed; public-private collaboration; and transitioning to a campaign mindset for competing against gray zone challenge.<sup>7</sup>

Ross Babbage of the Center for Strategic and Budgetary Assessments agrees, saying,

most decision-makers in the West still consider themselves to be in a state of “peace” and are not inclined to initiate actions that they fear Beijing may consider provocative. Their political



**Partnering with indigenous force and Navy partners can provide access for Civil Reconnaissance.** (Photo by LCpl Allison Bak.)

performed stability tasks normally delegated to other civilian government agencies. As we transition to the more permissive environment of Southeast Asia, we must pass the torch back to agencies such as USAID, the Department of State, Department of Justice, and Department of Agriculture. These agencies are better equipped and organized to perform routine development and stability functions. Narrowing our portfolio of responsibility will allow us to focus limited capacity on true joint civil-military operations instead of civil functions performed by military personnel.

When operating inside partner nations, CA personnel cannot expect the unilateral freedom of action enjoyed in Iraq and Afghanistan. Commands must place an emphasis on developing relationships with partner nation governments and securing their support and assistance for operations. Similarly, CMO operations cannot occur independent of the other military operations conducted in theater. From the combined action platoons of Vietnam to the provincial reconstruction teams of Iraq and Afghanistan, the Marine Corps has a tradition of giving those carrying out CMO a general intent and then allowing them to conduct dispersed operations, independent

of ground forces and commanders. While this construct worked well during COIN campaigns, an independent mindset will prevent the coordinated action necessary for successful CMO in the gray zone. CMO needs to be an active player that shapes and integrates with the main effort scheme of maneuver, not a parallel line of effort.

We are not looking to win hearts and minds in the SCS region. SCS partner nations work with the United States because of mutual interests and our ability to credibly deter Chinese actions, not some reservoir of goodwill. Besides, most of the key players in the SCS already have an overwhelmingly positive opinion of the United States—more likely because of their fear of China than any magnanimous American actions. In Vietnam, 84 percent of those surveyed had a favorable opinion of the United States, 80 percent in the Philippines, and 68 percent in Taiwan.<sup>10</sup> In contrast, 85 percent of citizens in Southeast Asian nations said they are “worried about China’s political and strategic influence.”<sup>11</sup> Actions which credibly deter China will do more to secure the cooperation of partner nations than developmental or aid projects.

Because of the region’s propensity for natural disasters, Marine Corps HA/DR operations have dominated CMO

in the SCS. HA/DR operations are a moral imperative that offer two ancillary strategic benefits: a non-incendiary medium for joint military operations and a way to preserve the economic and political capital of affected countries, so they can remain effective partners in countering Chinese aggression. Despite past successes and inherent benefits, maintaining HA/DR as the centerpiece of our CMO strategy is intellectually lazy and egregiously reactive for a region where the United States must re-gain the initiative. HA/DR should remain a supporting effort in CMO, but it can longer be pointed to or weighted as our main effort.

The connecting theme of these “wrong answers” is we cannot pursue stability as the sole end of CMO in the SCS, independent of larger military or strategic objectives. The DOD defines CMO functions as “activities that establish, maintain, influence, or exploit relationships between military forces and indigenous populations and institutions, by directly supporting the attainment of objectives relating to the reestablishment or maintenance of *stability* within a region or host nation.”<sup>12</sup> Yet, the United States categorically rejects Chinese territorial claims in the SCS and seeks to deny it regional hegemony. While most Americans would agree these are morally just and strategically sound objectives to pursue, they are also inherently *destabilizing* for the region—leaving very little room for CMO under our current definition. This poses a major problem since we need to incorporate a civil component into our operations to effectively compete in the gray zone. The solution is to broaden our conception of CMO so that we “establish, maintain, influence, [and] exploit” civil-military relationships, but in pursuit of military or strategic objectives, not stability.

Many will immediately question whether the Marine Corps can pursue this broader definition of CMO without also sacrificing our moral principles and obligations to the civilian populace. This concern is well-founded. The American claim to world leadership (and leadership in the Southeast Asia) is rooted in the belief that the



United States will protect a moral, rules-based system. Unlike China, the United States must participate in the gray zone without resorting to ethically corrupt actions. Hicks writes, “Even as the United States campaigns in the gray zone, it should do so in accordance with its principles. U.S. laws and values are fundamentally strategic advantages in the competitions the country faces.”<sup>13</sup>

### **The Way Ahead**

In line with this broader definition of CMO, numerous authors have already intellectually charted a new way ahead with a unified call to re-focus on a long-neglected CA core function: civil reconnaissance (CR).<sup>14</sup> One such article envisions “CA Marines operating in a distributed manner conduct civil reconnaissance: a targeted, planned, and coordinated observation and evaluation of specific civil aspects of the environment.”<sup>15</sup> Another writes of the impact CR will have in securing “access to critical pieces of terrain for future operations.”<sup>16</sup>

These articles propose a critical first step in the right direction but still fall short in two respects. One, the articles frame CMO’s potential through the lens of a future conventional fight, when we need drastic change now for the defining fight currently taking place in the gray zone. Two, they limit CMO to merely shaping the battlespace through CR, ignoring its potential during the execution phase. In the gray zone, CMO must facilitate and integrate with Marine Corps actions from start to finish, integrating civil capabilities to amplify military actions and capitalizing on CA Marines’ knowledge of the human terrain to influence our information operations. The CA battle rhythm in the SCS should be: identify opportunities, facilitate joint civil-military action, and control the narrative. Consider the following vignette.

An arbitral tribunal convened to resolve maritime disputes between China and Philippines ruled unanimously in the Philippine’s favor in 2016. In July of 2020, the United States aligned its policy with the tribunal’s decision stating,

the Arbitral Tribunal’s decision is final and legally binding on both parties ... the PRC has no legal grounds to unilaterally impose its will on the region. Beijing has offered no coherent legal basis for its ‘Nine-Dashed Line’ claim in the South China Sea.<sup>17</sup>

In the months since then, China has continued its behavior, so the United States decides to deploy the 31st MEU and PHIBRON 11 to serve as a deterrent against illegal Chinese actions in-

information requirements, and the permission of the Filipino government, the CA team sets out to shore to conduct CR.

Upon their return, the CA Marines inform the MEU commander that Chinese harassment has most severely affected the tuna fishing industry based out of Manila. Using water cannons and aggressive maneuvers, Chinese flagged vessels prevent the Filipino fishermen from reaching their traditional fish-

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***... numerous authors have already intellectually charted a new way ahead with a unified call to re-focus on a long-neglected CA core function: civil reconnaissance ...***

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side the Filipino EEZ. Specially tailored for this mission, the force deploys with multiple Mark VI patrol boats to interdict smaller vessels and a robust civil affairs contingent. Stymied at how to deter Chinese action in an area over twice the size of California and Texas combined, the MEU commander dispatches a team of CA Marines to narrow down the problem. Armed with commander’s intent, a set of priority

ing grounds south of the Scarborough Shoal. Furthermore, the CA Marines report that the Filipino coastguard is unable to effectively respond as they only learn of the harassment after the fishermen return to shore. While this CR has already provided the commander with invaluable information unavailable in the S-2, the CA Marines propose to further exploit this information with joint civil-military action.



***Military exercises with the Philippines Army and Marine Corps leverage long-standing partnerships to contest China’s influence. (Photo by Petty Officer 1st Class Jay Pugh.)***



Using the local relationships the CA Marines developed during their CR, the commander distributes 1,000 GPS and radio systems through the Filipino government to the fishermen. With this relatively inexpensive technology, the fishermen can contact both Filipino coast guard and American military vessels with an accurate location if they are being harassed by or sight Chinese ships inside the Filipino EEZ. This aligns civil and military interests as the fishermen acquire a means of greater protection and the MEU gains 1,000 new intelligence collection points at minimal cost. Mark VI patrol boats are pushed out with CA Marines aboard to make contact and build rapport with Filipino fishermen encountered at sea. Filipino coastguard and U.S. Marine Corps vessels responding to incidents can take legally justifiable actions to defend the Filipino civilian fishermen, all the while recording Chinese violators and sending footage to a Marine Corps Communication Strategy unit. The same CA Marines advise the Communication Strategy unit on what footage and messaging will best demonstrate American military commitment to the local Filipino population and erode false Chinese narratives in the region. The CA Marines then digitally distribute the finished IO products through their local contacts.

Thanks to the CR capabilities of the CA Marines, the commander was able to focus his resources to a critical area. He then looked to leverage the civil capabilities discovered during CR, exploiting mutual civil-military interests to encourage civil action that amplified the effectiveness of his own actions. Finally, the commander employed CA Marines to tailor and distribute IO products produced during the operation. This start to end impact is just one example of how much CMO has to offer in the gray zone if we abandon the stability-centric model. Further, it shows how we can aggressively pursue gray zone CMO without jeopardizing our moral or legal principles.

## Conclusion

As long as America retains military pre-eminence, even conventional ad-

versaries will seek out unconventional means of warfare. China has proven no exception to this rule. Through gray zone actions that use civil capabilities to augment Chinese military power, China has blunted American deterrence capability and made large strides toward its strategic objectives in the SCS. In response, the United States needs to incorporate CMO as a centerpiece of its SCS strategy to build its own gray zone capabilities. This requires a

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### **... the United States needs to incorporate CMO as a centerpiece of its SCS strategy ...**

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forward-looking perspective that does not remain rooted in our CMO experience of the last twenty years of COIN operations. Even more importantly, it requires a new CMO definition that broadens our conception of CMO from a mere executor of stability operations to a direct enabler of offensive and defensive actions. Without the will and capability to shape and leverage the civil environment of the SCS region, our military effectiveness is transient at best, non-existent at worst, and ultimately, doomed to fail.

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# Preparing for War among the People in the Indo-Pacific

## Civil military operations and EABO

by Capt Wayland Blue

As the Marine Corps looks to future wars and focuses its attention on great power deterrence and potential conflict in the Indo-Pacific, lessons learned from Iraq and Afghanistan must not be forgotten or ignored. Despite the change of focus from Middle Eastern desert counterinsurgency to anti-access/area denial (A2/AD) island hopping, Marine Corps leaders would be remiss if they allow the differences in areas of responsibilities to overshadow important similarities that will enable success in future operations. Whether operating in an urban Middle Eastern theater or conducting expeditionary advanced base operations (EABO) on Pacific archipelagos, leaders, planners, and troops must understand that there will be non-combatants present. Combat in the Indo-Pacific will be a “war among the people,” and this must be considered early in the planning and force design, specifically regarding civil affairs (CA) capabilities for civil-military operations (CMO). The ability of a stand-in force to persist forward will be greatly supported by effectively shaping the cognitive civil environment of the AO. Historically, the Marine Corps has a proven ability to win the battles we train for. We must consider the full scope of future conflict and train, as well as educate for the most likely aspects.

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**HIMARS conducting live fire in the Philippines.** (Photo by LCpl Cameron Darrough.)

### Lessons from Iraq and Afghanistan

When assessing the overall United States’ experience in Iraq and Afghanistan, two salient overarching lessons are evident. Both apply to how the Marine Corps executes its current transition to focus on great power competition broadly and for posturing CA Marines to effectively conduct CMO in an increasingly complex operating environment. The first lesson repeated what has been demonstrated throughout our history and indeed the history of warfare itself. For all the advantages of superior technology, doctrine, and discipline,

these are not the only and not always the most important variables in the battlespace. Belligerent forces are seldom alone. Rather, often at the tactical level, nearly always at the operational, and universally at the strategic level, non-combatants are also present. Thus, the experience of the last two decades of war among the people was in no way an aberration but rather a reiteration of a fundamental truth the United States has experienced since the Revolutionary War. To one degree or another, war is always among the people. The second lesson from the last two decades is that,

contrary to what can be argued about how Operation ENDURING FREEDOM and Operation IRAQI FREEDOM later progressed, our military initially and overwhelmingly succeeded in precisely what it had prepared for.

The initial phases of Operation ENDURING FREEDOM and Operation IRAQI FREEDOM showcased American military superiority honed over decades of preparing to defeat the Soviet Union and its proxies. In preparing to fight the last war, our military had developed its maneuver warfare and combined arms capabilities to heights never before reached in the land, air, and maritime domains. Unconventional capabilities saw major initial successes in Afghanistan as special forces paired with precision air fires supported local proxies to unseat the Taliban government.<sup>1</sup> The display and success of our advanced capabilities culminated in the invasion of Iraq and the rapid collapse of Saddam Husain's military and government.<sup>2</sup>

However, overwhelming initial success and continued dominance at the tactical level did not translate to a concise or satisfactory victory. This disconnect may be attributable to a lack of political will, strategic clarity, and hubris. Yet, to lay the blame for these failures exclusively on the opposite side of the political-military divide negates our responsibilities as professional warfighters and neglects the significance of the second lesson. The major successes in Phase II-III along with the enduring challenges in Phase IV-V were both, in part, functions of preparation.

### Preparing for the MDCOA

The Marine Corps recognizes the validity of the second lesson as we and the wider naval Service undergo significant transformation to meet the emerging threats of the future—namely confrontation with the People's Republic of China (PRC). The potential challenges we face have been framed in a distinctly future-focused paradigm. Indeed, the commander's intent laid out in the *38th Commandant's Planning Guidance*, if executed, falsifies the adage that militaries always prepare to win the last war.<sup>3</sup> The conflict we are preparing to win appears remote from

the last war. Nevertheless, preparation will benefit from incorporating hard-won understandings gained from the recent past.

In preparation for the most dangerous course of action, a high-intensity conflict between peer adversaries, it may be tempting to take some reassurance from the relative simplicity implied by symmetric conflict. The battlespace and adversary become less abstract and require fewer cognitive steps to comprehend. The components of symmetric conflicts with their limited and sharply defined variables are more readily subjected to direct empirical analysis. Thus, the science of warfighting gains over the art, even as the human dimension inherent in a violent clash of wills remains present and increasing as mass casualties become more likely.

These points continue to resonate when considering the potential battlespace we place the most focus on as a stage for great power competition—the western Pacific. In so much as the complexity inherent in war can be simplified, naval warfare lends itself perhaps more readily than any other paradigm to reductive analysis. In naval combat, the battlespace is not constrained by complex geography but rather open to unrestricted maneuver. There is not the immediacy of a large population for the belligerents to obscure themselves in or compete for influence over. Rather, opposing naval forces must face the tangible logic of relative combat power and respective capabilities. Victory is not a subjective definition mutable to political considerations but rather the objective sinking, incapacitation, or surrender of the enemy's fleet.

Even adding the additional complexity of strategic islands and chokepoints as critical terrain that must be controlled to support naval operations, it remains tempting to assume the only geography is physical and nearly everyone present on the battlefield is a combatant. However, we know that such an assumption is not true. The western Pacific hosts the most civilian maritime traffic in the world, accounting for a third of global shipping.<sup>4</sup> Additionally, kinetic naval operations in the region would most likely be supported from the territories

of any of several surrounding countries. Naval operations will not stay on the sea as regional states are forced to take sides. Furthermore, high-intensity conflict is not only the most dangerous but also the least likely of several scenarios.

### Preparing for the MLCOA—Into the Grey Zone

A more likely future will involve potentially protracted low-intensity conflict as both sides seek to escape major losses while maintaining domestic political credibility by avoiding concessions—all while continuing to maneuver for strategic advantage.<sup>5</sup> The PRC's current strategy is characterized by ambiguous grey zone competition in which the diplomatic, information, and economic instruments of national power often comprise the main effort.<sup>6</sup> A future escalation would conceivably mirror the phenomena already taking place with the PRC being more overtly confrontational in the western Pacific while simultaneously positioning to gain economic and diplomatic leverage throughout the wider region. The potential of high-intensity conflict, though presently low, requires that the U.S. Naval Service continue to present a credible threat to keep it so. However, effective maneuver in the great power competition, which is now underway and likely to continue developing, requires increased capacity to operate in the grey zone below the threshold of major conflict.

Grey zone competition, as it is currently executed, is inherently asymmetric. The understanding gained over the last two decades is that kinetic superiority is only one part of the equation in an asymmetric conflict where the enemy blurs the distinction between military and civilian. The PRC blurs its intent by strategic maneuvering below the threshold of armed conflict. We place well-founded attention on where it is most active in employing its military capabilities—the South China Sea. Nevertheless, the PRC's actions in the South China Sea have effectively created our conceptual equivalent of a surface.<sup>7</sup> While in the tactical sense this surface may require a decision to be achieved, it is critical to recognize potential gaps where advantage can be gained.<sup>8</sup>



Maneuvering in the grey zone requires understanding and influencing human terrain. The human terrain of the Indo-Pacific is far larger and more complex than that of even Afghanistan or the Middle East. As great power competition, specifically with the PRC has been explicitly prioritized as the primary focus of the Marine Corps, accessing, influencing, and shaping the cognitive civil environment in the Indo-Pacific must be a primary focus of Marine Corps CMO and CA Marines.

### Among the People

Grey zone competition with the PRC, as it now manifests, is often waged for popular opinion and political leverage through soft power, economic aid, and investment programs throughout the Indo-Pacific region. The most significant is the Belt and Road Initiative, which the CPG expressly targets.<sup>9</sup> Shaping the broader cognitive civil dimension is a task for which the Marine Corps may often be only one component. An effective strategy in grey zone competition requires a whole of government approach.<sup>10</sup> The same would hold from the operational and strategic perspective in the event of a kinetic conflict and the resulting diplomatic, economic, and humanitarian problems. However, CMO capabilities remain applicable throughout the conflict continuum and an important component of interagency efforts.<sup>11</sup> Marine Corps CA, as the only dedicated CMO capability organic to the naval Service, is crucial to supporting naval operations in both the current competitive environment and future scenarios.

In realizing the importance of CMO in the context of a naval campaign in the western Pacific, it is helpful to envision how such a campaign could progress. One could easily imagine provocations carried out by a more aggressive People's Liberation Army Navy driving an escalation that requires the United States to impose strict and immediate consequences should it continue. As it will remain in the interest of both powers to minimize kinetic escalation, operations within the PRC's claimed exclusive zone and the disputed South



**10th Marine Civil Affairs Group in Iraq, 2007.** (Photo by Cpl Joseph Lambach.)

China Sea interior terrain features are likely to be limited as a matter of policy.

Instead, a probable course of action to de-escalate and gain a superior advantage will be securing key terrain in the vicinity of the first and second island chains to interdict and deny access to the People's Liberation Army Navy and pose a credible threat of a blockade against the PRC. Doing so would require the ability to restrict the direct passage or approach to the sea lanes of littoral Southeast Asia, especially the Malacca, Sunda, and Lombok Straits.<sup>12</sup> Unlike the interior islands, rocks, and reefs of the South China Sea, this extended area of responsibility comprises the undisputed sovereign territories of several states, including the Philippines, Indonesia, and Malaysia; all are populous countries, many of which, although often aligned with U.S. strategic interests, must balance with the PRC because of proximity and economic considerations.

Maintaining the current level of access within maritime and mainland Southeast Asia as well as further afield in the smaller nations of the Pacific is not guaranteed. If these nations are forced to face the major economic sacrifices and security risks implicit in supporting the United States against the PRC, even long-standing partnerships—such as with Thailand and Singapore—are likely to be strained.<sup>13</sup>

Gaining and maintaining access will require major diplomatic efforts and will likely face varying degrees of popular if not domestic political opposition. Operating at the tactical level in a potentially locally contested environment will require robust civil-military engagement and coordination. Civil-military considerations will be equally relevant in the case the Marine Corps is called upon to support the defense of Taiwan against PRC escalation or deliberate attack.

Adding to the current focus on the western Pacific, the PRC has evident ambitions elsewhere in the region, which it is already pursuing. In addition to a more assertive stance in the South China Sea, the PRC is backing the construction of deep-water ports on the coast of Burma and Pakistan.<sup>14</sup> These complement existing facilities in Djibouti and Sri Lanka and heighten strategic competition in the Indian Ocean. Furthermore, overland access to the Indian Ocean, especially through Burma, provides the PRC options to increase trade and energy security.<sup>15</sup> Alternate routes do not replace but can offset restricted access to the South China Sea. Thus, when imagining the full range of possibilities for a naval campaign in the Indo-Pacific, the potential operating environment includes the Indian Ocean in addition to the Pacific. Successful operations to achieve deterrence, de-

escalation, or defeat of the PRC will conceivably require access throughout the region.

## Shaping and Employing Civil Affairs—Improving CMO

CA must evolve along with the rest of the Marine Corps to meet the emerging challenges. Some have already provided well-reasoned arguments for how Marine Corps CA should be organized for increased effectiveness in the current era. CWO4 James Jabinal and Col Valerie Jackson note historic misperceptions of CA at the tactical level, which translated to inefficient and often reactive employment.<sup>16</sup> To overcome these problems, they recommend reframing CA as “Civil Reconnaissance” and firmly situating CMO capabilities as a critical component of information operations. Their reasoning follows the larger shift toward placing greater emphasis on cognition and information warfare evidenced by the creation of the Marine Information Groups. Indeed, they advise the Marine Information Group is the appropriate place to situate and expand active component CMO capabilities.

In addition to updating CA organization, how CA forces are employed in the current era must also be evaluated. An important consideration from Iraq and Afghanistan is that CMO capabilities were primarily employed amid major combat and stability operations. This employment pattern logically followed the progression of the initial campaigns as invasions of hostile territory. However, in the current operating environment, CMO has the opportunity to be more proactive as a component of persistent engagement and deterrence.<sup>17</sup> In this way, CA Marines have an important part to play in grey zone competition. We already see this taking place in major regional theater security cooperation events such as Cobra Gold and Balikatan, along with various smaller venues.

Arguably, CA forces are uniquely capable of supporting U.S. interests in the grey zone through building partnerships and synergies with host nation government institutions and non-governmental organizations. Sev-

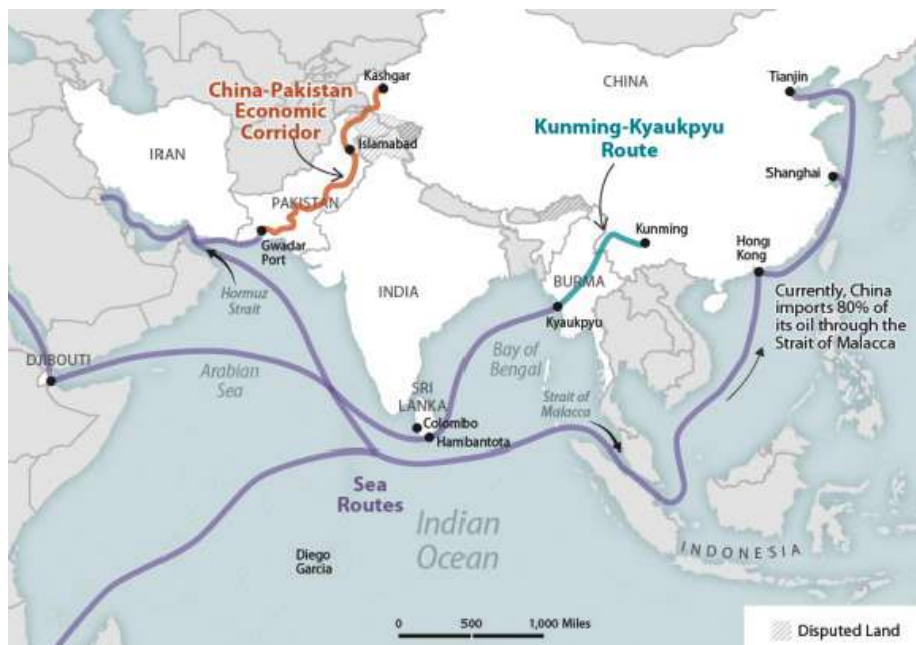


**Indo-Pacific choke points.** (Source: Department of Defense.)

eral authors have argued for expanding the role of Marine Corps CA in military diplomacy and persistent engagement.<sup>18</sup> Doing so would likely mean increased deployments and require further refinements and investment in manpower and training.

There are certainly many benefits to be gained from expanding the Marine

Corps CA capability. However, these must be considered in conjunction with service-wide force shaping and balanced within manning and fiscal constraints. Nevertheless, there are even more fundamental steps that can and should be taken to posture our CMO capabilities and CA Marines for success in our current paradigm.



***Indo-Pacific lines of communication.*** (Source: Congressional Research Service.)



Establishing the PRC as our pacing threat provides clear priorities for how the Marine Corps must man, train, and equip to meet that threat—both in a possible major escalation and in the current grey zone competition. The known threat and operating environment we are preparing for must also inform how we educate to meet the unknown challenges of competition in the Indo-Pacific. Effectively accessing and influencing the human terrain was a persistent challenge in Iraq and Afghanistan, in part, because we were not prepared from the outset. We were jolted into the last two decades of war on the morning of 11 September 2001. The day before, most Americans likely could not find Afghanistan on a map, let alone pay attention to what had been building there over decades of conflict and chaos since the Soviet invasion. We entered Iraq in 2003 with many not expecting victory would require more than the destruction of the Ba’ath Regime. We confronted cognitive civil domains we did not initially understand and struggled with great difficulty to shape. Now we can, and must, do better.

The Indo-Pacific accounts for the largest percentage of the world’s population and is home to dozens of individual nation-states with their own political and strategic interests. Encompassing the nations of East, Southeast, and South Asia, along with numerous island nations, the Indo-Pacific also hosts one of the highest levels of linguistic and cultural diversity in the world. Marine Corps CA must be prepared to reduce the uncertainties and simplify the complexities of this environment.

To this end, the Marine Corps should reorient its educational focus, especially in the realm of area studies. The existing Middle East studies program at the Marine Corps University is a useful model from which to expand.<sup>19</sup> An additional program focused on Indo-Pacific studies would serve as the Service’s institutional home for scholarship on the region in support of CA and the Marine Corps as a whole. Additionally, CA units and individual Marines must focus on developing expertise in the languages, cultures, and civil environments of the Indo-Pacific.

These tasks are easier said than done given the diversity and complexity of an area accounting for over half the global population. However, while no individual can be a subject matter expert on the entire region, CA Marines should be incentivized to develop the linguistic and academic competencies to be subject matter experts on a sub-region or country within the Indo-Pacific. Also, greater integration with the International Affairs Program is possible by sending foreign area and regional affairs officers and non-commissioned officers to utilization tours in potentially expanded active component CA formations. Additionally, current reserve component CA Marines should be encouraged and incentivized to pursue experience-track accession to international affairs MOSs, as well as application to the study-track pipelines.

We educate for uncertainty. However, we know what part of the world we are most likely to face uncertainty. We can best posture Marine Corps CA to access, influence, and shape the cognitive civil environment of the Indo-Pacific in support of a naval campaign by making them deeply knowledgeable about that environment. In doing so, we will heed the first lesson by preparing to win among the people. We will heed the second by preparing for exactly the fight we must win.

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2020 Kiser Family Irregular Warfare Contest: Third Place

# Canary in the Coalmine

Civil affairs as augur of *Force Design 2030*

by Maj Leo Spaeder

This was supposed to be a straightforward article about human terrain afloat. It advocated a simple premise that the future of Marine Corps civil affairs (CA) is engaging human terrain on both land and sea, since the other sea Services do not have dedicated CA personnel and China is achieving its objectives below the level of armed conflict. It described the growing importance of the sea for U.S. foreign policy, how China is winning in that domain, why the Marines Corps was the right (actually, the only existing) answer for the U.S. Naval Service, and some new concepts of employment to beat China at its own game. Then the article fell apart. Researching the current structure to provide some modest adjustments to structure and mission alignment, I discovered the terrible truth: CA might as well not exist in the active component. In a decision that could be charitably characterized as ill-advised, the Marine Corps approved on 12 February 2019 an active duty structure that reduces CA to planners/subject matter experts without any capacity to actually “do” civil affairs operations.<sup>1</sup> Only the reserve component has any Marines who execute CA.

Skeptical that I interpreted the publication properly, I asked a friend who is a currently serving CA officer. Confirming the bad news regarding structure, he added—after a heavy sigh—a certainly unpopular view toward his adopted career field: “If CA is only going to be viewed as handing out soccer balls and condolence payments, the Ma-

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rine Corps should just kill the program and stop the charade.” At this point, a bold, new thesis threw overboard the old article suggesting modest change. *Marine Corps Civil Affairs will be the canary in the coalmine of the ultimate success or failure of Commandant Berger’s Force Design 2030 (FD30) initiative.* If the Marine Corps cannot find less than 200 active duty billets that require modest training, no equipment, and are essential to naval operations in both peace and war, then *FD30* will be an expensive failure that will cede the strategic center of gravity—the people—to China. To avoid another unwelcome, late-appearing surprise as I experienced, this piece will reverse the usual article construct; instead of saving the proposed solution for the end, the solution will come first and the justification last. First, it proposes the active duty structure required to fulfill the Marine Corps’ mission to deter and defeat China before conflict. Next, it describes potential concepts of employment, to include mission alignment of the reserve civil affairs groups (CAGs). Lastly, it explains why these changes are essential for a Marine Corps that is orienting to the United States’ only peer competitor.

## Undoing the Damage

As described above, the Marine Corps reduced the active component CA community to the following paltry operational sum:

- One officer (MOS: 0530) or an officer and enlisted (MOS: 0531) at each Marine Forces Command (MARFOR).
- Two 0530s and two 0531 at each MEF staff, except III MEF that received three and three, respectively.
- Each Marine Information Group receives two 0530s and an 0531.
- Each MEU has an 0531.
- Marine Corps Information Operations Center receives five 0530s and seven 0531s.

At those staffing levels, only the Marine Corps Information Operations Center can employ one CA team—the lowest echelon of CA capability. Previous force structure included three detachments with a headquarters and six CA teams for each MEF—from eighteen CA teams to one ad hoc team, that is how deeply the February 2019 decision cut.

To achieve the *38th Commandant’s Planning Guidance* to prevent or respond to crisis as a naval expeditionary force operating inside actively contested maritime spaces in support of fleet operations, the Marine Corps will have to make a significant investment reflected in Table 1.<sup>2</sup> For I and II MEFs, each active component detachment will include one headquarters to provide a civil-military operations center (CMOC) and three CA teams, one for each MEU. III MEF’s detachment

Unit	Capability	Personnel
I MEF	1 Det HQ 3 CA Teams	5 Officers 25 Enlisted
II MEF	1 Det HQ 3 CA Teams	5 Officers 25 Enlisted
III MEF	1 Det HQ 4 CA Teams	6 Officers 31 Enlisted
FMFPAC	1 Det HQ 9 CA Teams	11 Officers 61 Officers

**Table 1. Proposed active component civil affairs units.**

will provide a CMOC across the force and assign CA teams to the 31st MEU and 3d, 4th, and 12th Marine Regiments. Lastly, a FMF Pacific detachment should be established and include a headquarters and nine CA teams, one for each destroyer and littoral combat ship squadron assigned to the U.S. Pacific Fleet and one team for Coast Guard District 14's Far East Activities Command.<sup>3</sup> Under this arrangement, the detachment headquarters can provide a CMOC to the Pacific, 7th, or 3d Fleets' Maritime Operations Centers. The current CA planners/subject matter experts included in the February 2019 force structure change would remain.

Unlike many *Gazette* articles that require significant resources and/or new capabilities, the success or failure of *FD30* is a mere 169 billets.<sup>4</sup> A modest investment for a 170,000 plus force that can field 18 F-35 squadrons, each

including ten aircraft that cost about \$75 million to buy and about \$40,000 an hour to operate.<sup>5</sup> This is just one small aspects of a force that includes fourteen tilt-rotor squadrons, five CH-53K squadrons (at a nine-figure price tag per aircraft), and likely hundreds, if not thousands, of anti-ship missiles for the rocket artillery batteries.<sup>6</sup> I highlight these capabilities, since their primary utility exists in conflict, not competition.

### Reorienting the Reserve

The above active component proposal is nowhere near enough capacity to confront China and other U.S. adversaries; it is the bare minimum to field a credible capability. The reserve component Civil Affairs Groups (CAG) will augment the force and are vital to *FD30*'s success. Prior to the February 2019 force structure decision, there were

four CAGs in Marine Forces Reserve; however, 2d CAG was deactivated and converted into two Marine Corps advisor companies. This article will not argue for the restoration of that capacity but will reorient the remaining three CAGs and describe where risk will be incurred.

As depicted in the table below, 1st CAG is aligned to I MEF and 3d CAG to III MEF. While INDOPACOM is included within their operating regions, it must be prioritized as there is not enough capacity to evenly spread without accepting undue risk against the Marine Corps' pacing threat. Prioritization will allow for increased specialization in language skills, critical to engaging human terrain. Additionally, as the only sea service with CA specialists, the Marine reserve component should improve their maritime interoperability. Therefore, 1st and 3d CAG will reinforce the FMFPAC CA detachment and create familiar relationships with 3d and 7th Fleets, respectively, in order to comply with the Commandant's direction that the habitual operating relationships will occur between III MEF and 7th Fleet as well as I MEF and 3d Fleet. Receiving its taskings from FMFPAC, these units can reinforce landward CA operations with I and III MEF as required.

More distinctive from today's alignment is the role of 4th CAG. Instead of working with II MEF, it will be the only CAG—and Marine Corps unit—specifically aligned to U.S. Coast Guard

Current Reserve Civil Affairs Alignment			→	Proposed Reserve Civil Affairs Alignment		
Unit	Operational Alignment	Regional Alignment		Unit	Operational Alignment	Regional Alignment
1st CAG	I MEF	INDOPACOM MARFORPAC CENTCOM MARFORCENT		1st CAG	FMFPAC (THIRD Fleet)	INDOPACOM
3d CAG	III MEF	INDOPACOM		3d CAG	FMFPAC (SEVENTH Fleet)	INDOPACOM
4th CAG	MARFORSOUTH II MEF	CENTCOM MARFORCENT SOUTHCOM		4th CAG	FMFLANT (US Coast Guard)	SOUTHCOM INDOPACOM

**Table 2.** (Source: Marine Corps Civil-Military Operations School Circular (April 2017 and October 2019).)

operations. As CA regularly leverages inter-agency cooperation, this natural relationship operates in familiar regional territory and allows Marine Corps CA to serve as connecting tissue between the sea Services across the entire range of military operations.

Conspicuously, this orientation accepts risk within II MEF and European, Africa, and Central Commands. As the Marine Corps is aligned to the Chinese threat, the preponderance of forces must be applied against that problem set while the Service can accept risk elsewhere. The Army has significant CA capabilities to operate in those regions and can support the Marines—similar to the decision to divest the Marine Corps of tanks and rely on the Army for those assets, if needed.

### **One if by Land, Two if by Sea: Let's Just Do Both**

Just like the Vietnam War's Operation STARLIGHT, tomorrow's CA Marines will be more effective if they engage the human terrain from both the landward as well as afloat. This amphibious conception of maritime civil affairs (MCA) will enable the crisis prevention mentioned in the *Commandant's Planning Guidance* and enable the achievement of U.S. strategic objectives as well as denial of Chinese strategic objectives. Unfortunately, it is the only conception for the Naval Service as Marine CA is the only standing capabilities across the sea services.<sup>7</sup>

To deter China and defeat its malign activity, Marines executing MCA must improve alliances and partnerships as well as impose costs on China. Improved alliances and partnerships entail selling the United States' value proposition as the preferred partner, which is increasingly important, as the United States has failed to keep pace with the China's Belt and Road Initiative infrastructure investments—increasing the capability and capacity of allied and partner states and binding foreign populations into the international liberal order. The recent instance in the Philippines when President Rodrigo Duterte threatened to cancel the Visiting Forces Agreement with the United States proves insightful. When he announced his intentions, he

received very little domestic political consequences since enough Filipinos perceive the United States as a threat to the Philippines sovereignty as much as is China.<sup>8</sup> This is a failure by the United States—led by the joint force and its considerable theater security and counter-terror operations—to convince the average Filipino about the benefits of affirmatively aligning with America and countering the Chinese narrative about the United States. Improving alliances and partnerships, not simply ally and partner military capability/capacity, is the foundation upon which all military operations are built: MCA must sell the American value proposition. However, where are the Filipinos, for example, to pitch this proposition? Many are located on the coastline, dependent on the sea

ment units to protect exclusive economic zones and territorial waters from PRC encroachment. Overlapping with the relationship improvement, these civil-military operations create a connection directly with the citizens of critical states and supports a grassroots movement to increase U.S. access, basing, and overflight within sovereign territory. As a stand-in force, cementing U.S. presence in states such as the Philippines, Japan, Singapore, Vietnam, and others represents a direct cost to Chinese strategic objectives in the region. Without access, other conflict concepts, such as EABO, cannot be undertaken.

Ashore or afloat, the three core competencies that Marine CA conduct currently—civil affairs activities, civil affairs supported activities, and

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***As the Marine Corps is aligned to the Chinese threat, the preponderance of forces must be applied against that problem set while the Service can accept risk elsewhere.***

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for their livelihood, whether it is fish, energy, or tourism. Others are physically on the sea, plying the trades that support so many ashore. This is why a comprehensive landward and afloat strategy is essential.

Regarding cost imposition, maritime civil affairs should reduce the return on investment of People's Republic of China (PRC) maritime activity—to include illegal, unregulated, and ungoverned fishing and energy exploitation—and maintain/increase access, basing, and overflight permissions that position U.S. forces to contest Chinese fait accompli gambits and malign behavior. Marine CA teams, operating afloat with Navy and Coast Guard shipmates, can develop informal intelligence networks based on trust and the coast watchers mindset (the combination of radio and Mark1 eyeball) to overcome the opacity of PRC operations in contested waters. This network can cue joint, inter-agency (U.S. Coast Guard), ally, and partner military, paramilitary, and law enforce-

military government operations—are still applicable.<sup>9</sup> However, the emphasis of these activities should move away from the land-focused nature of the past twenty years and two major combat operations. Veterinary civil action programs should transition to aquaculture with assistance of the National Oceanic and Atmospheric Administration to protect marine resources and increase sustainable harvests. Medical and dental civil action programs should target friendly fishermen who have to spend increasing time at sea because of declining wild fish stocks and are resultantly vulnerable to health issues. Engineering projects could focus on infrastructure related to competing with China's Belt and Road investments.<sup>10</sup> These are just a few of the inordinate ways that Marines conducting MCA can help achieve U.S. strategic objectives without firing a shot.

### **Marine Resources Are Key Maritime Terrain**

Key maritime terrain is a central idea





**Left: A relatively healthy reef flat around Itu Aba Island, occupied by Taiwan.** (Taiwan Ministry of Internal Affairs). **Center: An overfished reef flat surrounding Thitu Island, occupied by the Philippines.** (John McManus, February 2016.) **Right: A reef flat, approximately 1.5 nautical miles away from Thitu Island, destroyed by Chinese clam harvesters.** (John McManus, February 2016.)

of EABO and naval strategy in general. For the Marine Corps' pacing region—the Indo-Pacific—marine resources are the key maritime terrain for U.S. allies and partners and serve three primary functions: transportation, aquaculture, and energy production/exploitation.

As noted by the Navy's "Global Force for Good" recruiting campaign, 90 percent of global commerce travels by the sea, which easily correlates to the importance attributed to sea lines of communication by naval theory. Aquaculture and energy production/exploitation, with their relatively fixed geographic locations rather than constant movement, offer significant opportunity to campaign below the level of armed conflict through the application of civil affairs. In a single snapshot, the contentious South China Sea witnesses tens of thousands of vessels trolling its waters for diminishing fish stocks, servicing gas and oil platforms, and off-shore windfarms; Vietnam alone accounts for almost 29,000 fishing vessels, which support 1.8 million marine fishermen.<sup>11</sup> According to the Center for Strategic and International Studies, over 50 percent of global fishing boats operate in the South China Sea and catch 12 percent of the world's seafood output, upon which the local region is heavily dependent as a primary source of protein.<sup>12</sup> Moreover, it holds about 190 trillion cubic feet of natural gas and 11 billion barrels of oil in proved and probable reserves, which require extensive servicing from support ships.<sup>13</sup> This amount of maritime commerce is having the expected negative effect.

Irresponsible fishing practices and overfishing have led to the decimation of the fisheries, resulting in a nearly 95

percent reduction of stocks since the 1950s. In light of this, locals are adapting to the new environment through alternate means: one Filipino company is hosting rustic tourism cruises near Palawan to generate a new livelihood.<sup>14</sup>

Across these three areas, the U.S. Government has immense resources in the form of funding, equipment, and expertise. Yet, there is not a dedicated CA capability to leverage those inter-agency resources, sell the U.S. value proposition mentioned above, and secure the key maritime terrain—both

protected Galapagos Islands in July 2020, and Argentina's Coast Guard sunk an illegally operating Chinese fishing boat off the country's Atlantic coast in 2016.<sup>16</sup> In addition to its near seas claims in the South and East China Seas, China has undergone an extensive campaign to increase its global economic and geopolitical influence through the Belt and Road Initiative. The 21st century Maritime Silk Road—stretching to the Middle East, East Africa, and Europe—confirms its dependence on the sea for trade and influence. It con-

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***In a single snapshot, the contentious South China Sea witnesses tens of thousands of vessels trolling its waters for diminishing fish stocks, servicing gas and oil platforms, and off-shore windfarms...***

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the marine resources and the access, basing, and overflight essential to Joint Force operations—for friendly allies and partners. While the Marine Corps has not embraced this fundamental principle yet (as measured by its current CA structure), China has.

**Dominating the Maritime Domain without Fighting**

China appreciates the maritime domain's importance as it has pivoted decisively back to the sea and laid claim to nearly all of the South China Sea via the revanchist Nine-Dash Line without fighting.<sup>15</sup> China's dependence on aquaculture is not limited to its near seas: Ecuador reported the presence of 260 fishing boats encroaching on the

ducts illegal trade with rogue states in violation of international and U.S. sanctions regimes, such as Iran and North Korea, using "ghost" ships: vessels with their automated identification systems turned off during the illegal embarkation and/or discharge of embargoed goods. This opacity allows China to generate illicit finance and undermine the international system.

With its dependency on the sea, China developed a robust afloat paramilitary to employ a "cabbage" strategy with commercial vessels—not warships—at the core, ringed by the ambiguous Maritime Militia, a superficially benevolent yet intimidatingly predatory Coast Guard in the next layer, and finally backed by the People's Lib-

eration Army Navy as the outer shell. It uses the informal end of this force structure to intimidate, confront, assault, and rob South China Sea fishermen of their catches at gunpoint. Leveraging force below the threshold for a U.S. response, China is achieving its strategic objectives at minimal cost.<sup>17</sup>

These Chinese operations, as well as many others not enumerated, have two things in common: they will not trigger a traditional, lethal response, and they can be turned against the Chinese with the right skill set.

### Conclusion

This article started with the proposed resource allocation up front: 169 additional active component CA billets. Those 169 Marines conducting MCA—the right skill set—will be the primary resources to provide a non-lethal response to Chinese aggression and swivel its malign activities to impose costs against the People's Republic and ensure U.S. access, basing, and overflight. Arguably, a much larger impact than any one of those eighteen F-35 squadrons and at a much cheaper cost. Aligning the Marine Corps CA structure toward maritime civil affairs operations and attacking from both landward and afloat will integrate civil affairs in support of the fleet commanders—the Commandant's basic premise for the entire Corps—and achieve better results in a maritime-dominated environment. During the past twenty years of combat operations and counterinsurgency in the Middle East and Southwest Asia, Mao Zedong's famous quote, "the guerilla must move amongst the people like a fish swims in the sea," has informed commanders and their civil affairs personnel on the importance of human terrain. The Marine Corps, however, cannot stop this mindset at either the figurative or literal water's edge.

China is achieving their objectives via revanchist maritime policy, operating below the level of armed conflict, avoiding traditional means of targeting, and creating a moral equivalence between it and the United States through diplomacy and (mis)information. A Marine Corps with a robust active component CA capability, supported

by a well-aligned reserve component, operating on behalf of the naval Service both ashore and afloat, leveraging the entire U.S. inter-agency, supporting U.S. objectives in peace, and shaping U.S. access for conflict (if it cannot be avoided) is the best military option to

## ***China is achieving their objectives via revanchist maritime policy...***

challenge China. If not included within *FD30* and re-imagined beyond its current conception, then the Marine Corps will watch helplessly from its exquisite, lethal equipment as the U.S. loses without fighting and the canary stops singing.

### Notes

1. Marine Corps Civil-Military Operations School, *Marine Corps Civil-Military Operations School Circular*, (Quantico, VA: October 2019).

2. Gen David H. Berger, *38th Commandant's Planning Guidance*, (Washington, DC: July 2019).

3. Navy commands include destroyer squadrons 1, 7, 9, 15, 21, 23, and 31 and Littoral Combat Ship squadron 1 spread across Singapore, Japan, Hawaii, California, and Washington. Coast Guard District 14's Far East Activities command is responsible for U.S. Coast Guard operations in Japan, Singapore, and other allies and partners.

4. The author having penned a few of those articles.

5. *Presidential Budget Request 2021* is available at <https://www.secnave.navy.mil>.

6. Gen David H. Berger, *Force Design 2030*, (Washington, DC: March 2020).

7. The Navy divested of its Maritime Civil Affairs and Security Training Command in 2014, and the Coast Guard does not have an explicit civil affairs capability (although the inter-agency culture and population-oriented character of the service naturally lends itself to civil-military operations).

8. Nick Aspinwall, "Duterte Terminates US Defense Pact, Pleasing Trump but Few Others," *Foreign Policy*, (February 2020), available at <https://www.foreignpolicy.com>.

9. The military government operations should be prioritized as last since the goal is to prevent conflict, thus avoiding military governance.

10. NOAA Fisheries is the executive agent for aquaculture for the U.S. Government. Aquaculture is the breeding, rearing, and harvesting of fish, shellfish, algae, and other organisms in all types of water environments. This article uses this term interchangeably to refer to both off-shore fishing as well as in-shore seafood farming operations.

11. Staff, "Fishery and Aquaculture Country Profiles: Socialist Republic of Vietnam," Food and Agricultural Organization of the United Nations, (January 2019), available at: <http://www.fao.org>.

12. Gregory Poling, "Illuminating the South China Sea's Dark Fishing Fleets," Center for Strategic and International Studies, (January 2019), available at: <https://ocean.csis.org>.

13. Staff, "South China Sea Energy Exploration and Development," Center for Strategic and International Studies, (n.d.), available at: <https://amti.csis.org>.

14. Pichayada Promchertchoo, "The Lost Boys of Palawan: A New Way of Life When Fishing Is No Longer Enough," *CNA*, (January 2020), available at <https://www.channelnewsasia.com>.

15. In the late 15th and 16th centuries, China had the world largest and most powerful navy, but the Ming Emperor had it destroyed and entered China into a period of self-isolation.

16. Staff, "Argentina Sinks Chinese Fishing Boat Lu Yan Yuam Yu 010," *BBC*, (March 2016), available at <https://www.bbc.com>.

17. Travis Reese, "Beating Them at Their Own Game," *War on the Rocks*, (August 2018), available at <https://www.warontherocks.com>.



# The “One Love” Approach to Expeditionary Advance Base Operations

Learning to use civil affairs for sea control  
from the Jamaican coast guard

by Maj James Johnsen

From the bridge wing on Her Majesty’s Jamaican Ship CORNWALL, all the author could make out of Pedro Cay in silhouette against the rising sun was an unadorned flagpole, two small radio antennas, and the remains of an attempted jetty.<sup>1</sup> Even when day broke, the only signs of the colorful community of several hundred fishermen and camp followers on Jamaica’s most remote offshore territory were the canoes racing out to meet the cutter.<sup>2</sup> Arm-in-arm with that semi-permanent fishing community, a small group of five to ten Jamaican sailors stands a year-round watch over the football field-sized islet—the Jamaican Coast Guard’s most remote outstation for Jamaica’s most remote island.

The Jamaica Defence Force (JDF) has fewer than 6,000 personnel in uniform, and its Coast Guard makes up less than a tenth of that force. The Coast Guard and the larger JDF, though limited in capacity by funds and manpower, are professional, capable organizations. They contribute to security within Ja-

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maica and throughout the Caribbean. One of those contributions is the Coast Guard’s austere camp operating in symbiosis with the fishing community on Pedro Cay. Without the Coast Guard, the fishing community could not function; without the fishing community, the Coast Guard could not control Jamaica’s seas around the Cay.

The Coast Guard’s camp at Pedro Cay sits approximately 60 miles offshore and nearly 100 miles from the nearest JDF facility. The camp enables Jamaica’s naval force to “persist forward” to control Jamaica’s most remote territorial waters. Although the challenges to Jamaica’s sea control around Pedro Cay have more to do with search and rescue and illegal fishing than the dangers of area denial weapons systems, here is

an example in practice of expeditionary advanced base operations (EABO) contributing to sea control.<sup>3</sup> Notably, the Jamaican Coast Guard’s flavor of EABO depends heavily on close relationships with the civilian community.

Although the Jamaican Coast Guard does not use the language of civil-military operations for its work at Pedro, its outpost there offers valuable lessons for Marine Corps planners looking to employ civil affairs forces in EABO to shape the littoral battlespace.

## Operations

At a basic level, the Jamaicans use their base at Pedro Cay to support search and rescue as well as law enforcement missions. More significantly, though, the camp allows the JDF to frugally



maintain a presence at the furthest extent of Jamaica's territorial waters. Jamaica's exclusive economic zone is more than sixteen times the size of its land area.<sup>4</sup> The camp at Pedro Cay helps the Jamaican government to maintain awareness in its waters and effectively allocate its small fleet of patrol vessels.

The Coast Guard's most frequent call at Pedro Cay is for search and rescue. The fishermen's canoes seem to run primarily on wishes, and few carry navigational or communications equipment beyond a mobile phone. The Coast Guard often only learns of a mariner in distress when another fisherman walks up to the "perimeter" of the Coast Guard camp to report an overdue colleague.<sup>5</sup> The Coast Guard's only permanent search and rescue asset on the islet is its own canoe. That modest asset is often enough to make a difference. Better to have an imperfect rescue platform close on station than to wait hours or days for a helicopter or cutter.

On Pedro Cay, the Jamaican Coast Guard is the law. Although the Coast Guard does deploy its sailors to Pedro with firearms, those were stowed when the author visited. The petty officer in charge of the detachment manning the camp related an anecdote about how, one night when the fishermen were having a particularly raucous party,<sup>6</sup> he simply walked into the center of the shantytown to the generator for the worst-offending stereo system and switched it off. The party burst like a popped balloon. The sailors manning the camp spend years with these fishermen, plenty of time to develop the moral authority to unilaterally shut down festivities. So, even though Pedro Cay has all the ingredients to descend into disorder,<sup>7</sup> the sand between the hovels was meticulously swept clean of trash, and the sailors noted few disruptions requiring their intervention. The Coast Guard sailors' longstanding authority seemed to go far toward keeping the islet's community in line.

Finally, in a region historically beset by maritime territorial disputes,<sup>8</sup> the Coast Guard's presence on Pedro Cay enables the Jamaican government to assert its sovereignty in a remote but



**The Jamaican Coast Guard assists in providing security throughout the Caribbean.** (Photo by Petty Officer 2nd Class Patrick Kelley.)

economically productive area. Illegal fishing plagues the Caribbean.<sup>9</sup> That illegal fishing frequently devolves into other transnational criminal activity.<sup>10</sup> Since the Coast Guard lacks the hulls to persistently patrol the waters around Pedro Cay, the sailors at the camp keep the watch, conducting their own limited patrols and gathering reports from the Jamaican fishermen about illegal, unauthorized competitors.<sup>11</sup> The Coast Guard's presence on Pedro Cay is an important tool for the Jamaican government to effectively and providently control remote territorial waters.

### Requirements

The Coast Guard's operations on Pedro Cay could charitably be described as austere. They are perhaps more accurately characterized as shoestring. But if the Marine Corps takes pride in doing more with less, it should take note of how the Jamaican Coast Guard leverages collaboration and support from the civilian population to maintain a persistent presence at a forward location with a minimal logistical footprint.

*Manpower.* The Coast Guard's limited manning at Pedro Cay consists of ten personnel or fewer. The team typically has a petty officer team leader, a coxswain, a mechanic, a medic, a cook, and two seamen. This small team is limited in its capabilities, but the base at Pedro

is not meant to do everything. Rather, it is intended to be present, communicate with the fishing community, conduct an important but limited range of operations, and facilitate the deployment of more robust assets when needed.

*Transportation.* The fishermen on the island make the trip out to the Cay from the mainland in their small canoes. The Coast Guard sailors get to ride out in the relative luxury of whatever real estate they can claim on the decks of one of Jamaica's 140-foot offshore patrol vessels. One of the Coast Guard's 140-foot cutters makes a weekly trek to the Cay to turn over the camp's crew and conduct a re-supply mission. Civilians are occasionally permitted to ride along if space permits. The author's fellow passengers included a minister and a denizen of the fishing camp who had been called to testify in a criminal case back on the mainland.

The camp's only permanent transportation asset is a Coast Guard-owned canoe, indistinguishable from those operated by fishermen. The canoe is slow and underpowered, but it does what it needs to: conducting occasional patrols around the Cay, ferrying people and supplies from the OPV when it visits, and responding promptly to search and rescue missions. Additionally, during the author's visit, the Coast Guard team at the Cay deputized a number of civil-

ian canoes and their owners to assist with moving cargo and personnel back and forth from the OPV. It seems the Coast Guard is comfortable engaging civilian support for transportation when needed.

*Power and communications.* The sailors staffing the camp maintain an HF radio, though connectivity with Coast Guard Headquarters near Kingston is intermittent. There was one corner of the islet that got an occasional bar of mobile phone service. This seemed unreliable, but there were sailors and fishermen both who were game to try.

A large, fixed Caterpillar diesel generator was difficult to miss on the Coast Guard's camp at Pedro Cay. It was also notably non-functioning.<sup>12</sup> Another of the author's fellow passengers was a technician who was meant to fix the generator. He was not successful.

So, the camp subsists on a small Honda generator, which produces approximately 2200 watts of power. The sailors run the generator for about six hours per day, which was enough for radio check-ins to and to charge any batteries if needed. Running that generator for six hours took about ten gallons of diesel fuel, and that fuel was transported ashore in jerry cans from the OPV.

*Sewage and Trash.* Pedro Cay is as flat as a pancake. The pancake's water table is too high for proper pit toilets, so both the sailors and the civilians rely on outhouses that drop into steel 50-gallon drum. These receptacles are removed to a remote-ish corner of the islet before their "contents" are mixed with gasoline and burned. Pedro Cay is not large enough for this procedure to be performed at a palatable remove from the habitation spaces, but it seemed the only option available.

Combustible trash is generally burned along with the human waste. The author did not observe any transfer of other refuse back to the OPV for disposal, leading to the conclusion that much of the trash is simply dumped into the sea. The large volume of plastic garbage on the islet's beaches supports this conclusion.

*Water and Food.* No MREs for the sailors on Pedro Cay. The cook supervises the offload of enough bread, eggs,

meat, fruits, vegetables, and non-perishables to last the team their week at the camp. The camp stocks enough rice, beans, and canned foods to last an extra week or two in case the OPV resupply is delayed by operations or foul weather. There are no expeditionary field kitchens. The cook has a gas-powered stove and some pots and pans—no more or less than is necessary.

The Jamaicans' approach to freshwater resupply was a sight to behold. I can imagine the U.S. military spending millions to engineer a plumbing system for transfers from a ship's desalination plant out to a monumental cistern on the island. The Jamaicans took a simpler approach. They rode out to the OPV with empty plastic barrels in tow.<sup>13</sup> These were easily lifted up to the quarterdeck of the OPV and filled out of the ship's freshwater tanks. Once full, the crew—with evident relish—kicked the barrels over the side, leaving it to their compatriots and countrymen in the waiting canoes to putter around roping the floating barrels together for the short tow back to the islet. The civilian fishermen had skin in this game: the Coast Guard long ago capitulated to their requests for fresh water. The freshwater tanks on the OPV are more than adequate to supply both the military and civilian populations of the islet, so there was no bad feeling about filling up the fishermen's barrels. From start to finish, the crew swap and re-supply took approximately three hours.

*Morale.* The sailors manning the camp at Pedro Cay were confident, salty, and proficient in their jobs. The coxswains especially appeared to be eminently capable boat handlers, and the petty officers in charge of the teams manning the camp seemed well-qualified for their unique set of responsibilities.

Unfortunately, as Marines know too well, professionalism does not necessarily translate to happiness about one's lot in life. Morale at the Pedro Cay camp was low—and understandably so. These sailors were on a week-on-week-off duty rotation in which their week on consisted of exile to a foul-smelling spit of land with no air conditioning, little electricity, and no mobile phone signal.

Although the civilian population had ample beer and other alcohol available, the Coast Guard, sensibly, was strictly dry during their week-long rotations. This is tough duty, borne with great competence but also great grumbling.

### Lessons for the U.S. Marine Corps

Civil-military operations have been a part of American irregular naval operations for centuries.<sup>14</sup> Relationships with civilian populations in the grounds of competition remain essential enablers in those irregular naval operations, permitting a friendly force to establish the presence that will deter aggression and facilitate quick response in the event that cooler heads lose out. The Jamaican Coast Guard's operations at Pedro Cay offer a pointed example of how good relationships with civilian communities can enable effective, economical sea-control operations.

The civilian population on Pedro Cay relies on the Coast Guard for support with fresh water and, if needed, emergency transportation. The Coast Guard relies on the civilian fishing community for logistical help, assistance with moving cargo from ship to shore, and operational help such as identifying unlicensed fishing operations in the waters around the islet. This symbiosis is a model the Marine Corps of the next generation cannot ignore. Fortunately, the Marine Corps has an organic capability tailor-made to build that kind of symbiosis.

Marine Corps Civil Affairs Groups provide operational units as small as a two-to-five Marine team, task-organized to support a battalion-sized force. Those teams map the human terrain of a civilian population, anticipate the impacts military operations might have on those communities, and suggest ways for the supported unit to achieve effects in those communities. In the context considered here, civil affairs forces can identify opportunities for cooperation with civilian communities in the maritime domain and then nurture those relationships as they grow over months and years of visits related to iterative deployments and exercises. By doing so, civil affairs forces can enable Marine units conducting "left-of-bang" EABO



**Security cooperation exercises are essential to establishing relationships and ensuring access in the maritime domain.** (Photo by Cpl Samuel Guerra.)

sea-control missions to maneuver and persist most effectively in a littoral. No Marine unit or Navy task group should operate in the littorals of East Asia and the Western Pacific without attached Marine Civil Affairs Teams.

### Conclusion

If the first time a civilian in a contested littoral area meets a Marine is after the first shot has been fired, it will be too late. In collaboration and coordination with friendly naval forces, the Marine Corps should immediately put its civil affairs units to work to open up the civilian dimension of the littoral environment for operations like the Jamaican Coast Guard's camp on Pedro Cay. These relationships will pay dividends should fighting break out.

As the author witnessed firsthand—an experience complete with saltwater-logged boots, broken-down outboard engines, and the quality of sleep only attainable on a small vessel in moderate seas—the Jamaicans have demonstrated some brilliance in the basics of using EABO for sea control.<sup>15</sup> The Marine Corps can learn from that brilliance to build relationships with local civilian populations towards the goal of conducting sea-control operations. Those relationships will pay off as key enablers for Marines to thrive, fight, and win in an austere littoral environment.

### Notes

1. The author offers sincere thanks to the Jamaican Coast Guard's LT Michael Grant, captain of the HMJS CORNWALL, and his crew for their hospitality.

2. The Cay's population fluctuates with the fishing seasons. At the height of conch season, up to 300 people eat, sleep, and work on the island. Even when a hurricane bears on the low-lying patch of sand, several dozen people opt to ride out the storm in order to safeguard their goods against pilfering. A Jamaican "canoe" resembles nothing so much as stretched-out jon boat. It has a sharp bow and a blunt stern with an extended middle section and an outboard motor. These colorfully painted craft make up the majority of the Jamaican fishing fleet.

3. See Art Corbett, "Expeditionary Advanced Base Operations (EABO) Handbook: Considerations for Force Development and Employment," Marine Corps Warfighting Lab, (June 2019), available at <https://mca-marines.org>.

4. 181,190 square kilometers of EEZ to 10,990 of land area. Office of Oceans Affairs, U.S. Department of State, "Limits in the Seas: Jamaica's Maritime Claims and Boundaries," (2004), available at <https://2009-2017.state.gov>.

5. Which is made of empty conch shells bleached bright white by the tropical sun and laid in a line on the sand.

6. The islet's small general store was well-stocked with everything a group of nearly 300 working

men might want or need to make the most of downtime on a desert island.

7. Alcohol, money, time, companionship, etc.

8. See, e.g., BBC Caribbean, "Bird Island Talks Agreed," *BBC*, (June 2006), available at <http://www.bbc.co.uk> (discussing maritime territorial dispute between Venezuela and Dominica); and Michaelle Pierre, "Haiti's Claim over Navassa Island: A Case Study," (dissertation, World Maritime University, 2014), available at <https://commons.wmu.se>.

9. Staff, "Illegal Fishing Boat With 59 Dominican Republic Nationals On Board Seized," *The Gleaner*, (April 2017), available at <http://jamaica-gleaner.com>.

10. See Judy-Ann Icinda Neil, "IUU Fishing: A Gateway to Transnational Crimes in Jamaica," (November 2018), available at <https://commons.wmu.se>.

11. Ibid.

12. The generator had been shipped out on one of the Coast Guard's OPVs and then hoisted the last several hundred yards to get ashore by a JDF Bell 429 helicopter.

13. If the Marine Littoral Regiment's supply warehouses are not full on day one from floor to ceiling with 50-gallon plastic barrels, its supply officer should be dismissed directly for professional malpractice. These barrels are easily handled, easily waterproofed, and cheaper than candy hearts on 15 February. They will be essential equipment for expeditionary logistics in littoral battlespaces.

14. See Benjamin Armstrong, *Small Boats and Daring Men: Maritime Raiding, Irregular Warfare, and the Early American Navy*, (Norman, OK: University of Oklahoma Press, 2019), discussing the importance of relationships with civilian populations in the Navy's various punitive expeditions to Sumatra in the mid-1800s.

15. Beyond just this article's recommendation for the employment of civil affairs forces, the author endeavors to spark the operational imaginations of the Marines designing and building the Marine Corps' EABO playbook. The Jamaican Coast Guard's operations at Pedro Cay are not "exquisite," but they do suggest a way of doing business in presence operations that are both "affordable and plenty." The author urges a consideration of Jamaica's Pedro Cay to every Marine entering into the new/old world of EABO.





2020 LtCol Earl “Pete” Ellis Essay Contest: First Place

# Littoral Access Companies

21st century coastwatchers

by Maj Evan Zach Ota

In the 1930s, the Hawaiian Department, the Army’s forces in Hawaii, faced a daunting challenge to the status quo. Recognizing that conflict was increasingly likely as a result of great power competition, U.S. forces in the Pacific reinvigorated their defense of Hawaii. Based on the results of war games, the Army and Navy reorganized for an integrated, joint defense of the advanced naval base at Pearl Harbor. The Navy and Army invested more than \$225 million by 1938 to create “fortress Oahu.”<sup>1</sup> The War Department concurrently launched a radical new initiative to modernize its forces on Hawaii to support a naval campaign.

Accordingly, the Army’s Hawaiian Department optimized for a combined arms defense of the advanced naval base at Pearl Harbor. The Hawaiian Department constituted the Army’s largest overseas force throughout the 1930s, and between 1935 and 1938, the Army prioritized the Hawaiian Department ahead of all competing personnel assignments. The Army’s forces on Oahu grew from 14,821 in 1935 to 43,177 in 1941.<sup>2</sup> The “square” Hawaii Division with four regiments became two “triangular” divisions, the 24th and 25th, each with three regiments.<sup>3</sup> Mobile artillery replaced outdated coastal artillery. Anti-air artillery reinforced the divisions, and by 1941, 60 mobile and 26 fixed 3-inch guns, 109 anti-aircraft machine guns, and 20 of the newest 37-mm guns defended Oahu’s skies.<sup>4</sup> Nearly 100 P-40B aircraft, the Army Air Forces’ most modern fighter,

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**SgtMaj Jacob Vouza with a Marine on Guadalcanal, 15 September 1943.** (Credit: U.S. Marine Corps.)

joined the defense. Twelve new B-17D bombers increased the range at which landbased fires could strike approaching enemy fleets. The Army constructed expeditionary airfields on the neighboring islands to increase the surviv-

ability of these expensive capabilities, then assigned decentralized formations for their defense. The newest sensors deployed on the island to detect threats at a distance. Six SCR-270 mobile radar stations were deployed around Oahu by

the end of November 1941, each with a reliable range of 75–125 miles out to sea.<sup>5</sup> Organized along the most modern concepts and armed with the latest equipment, Pacific Fleet and the Hawaiian Department entered 1941 fully confident in their ability to repel any potential enemy force. GEN Marshall assured Secretary Stimson that Oahu was impervious to invasion whether the fleet defended the island or not because “with our heavy bombers and our fine pursuit planes, the land force could put up such a defense that the [Japanese] wouldn’t dare attack Hawaii, particularly such a long distance from home.”<sup>6</sup>

Meanwhile in 1941, Australia, with a population ten times smaller than Japan and the majority of its forces committed to the allied campaign in North Africa, turned to its network of allies and partners in the South Pacific to gain an asymmetrical advantage over the Imperial Japanese Navy. Under a program begun in 1921, a network of partners embedded across South Pacific communities to observe and report enemy activities. These observers, known as coastwatchers, often lived in the communities from which they reported and leveraged these relationships to gain an advantage over materially superior Japanese forces. By December 1941, over 100 coastwatchers screened a 2,500-mile arc that spanned New Guinea, the Solomons, and the New Hebrides.<sup>7</sup> These coastwatchers screened Australia’s strategic northern approaches and extended the Allies’ influence over contested littoral environments. Many of these populations were in areas ostensibly controlled by numerous adversary forces. Thus, when Allied forces began the counteroffensive against Japan, indigenous populations supported and reinforced their Australian and American partners.

By 1942, the Allied coastwatchers played a vital role in the Guadalcanal counteroffensive; 23 coastwatcher stations observed and reported from with the Solomon Islands when the 1st MarDiv landed in August 1942.<sup>8</sup> At least 321 Allied airmen and 280 U.S. Sailors were rescued behind enemy lines during the Solomon Islands Campaign.<sup>9</sup> One coastwatcher com-



**Local guides lead 2d Raider Bn Marines on a patrol behind enemy lines. Lasting nearly a month, locals guided the Marines over 150 miles and through more than a dozen engagements. (Credit: U.S. Marine Corps.)**

mander recalled that his army of scouts accounted for over 100 Japanese killed and 82 captured without any losses on their side.<sup>10</sup> Native coastwatchers also ran messages through enemy lines in periods of degraded communications.<sup>11</sup> This support often came at great cost to local peoples.

One of the most impressive local supporters was Jacob Vouza, a former member of the Solomon Islands Armed Constabulary. After Japanese forces invaded his home of Guadalcanal, Vouza volunteered for the coastwatchers program to aid the Allies. When Marines landed on Guadalcanal, Vouza assisted the Americans by safeguarding downed Airmen and relaying critical information about the enemy. On the night of 20 August 1942, Vouza detected a Japanese counterattack forming. Although Japanese forces captured Vouza, tortured him, and bayoneted him through the chest, arms, shoulders, face, throat, and stomach, Vouza escaped and notified 2/1 Mar of the impending attack. With advanced notification of the enemy’s actions, the ensuing battle of the Tenaru River was an overwhelming victory for the 1st MarDiv. Gen Alexander Vandergrift, commanding general of the 1st MarDiv and later Commandant, awarded Vouza the Silver Star and honorarily assigned him the rank of sergeant major.<sup>12</sup>

Allied forces also widely recognized the important role local populations played in the battle for Guadalcanal. Australian Dick Horton recounted,

without the Islanders neither the Coastwatchers nor the armed forces would have been able to achieve so much or so easily ... their contribution to the defeat of the Japanese invaders cannot be measured in material terms alone.<sup>13</sup>

ADM William “Bull” Halsey asserted, “the coastwatchers saved Guadalcanal and Guadalcanal saved the South Pacific.”<sup>14</sup> Organizational manpower decisions reflected the importance of building relationships with local populations. Ten days after the 1st MarDiv landed at Guadalcanal, the Navy convened its first course at Columbia University with 57 prospective civil affairs officers to engage with populations on key maritime terrain yet to be encountered in the war.<sup>15</sup>

The Solomons Island Campaign epitomized the employment of asymmetric capabilities in a combined, joint, maritime campaign. With the majority of its large surface combatants destroyed at Pearl Harbor, the Navy adopted aircraft as its primary striking arm. Neither the aircraft, nor even the aircraft carriers, best exemplify our asymmetric advantage in the Pacific, however. In many ways, U.S. employment of naval

aviation was a material necessity catalyzed by the adversary's employment of an asymmetric capability. Through the arduous, widely remembered, but symmetric battles at the Coral Sea and Midway, the Navy regained the initiative and tipped the scales of material power in the favor of the Allies. Our best asymmetric advantages, rather, were the populations who, through years of engagement with allied and partnered forces, negated our adversary's material power and subverted their control of key maritime terrain.

The early Allied campaign in the Solomon Islands demonstrated that our relationships with allies and partners, developed through persistent engagement on key terrain, are equally as important as our material strength. In crises, the former can mitigate shortfalls in the latter. These relationships, developed over time at the individual level, increase our relative combat power against materially superior adversaries. The engagements with our allies and partners also increase all-domain awareness, facilitate our strategic posture, and enable operational plans. Forces that develop and maintain these relationships on key maritime terrain are the critical capability that generates an asymmetric

advantage over our competitors and retains broad employment options for forward deployed forces afloat. To achieve these advantages and maximize returns on investment, however, the Marine Corps must redesign its concept of engagements and reorganize existing structure.

### Coastwatchers in the 21st Century

While the current operating environment has changed significantly since the Solomons Campaign, persistent engagement on key maritime terrain is as critical as it was in the early days of the Pacific War. As *Force Design 2030* observed, "forward bases and stations and fixed infrastructure are easily targeted, and extremely vulnerable to disruption." Therefore, "mobility inside the [weapon engagement zone] is a competitive advantage and an operational imperative."<sup>16</sup> Material assets will remain a necessary component of tactical mobility. Unmanned surface vessels, autonomous connectors, and remotely operated ground vehicles will undoubtedly increase our survivability and sustainability during expeditionary advanced base operations (EABO) and littoral operations in contested environments. The missing component to these

concepts, however, is engagement with allies and partners on key maritime terrain. Access is the critical requirement to implement our warfighting concepts. Even unpopulated or sparsely populated islands affect claims to territorial waters and exclusive economic zones and are subject to sovereign law, restrictions on sea passage and overflight, and international agreements and norms. To assume our access to key maritime terrain is to assume the most critical requirement of our warfighting concepts. Fortunately, our allies and partners enable access to the vast majority of the littorals.

To facilitate mobility and exploit its advantage, the Marine Corps must focus, reorganize, and reinvest in its international affairs capabilities. International affairs Marines—foreign area SNCOs (FASs), foreign area officers (FAOs), and regional area officers (RAOs)—must update our concept of employment and focus collective capabilities on key terrain in the littorals. Just as the coastwatchers influenced key terrain in World War II, international affairs Marines must do so in the current great power competition.

To harness the effects of these international affairs Marines, the Marine Corps should reorganize its capabilities at the MEF level. As Col George David advocated, "the existing application of international affairs programs must shift toward units and Fleet Marine Force."<sup>17</sup> Littoral access companies (LACs), assigned to the MEF Information Group (MIG), could direct the employment of this operational capability and align efforts with adjacent civil affairs and information operations. Led by a major FAO or RAO and a senior enlisted FAS, LACs would fulfill MEF access requirements in accordance with combatant and component command country objectives. Additionally, LACs could integrate the MIG's complementary capabilities in civil affairs, information operations, and fires to achieve desired effects on specific terrain.

Within LACs permanently-assigned FAOs or RAOs would lead regionally-focused littoral access platoons comprised of FAOs and FASs assigned to key littoral terrain or rotating on a persistent basis. By bridging the divide between

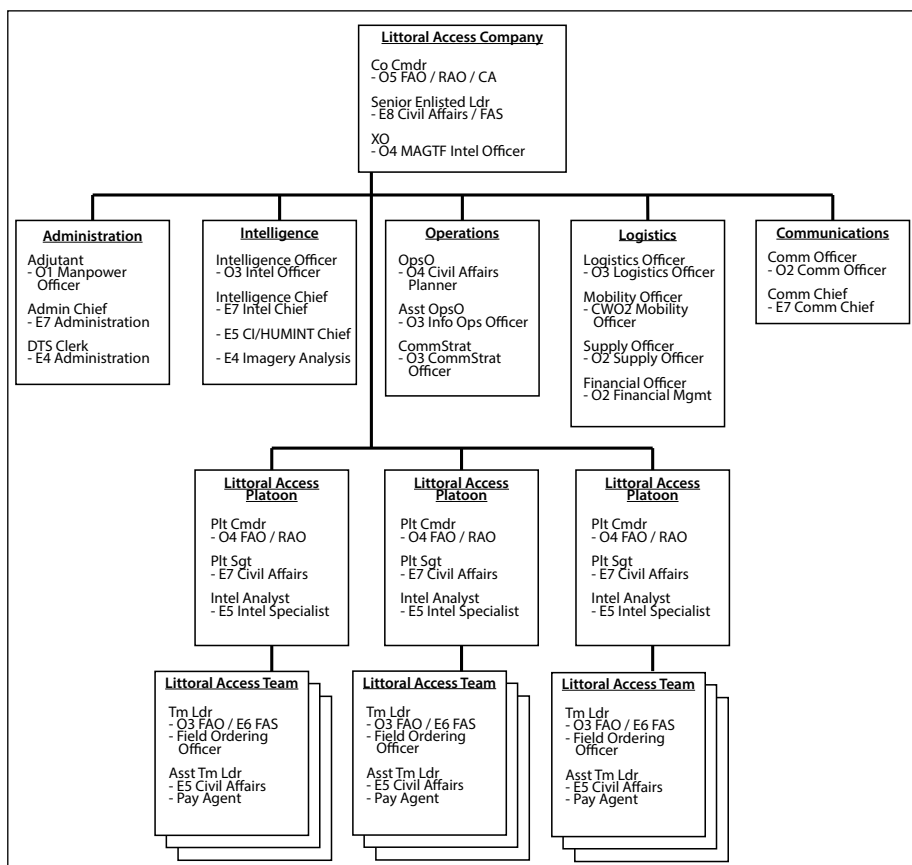


**Lungga, Guadalcanal, 14 October 1943. Sgt Yauwika of the local police is congratulated by LCDR I. Pryce-Jones Ranvr, Naval Intelligence Division, Royal Australian Navy, after receiving the Loyal Services Medal. Sgt Yauwika assisted many coastwatchers during the Solomon Islands Campaign. (Public Domain via the Australian War Memorial.)**





**British Solomon Islands Protectorate Defense Force scouts on an intelligence patrol with U.S. Marines and Naval Officers from the Segi coast watchers station. (Credit: the Australian War Memorial.)**



**Figure 1.**

local populations, embassies and consulates, FMFs, and partnered forces, littoral access platoons will establish the foundations for rapidly-scalable EABs in contested environments. This capacity at the local level could also facilitate and support national-level engagements and access brokered by component and combatant commanders.

Littoral access teams (LATs) would be the smallest employable unit in the LAP. These small, discreet elements can be task organized to access areas that would be prohibitive otherwise for larger forces. The Riau and Bangka Belitung Islands of Indonesia; Palawan, the Batanes, and Babuyan Islands of the Philippines; and the southwest islands of Japan are key terrain in the first island chain. Access to these islands are sensitive for a variety of reasons but also offer the potential for high returns on relatively low investments. Eighteen littoral access Marines, roughly three assigned to each of these island groups, could build a bulwark against malign influence and facilitate access for potential operations across the competition and conflict spectrum. An additional eighteen Marines—assigned to the Andaman and Nicobar Islands of India; Palau; the Federated States of Micronesia; and the Republic of the Marshall Islands—could reinforce our relationships in the second island chain and other potentially significant maritime areas.

Littoral access units benefit naval expeditionary forces along all phases of the competition-escalation-conflict continuum. In contested spaces, the LATs increase all-domain awareness by analyzing physical and social networks within local populations, integrate instruments of national power as an extension of the country team, and discreetly normalize the presence of allied and partnered forces. In the gray zone of competition, these forces bolster the legitimate sovereign control of key littoral terrain and help deter fait accompli scenarios by identifying and communicating incursions to sovereign territory, malign economic and informational influence, and other threats below the threshold of conflict but outside the purview of international media. Marines with a firm understanding of

local issues can also inform policies to best reinforce allied and partnered communities subject to malign influence.

While the division between competition and conflict may be increasingly blurred in the littorals, LATs can apply their capabilities across the range of military operations to create the joint force commander's desired effects. In conflict, LATs can converge the effects of intelligence, fires, and maneuver on key littoral terrain to gain an asymmetric advantage over adversaries. Whereas the coastwatchers of World War II relied on voice communications to influence local populations and inform higher headquarters, Marines now carry any array of communication and information capabilities in their pockets. What contemporary coastwatchers lack, however, are the authorities, permissions, and support to coordinate, align, and implement sustained efforts alongside the DOD and the interagency. This critical requirement could be filled by existing elements of the MIG, task organized to meet specific country objectives. International affairs Marines on the ground could facilitate access for critical enablers such as fire control teams from air/naval gunfire liaison companies, radio battalion radio reconnaissance teams, intelligence battalion counter intelligence/human intelligence exploitation teams, and elements of MLRs.

Littoral access units also would advance *Force Design 2030* by facilitating distributed operations; enabling a force that can mass effects while minimizing signature; maximizing efficient tactical mobility; reducing logistics demand; and expanding the range of mutual support across all tactical echelons. As a purpose-built force, LACs would minimize external attachments and improve implicit communications between naval expeditionary forces. As a connecting file between naval forces, the interagency, and civilian population, LACs will facilitate the rapid employment and the scalability of Marine force elements on key maritime terrain.

LATs would not replace or replicate existing special forces capabilities. Instead, these forces would provide a mechanism to integrate interagency

effects and establish a conduit to introduce joint force capabilities. By remaining in the FME, these teams maintain unity of effort and can best leverage their experience to integrate naval forces. Across the spectrum of competition and conflict, LATs serve as connecting files between naval expeditionary forces and the civilian population. In competition, these command relationships ensure that naval equities are represented on key maritime terrain. In crisis and conflict, these organic capabilities allow naval expeditionary

In World War II, the United States maintained a foundational material advantage over Japan. In 1941, Japan's population was 77 million compared to the United States' 133 million. Additionally, although it began the war at a material disadvantage, the U.S. Navy materially overwhelmed the Imperial Japanese Navy by the end of the war. If current economic and demographic trends continue into the future, we cannot expect to create material advantages over the pacing threat in a potential conflict. According to the annual DOD

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***Amidst ongoing force design initiatives, reorganization, and divestiture of legacy capabilities, many will rightfully view new organizational proposals with skepticism.***

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forces to rapidly emplace and displace EABs. By reducing the external linkages required to coordinate access, LATs increase the momentum of operations by eliminating the need to task organize and integrate joint force enablers.

***Tough Choices for an Uncertain Future***

Amidst ongoing force design initiatives, reorganization, and divestiture of legacy capabilities, many will rightfully view new organizational proposals with skepticism. Conventional, technological advances are still essential to deter and, if necessary, combat maritime adversaries. Just as the fleet-on-fleet action at Midway enabled the Allies to undertake a counteroffensive in the Solomons, so again may the fleet need to prevail in battle with symmetric forces. Advances in intelligence, surveillance, and reconnaissance capabilities have also largely rendered the methods by which coastwatchers gained information obsolete. Communication technologies have also revolutionized the means by which to report such activities.

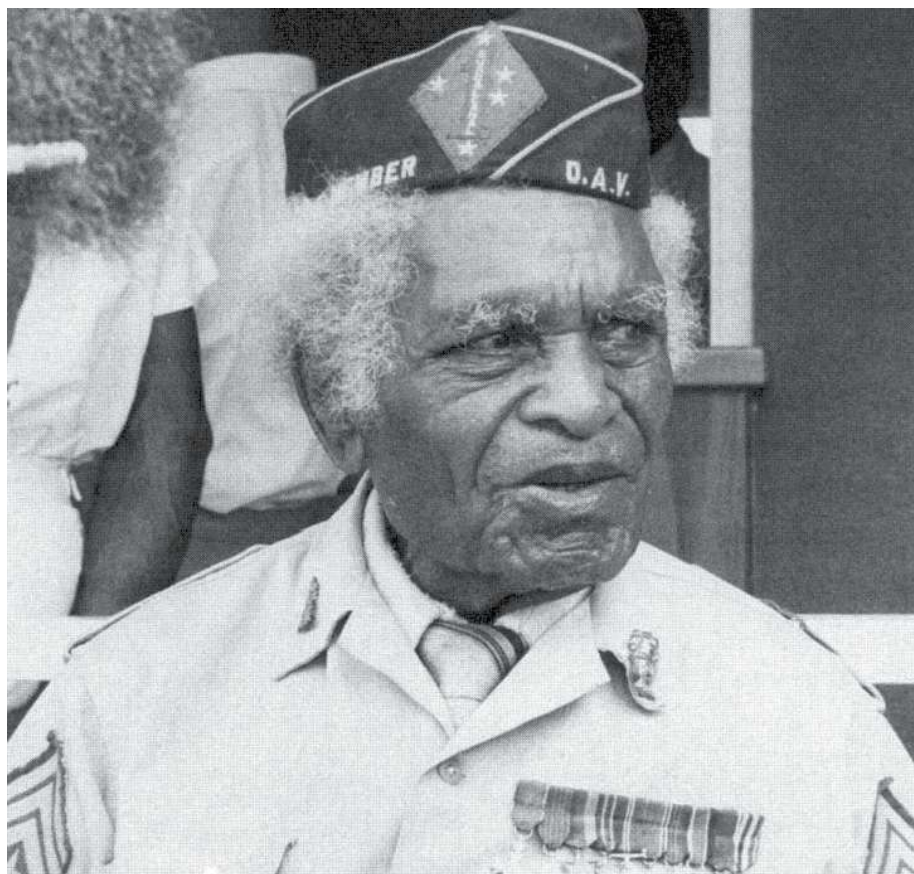
Given the dynamics of our current great power competition, however, it is risky to base our theory of victory on symmetric material advantages.

report to congress, "the PRC has numerically the largest navy in the world" and is "largely composed of modern multi-role platforms featuring advanced anti-ship, anti-air, and anti-submarine weapons and sensors."<sup>18</sup> Further worsening the U.S. material disposition, China is the "top ship-producing nation in the world by tonnage and is increasing its shipbuilding capacity and capability for all naval classes."<sup>19</sup> With a current population more than four times larger than the United States, China would appear well positioned to win a head-on material competition. As a recent RAND report concluded,

although the United States and its partners will still account for a larger share of the global economy than their potential adversaries by 2030, the United States will be less able to rely on the overwhelming economic dominance it has enjoyed in the latter half of the 20th century to give it a quantitative or even qualitative military advantage.<sup>20</sup>

Given these power dynamics, the United States would be wise to invest in its relationships with allies and partners alongside major weapons systems.

All is not lost, however. Although uninhabitable rock formations and



**SgtMaj Sir Jacob Vouza in an undated photo. Vouza visited the United States in 1968 and was the honored guest of the 1st Marine Division Association. (Credit: U.S. Marine Corps.)**

underwater features can be built into bastions of material power, we should not deceive ourselves into thinking that great power competitors gain an advantage solely through material strength. Great powers discount the human element in competition to their own detriment, and our allies and partners offer the United States an asymmetric advantage over expansionist, unilateral powers. The tactical advantages garnered from these relationships are exponentially increased through persistent engagement at the local level in the littorals. Forces that forge enduring relationships on key terrain provide the greatest potential to generate an asymmetric advantage over our competitors. Persistently engaged forces also provide broad employment options for naval forces across the spectrum of competition and conflict. Currently, however, the Marine Corps has no forces purpose-built to assure these relationships with our partners and allies. In order

to generate asymmetrical advantages in support of naval engagements across the spectrum of competition and conflict, the Marine Corps needs the capability to gain, maintain, and sustain access to key maritime terrain. Littoral access companies could be the modern-day successors of the Allied coastwatchers and would perpetuate our combined achievements through this great power competition and beyond.

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# Flicker Operations & Modular Teaming

An agile approach to gain an asymmetric advantage in the Pacific

by Col Maria McMillen

In 2000, the United States had the undisputed military advantage over all challengers. In the ensuing twenty years, a strategic atrophy began to permeate throughout the U.S. defense network as the Nation became hyper focused on actions in Iraq and Afghanistan.<sup>1</sup> Meanwhile, China continued marshalling the resources, technology, and political will to strengthen and modernize their military establishment with little international opposition or oversight. The long-term ambition to become a “strong, modernized, unified, and wealthy nation” was overtly telegraphed by China and reported annually to Congress,<sup>2</sup> all without generating a strategic plan to blunt or prevent a change in the balance of power specifically in the Indo-Pacific area of operations (AO)—an area vital to U.S. interests. This AO remains an area in which the Navy-Marine Corps team has operational history and experience, and can—through presence, positioning, targeted integration and innovative approaches—put the advantage back in the U.S. court. China’s strategic goal encompasses military aspirations that are compatible with its national goals. The last twenty years put the United States at a distinct disadvantage; without deliberate and specific strategic engagement to hold and reverse the current posture, the advantage will continue building in China’s favor. Much of the physical manifestations of China’s asserted power has taken place in the East China Sea and the South China Sea.

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With an eye toward 2049, China is purposefully marching toward its 100 year ambition of securing the top spot in the global hierarchy.<sup>3</sup> China set the Pacific region much like a GO board,<sup>4</sup> building a defensive barrier system beginning with its sea borders and extending to the first island chain with sights set on the second island chain. As with GO, China’s intent is to surround more territory than the opposition; they are methodically capturing allied “stones,” but unlike a game, this is real and the stakes are existentially significant. Although some lives have been lost in pursuit of South China Sea geographic features,<sup>5</sup> most of the land grab happened without firing a shot. Intimidation served as China’s primary tool in this battle, as it was careful not to demonstrate military behavior that was too aggressive. The goal to eventually reset the behavioral norms so that any military reaction is deemed provocative. China has built 3,200 acres of land in the middle of the ocean since 2015 to base aviation, port and communications facilities, along with fixed-weapons positions and barracks on four geographic features.<sup>6</sup> It also fitted four other geographic features with support infrastructure.<sup>7</sup> Meanwhile in the East China Sea, Peoples Liberation Army Air Force pilots are

flying hundreds of deliberate air space encroachment missions that trigger a Japanese airborne response, which by its very nature wears down the responding aircraft.<sup>8</sup> Although 2049 seems the distant future, the prospective Chief of Naval Operations and Commandant for that time frame have already joined the ranks of the Navy and Marine Corps.

In the last two decades, anti-access/area denial (A2/AD) became noticeably more prevalent in military documents and assessments. China was presented as having an impenetrable defense zone, denying freedom of action in affected areas. The United States and allies appeared to have accepted a *fait accompli* in the region doing little to counter China’s A2/AD threat. The threat is legitimate; however, it has weaknesses that can and should be exploited. Although a threat can theoretically cover an entire area, in reality, the weapons employed in a threat ring are limited—both numerically and in space. A missile with a range of 500 km can cover approximately 800,000 km, but each missile can only hit one target in that area and the quantities of missiles are limited. The Navy-Marine Corps team faced a similar problem when they hit the beaches in the Pacific; the threat was real and there were losses, but the United States prevailed. If the Marines were about following the odds, they would still be waiting in the Wheat Field near Belleau Wood for a more advantageous tactical scenario.

China creates true strategic dilemmas for the United States and affected

allies—no response enables China to operate unchecked (South China Sea) and to respond degrades military combat systems (airspace over East China Sea). Both responses empower China, advancing their national interests, and more importantly, making a different response more difficult the next time—as established precedent becomes the new acceptable response. However, we must respond strategically through deliberate tactical and operational maneuvers in the AO, and the U.S. Naval Force is best postured to disrupt the status quo.

To successfully operate in the region, we must think in terms of maritime dominance, as many of our Allies in the region are island-nations. To effectively operate and gain the advantage, we must embrace a maritime operational mindset, not a land mindset altered on the margins to operate in the littorals. If we do not properly set the theater, we will be unprepared when significant escalation in the region takes place whether it happens intentionally or through miscalculation.

### Flicker Operations and Naval Enablement Bubbles

The U.S. operational employment has to be an effective counter to China's strategy. If the A2/AD concept is considered an umbrella that radiates out from and protects the Chinese mainland, our naval concept could be viewed as bubbles of naval enablement—like champagne bubbles that briefly appear and then dissipate—that can appear randomly throughout the AO for a brief period of time and then just as quickly evaporate, or flicker on and off. Flicker operations will keep China off guard while allowing our forces to project power and uncertainty to the challenger who has operated unchecked for too long. The operational employment of flicker operations will capitalize on the Navy-Marine Corps team's ability to deliver game changing maneuver in the maritime environment.

There are three types of Naval Enablement Bubbles (NEB): fires (NEBF), air (NEBA), and surveillance (NEBS). They will operate throughout the first and second island chains, on islands, afloat, and ashore—always leveraging

surprise in time, place, and capability. The NEBF would focus on power projection with moveable missiles; initially, these could be HIMARS or similar armaments until we can manufacture lighter missiles with greater range and better mobility. The NEBF will provide an extended protective range for Navy ships and an increased range of protection without having to put another ship to sea. The NEBA would provide forward arming and refueling point-like capabilities but not in the traditional sense of the large gas station with vast quantities of fueling and arming capabilities. Instead, providing

with flicker operations. A singular F-35 embarked on a remote naval ship—either traditional amphibious shipping or a new or retrofitted platform (Light Amphibious Warship [LAW] or the Littoral Combat Ship [LCS]) specifically designed to carry a singular F-35—could fly into a NEBA for fuel, significantly extending its operational reach without increasing the vulnerability of the naval shipping. For example six, eight, or twelve F-35 variants plus one F-35 maintenance variant LCSs could be steaming in a regional vicinity, providing the single ship seaborne platforms with the geometry for the F-35s to link-



**Although perhaps not a "risk-worthy" platform the F-35 is compatible with flicker operations.**  
(Photo by Dane Wiedmann.)

a precision pit stop to extend the range, reach and firepower of aircraft, often only one aircraft—more Formula 1, less Costco automotive superstore. The NEBS would provide an operational point for unmanned air, sea, and land intelligence, surveillance, and reconnaissance platforms—extending the operational view of the naval force. This type of NEB will provide protection, not with weapons, but by the ability to determine what threats exist in the bubble and provide targeting information to maritime forces in the AO.

Although many critics view the F-35 as too costly to risk, it is compatible

up/swarm and continue on to complete the assigned missions. Future operations could involve dispersed manned and unmanned F-35s aggregating from multiple naval platforms/bases to conduct freedom of navigation over the sea missions. Many of these missions will leverage the capabilities of distributed modular NEBAs to extend the range of the aircraft capabilities.

The crown jewel in the NEB suite will be the NEBF, which provide extended range for Navy shipping by capitalizing on pop-up long-range fires. The Marine Corps has demonstrated the ability to fly in HIMARS via C130,

fire, and retract in a comparatively small window of time. This is an example of a NEBF, but the objective would be to demonstrate the same capability with a smaller footprint. This will require the development and acquisition of lighter, portable, longer range fires; fires with a 300km to 500km range able to be transported by an Interim Fast Attack Vehicle or similar vehicle with a trailer, not the current MTVR-sized HIMARS system.

Each NEB will be tailored to conduct a specific mission working under the premise that the smallest possible footprint optimizes mission success. Gone are the days of redundancies, the extras just in case. Reduction in size, footprint, and signature is paramount to success. Equipment and supplies will rely on local and off the shelf options when possible—think Zipcars, local ferries, and fast food, not HMMWVs, LCUs, and MREs. This is in direct contradiction to the last 25 years of increasingly bigger, heavier, and more expensive limited-role equipment. When practical, off the shelf equipment should be purchased and modified, saving money, which can be better used to develop secure communications and lightweight man-portable surface to surface and surface to air missiles with extended range and lethality.

NEB maneuvers should not be referred to as exercises but as precision contingency operations with the requisite mental and institutional focus to emphasize the gravity of the situation. The pacing threat views each of their military actions as a contingency operation, even if their information operations continually refer to such actions as routine exercises.

These operational contingencies will take place throughout the AO with a demanding and seemingly random battle rhythm required to keep the orchestration of the many NEBs generating constant unpredictability for China. These efforts will need to take place throughout the first and second island chains to include on or near undisputed geographic features in the contested but legally determined international waters in order to achieve the desired results. Possessing the capability without com-

pelling China to use its resources in response to our actions would not be getting the full benefit of the concept, which is not to create conflict but to create an equitable tension wherein they unexpectedly have to erode their war-fighting systems just as they have done to the maritime nations in the South and East China Seas.

### **Strategic & Broadening Education**

The Marine Corps must be ruthless in its dedication to change, breaking organization and training paradigms, and letting go of how equipment is sourced, how a Marine unit is composed, and how it is employed. In order for the element of surprise and unpredictability to be projected to the challenger, Marines will require education and training that is alien to our current pedagogical format.

As part of the strategic view, there will be a IIIMEF/7th Fleet Strategic Academy where all commissioned officers upon arrival to the theater will attend a three–five day seminar on the strategic overview of the AO focusing on the current threat, China, while dedicating time to persistent and emerging threats, North Korea, Russia, Iran, etc., so in the future, we do not find ourselves in the disadvantageous situation of being behind our adversaries in establishing strategies. We will invest in the future at the beginning. The Strategic Academy will provide moderated panels on strategic topics ranging from the state of the Chinese economy and its impact on military modernization to how influence operations are targeting fragile states immediately after natural disasters, hosting internationally recognized topic experts, wargame debriefs, and brown bag sessions with major subordinate command operations and plans officers. To ensure rigor and participation, officers will be required to achieve a predetermined number of credits each year with the primary goal to educate the most people regarding the threats facing the Navy and the Marine Corps in theater. The education will inform officer decision making during their Indo-Pacific theater tour; more importantly, it will weave strategic thinking and consideration into their

professional growth and development, rather than waiting until Top Level School to provide the initial exposure.

Flicker operations require Marines to fill multiple roles. Enlisted Marines will also receive additional education and training not currently provided because NEBs necessitate the smallest footprint possible. Each Marine will need a broader range of expertise, some of which can be provided at Corporals and Sergeants Courses, and expanded through further education and training. Examples of educational opportunities would be pay agent training, information operations training, vehicle licensing, and influence operations training; creating the operator/mechanic, the bulk-fueler/pay agent, the communicator/public affairs writer. The footprint cannot be at the absolute minimum without each Marine possessing broader capabilities, and without a minimum footprint, the operations “uncover” themselves.

### **Organizational Implications**

An enablement team, comprised of enablement elements will be modularly built to optimize the capability of each NEB. There are three categories of NEBs; however, each NEB in a particular category does not look the same (i.e. not all NEBFs are constructed with identical components). For example, a NFEB could be built around a HIMARS or around stinger-like weapons with a suitcase-sized fire control radar system, each differing in size, range, and capability, but both would extend the reach of the maritime force. The key is flexibility in the execution of the concept. Taking the HIMARS example, it could project power from a naval ship or fly into a remote airstrip inside of a C-130.

Each flicker group will be paired with another flicker group, to ensure the ability to “permanently” sustain operations within the AO keeping China off balance. Each group will consist of several modules, and modules will be comprised of elements. Training will not mirror the current construct where units train up for an extended period of time to participate in one or two large scale exercises each year, exercises like Cobra Gold and Key Resolve. In-



stead, the flicker groups will operate on a four-month rotation with training, operating, and refitting cycles with the operating cycle focused on continuous modular teaming deployment and employment—maintaining seemingly erratic, but constant, flickers throughout the AO with emphasis on the first and second island chains, thus being everywhere and nowhere at the same time. An enablement element may deploy to the Philippines, Guam, Palau, and Japan during a single operating cycle. Flicker operations will require continuous employment to maintain practical agility and to serve as a persistent counter to the China threat in the region. Other Marine units will still participate in the traditional exercises to forge international partnerships and as a hedge to deter similar bilateral exercises with Chinese units. Strategically, the entire theater must be set, not just the island chains and areas where China has made firm gains; otherwise, we will leave gaps in the AO for challengers to exploit.

Over time the principles of flicker operations will remain the same, but the Marine Corps must demonstrate the flexibility to relentlessly update the operations through lighter and more capable equipment and training, incorporating kaizen philosophy for continuous improvement, immediately incorporating lessons learned for implementation during the next employment iteration.<sup>9</sup> This will be accomplished because of the constant and persistent application of operational employment and rigorous training. Deployments will not be the movements of battalions, companies, or even platoons to the Philippines, Tinian, Kwajalein, Vietnam, Malaysia, or other areas but rather the constant rotation of modular elements into the AO—linking up with other modular elements to create modular teams and conduct a given mission. The modular teams will be entering and exiting a designated location (island, ship, littoral region); after completion of the mission, each modular element will then either rotate back to a local base, home station, or lily pad to the next modular team requiring the capabilities of a particular element.

### The Rebalance

China specializes in destabilizing actions that threaten global security. China will not stop at regional supremacy. If not countered, regional supremacy will merely be the first step on the way to global supremacy; China is making inroads to this effort far outside the waters of the Pacific, in Europe, and Africa. China's strategy has been cohesive; meanwhile, the U.S. strategy has been disjointed at the military, economic, and political level.

During the Pacific Campaign of World War II, the Navy-Marine Corps team delivered repetitive, consistent, demoralizing, and game-changing maneuvers that changed the tide of the war, utilizing the tactics, techniques, and procedures that were cultivated in the 1930s. That same integrated naval team can once again turn the tide to create a decided advantage for the United States, not by employing the tactics of 70 plus years ago, but by cultivating ingenuity and developing and employing innovative maritime tactics that wrest the power away from China and put it back in the hands of democracies. While providing leadership in this rebalancing of global power, the United States can ensure all countries adhere to internationally agreed upon laws of the land and sea and reinforce allied nations as they reassert their standing as the rightful owners of Indo-Pacific territorial waters islands and features.

To be a decisive player, rather than a reactionary one, in the renewed great power competition playing out in the fissures of the Pacific, the Marine Corps and Navy must demonstrate air and seaspace dominance. If the recent past is any indication, the future will play out in a grey zone where actions are not acts of war per se but could easily lead to miscalculation by either side quickly escalating to warfare. Flicker operations with modular teaming, in concert with reorganized units using lighter and more capable equipment, bring cohesive direction to a chaotic maritime landscape by ensuring that the right forces are always ready. By providing strategic leadership in the region, the Navy and Marine Corps can push the dragon back onto its own shores.

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# Cross-Functional Marine Air-Ground Task Element (MAGTE)

The LCS and Force Design 2030  
by LT Virgil Fermin

*“No matter how successful you are, change is always good. There can never be a status quo.”<sup>1</sup>*

*Billy Beane, Moneyball*

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As a nation, we are currently facing difficult times amid a global pandemic, training accidents, decommissioning of surface combatants, social issues, economic challenges, and evolving security threats. During these challenging times, the Navy and Marine Corps are in an innovation race against near-peer competitors who are shifting the balance of the operational environment in their favor. Additionally, the prevalence of unclassified doctrine and concepts in the information domain have enabled our competitors to gain valuable insights into our methodology.

These issues are further exacerbated by the stagnation of our amphibious warfare doctrine. These factors col-

lectively have further diminished the United States’ advantage. Admittedly, our naval team has not experimented at pace with the evolving threats.<sup>2</sup> Our competitors have capitalized on these trends, accelerated industrial innovation, and refocused their efforts on maritime superiority. For the Navy and Marine Corps, maritime superiority is no longer a guarantee in an era of great power competition (GPC). The looming threats from near-peer competitors pose significant danger to global security and stability. Conformity, hierarchical pressures, and self-imposed limitations further threaten our maritime superiority.

Correspondingly, the U.S. naval team needs to leverage current and emerging capabilities to develop asymmetric advantages in the maritime domain. As stated by Carl von Clausewitz, “talent and genius operate outside the rules and theory.” Balance and innovation are now the guiding principles with the renewed focus on sea control and sea

denial. The naval team must capitalize on opportunities inherent to the operational factors of space, time, and force to develop new asymmetric advantages.

The prioritization of sea control and sea denial has consequently resulted in the requirement for Marine Corps force design changes. For some, Marine Corps force design has become a point of consternation. These initiatives require an objective approach with an unwavering commitment to solving the complex GPC threats. Force design changes do not negate the requirement for the Marine Corps. Rather, force design changes only further reinforce the requirement for Marines to execute critical capabilities and operational gaps. Now is time to challenge conventional thinking and the traditional employment of the MAGTF. We must consider flexible options to amass combat power.

## Space

The Marine Corps and Littoral Combat Ships (LCS) are currently facing two



**LCS are a capable and potentially risk-worthy alternative to the traditional three-ship model for the AGR/MEU.** (Photo by Petty Officer 2nd Class Joseph Bishop.)

distinct crossroads. The LCS program is under pressure to produce operational mission packages and increase deployments.<sup>4</sup> The Marine Corps is currently undergoing drastic force design changes and modernization. Marine Corps force structure changes are expected to be supported with corresponding modernization funding.<sup>5</sup> Commandant Berger has placed an emphasis on naval integration and recognized the Marine Corps' 38-ship requirement is no longer a valid requirement.<sup>6</sup> Additionally, the recent catastrophic damage to the USS *Bonhomme Richard* has also impacted long-term operational planning.<sup>7</sup> The tragedy on the USS *Bonhomme Richard* equates to the loss of a MEU deployment platform. This loss is significant at a time when every resource in our fleet is critical in the GPC race and power projection.

The Marine Corps has already received the guidance to seek affordable and plentiful platforms as complementary options to traditional amphibious ships.<sup>8</sup> LCS are a formidable alternative to the traditional three-ship model for MEUs. At this juncture, LCS have been in the fleet for over a decade.<sup>9</sup> The LCS was designed for interchangeable warfare area capabilities. LCS are also built with the physical space to transport carry on equipment. LCS is a platform in need of a partner with asymmetric capabilities beyond the scope of their current integrated systems and mission packages.

In terms of operational space, LCS also provides the Marine Corps with a platform capable of operating in the littorals and with untapped potential to encroach archipelagos and other landbased areas of interest from the maritime domain. From an LCS, Marines can conceal their presence with a smaller force from potential adversaries. Leveraging LCS to deploy Marines is deceptive in nature. As stated by Sun Tzu, "The enemy must not know where I intend to give battle. For if he does not know where I intend to give battle, he must prepare in a great many places."<sup>10</sup> This is a welcomed departure from the limitations and physical signature of amphibious warships. As eluded to by Sun Tzu, LCS can deliver critical capabilities to the operational environment and change the adversary's calculus.

### Time

In the era of renewed GPC, time is a valuable resource for the naval team. As naval forces, we can no longer wait five years for acquisitions and emerging technologies to align. These obstacles are further constrained by the corresponding time required to properly train the operators of the emerging capabilities. To maximize time, we must creatively leverage weapons and platforms.

The prospect and production of the Light Amphibious Warship (LAW) is positive.<sup>11</sup> Yet, time is also a major consideration for the LAW program. As the LAW comes online, there will

be programmatic issues that will need resolution. To reach full operational capability, the Navy will need to conduct force reorganization and train the 40 Sailor LAW crews.<sup>12</sup> LAW industrial production and corresponding repair parts need to be operationally parallel with manning and training. LAW programmatic issues will not be resolved overnight or as soon as the first iterations of LAW production are completed.

The LAW also has considerable operational and tactical limitations. Based on preliminary information, the LAW's estimated transit speed will be fourteen knots.<sup>13</sup> In permissive environments, fourteen knots can be an acceptable speed. However, a transit speed of fourteen knots leaves the LAW susceptible to attacks from highspeed adversary crafts. To minimize risk to force, the LAW is going to require external escort assets in uncertain and hostile environments. Tactical planners will need to account for two assets in their calculus for LAW. LAW also has limited capabilities in maneuver, protection, sustainment, and fires. In contrast, a LCS's top speed is greater than 40 knots.<sup>14</sup>

At a minimum, the LCS can outrun prospective lower end threats independently. LCS is a highly maneuverable platform unlike the traditional Marine Corps deployment afloat options. As a grey zone solution, LCS would also enable the naval team to execute timing and tempo of operations in an unpredictable manner. This would empower naval forces to create unpredictability in the operational environment and provide the Marine Corps with expanded operational reach. As a surface combatant, fires and sustainment are inherent elements of LCS. In character, the LCS is the ideal Marine Corps maneuver warfare maritime platform. These are opportune alternatives for grey zone operations and potential intermediate support platforms for expeditionary advanced bases (EABs).<sup>15</sup>

The Chief of Naval Operations, ADM Gilday recently acknowledged his expectations for the LCS program: "We've done five deployments since I've been on the job, we're going to ramp that up two-and-a-half times over the next couple of years."<sup>16</sup> There has never

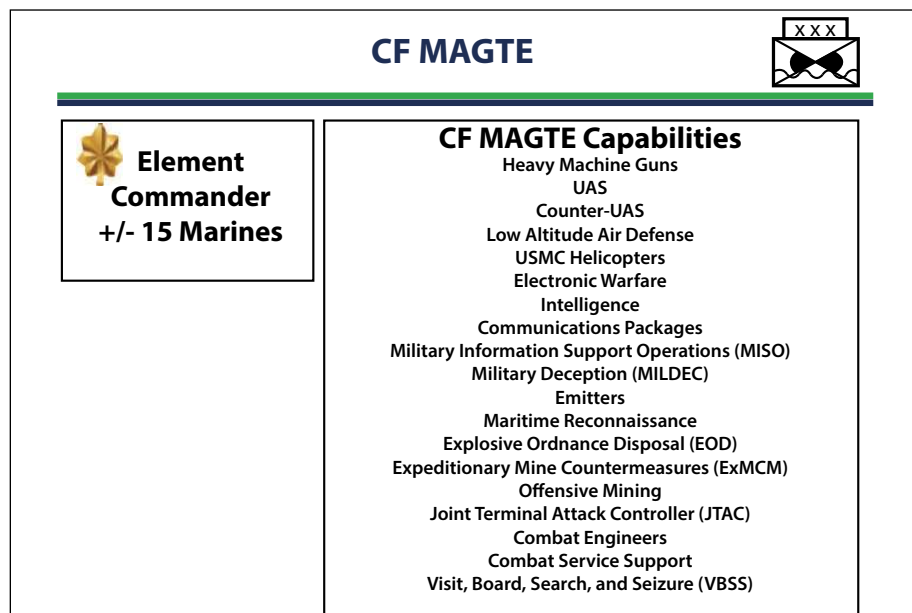


been a more opportune time for a Marine Corps and LCS partnership. With increase deployments on the horizon, LCS is an optimal platform for naval integration. By establishing this partnership, the CPG naval integration mandate can also be accelerated. Leveraging LCS as a platform will also provide the LAW program the time required to reach full operational capability.

## Force

Justifiably, doctrine is serving as the validation for the opponents of Marine Corps force design changes and reorganization. Legacy naval concepts and doctrine are currently obstructing flexibility. As stated in *MCDP 1 Warfighting*, “We should recognize that all Marines of a given grade and occupational specialty are not interchangeable.”<sup>17</sup> This statement from the *MCDP 1* holds some validity, but the theory that Marines are not interchangeable must be challenged. Why can we not interchange Marines? Gen Alfred M. Grey, 29th Commandant of the Marine Corps, famously stated, “Every Marine is, first and foremost, a rifleman. All other conditions are secondary.”<sup>18</sup> It is time to revisit Gen Grey’s quote with the purpose of creating flexibility and asymmetric advantages. What if every Marine was a heavy machine gunner first?

To some, maintaining the integrity of the MAGTF is a priority. This is a major collision point between “what we have always done” and innovation. Truthfully, what has been done in the past will not be executed in the same manner in support of GPC. As opposed to forcible entry from the sea, grey zone operations require effects centric capabilities. Grey zone operations require a new approach to understanding the enemy’s patterns of life and disrupting those patterns.<sup>19</sup> Sun Tzu famously referenced this approach in its most primal form, “to win one hundred victories is not the acme of skill. To subdue the enemy without fighting is the acme of skill.” The technical skills required for grey zone operations are already inherent to the Marine Corps, but current force organization does not support maximum flexibility.



**Overview of the Cross Functional MAGTE.** (Image provided by author.)

The prospect of Marine Corps and LCS integration offers the opportunity for the introduction of a new MAGTF alternative. The establishment of the LCS-based Cross Functional MAGTE (CF MAGTE) would create new opportunities for the Marine Corps to conduct seabased, combined arms, and expeditionary operations. The purpose of a CF MAGTE would be to assemble an effects-based team in support of maritime operations. The CF MAGTE would require the composited Marines to have a baseline capability founded in infantry company operations.<sup>21</sup> Similar to a special purpose MAGTF, a CF MAGTE would be tailored to a particular mission. Since the early 2000s, comparable concepts have been employed within the special operations forces community.<sup>22</sup> The CF MAGTE would not require the establishment of new commands or organizations. CF MAGTEs are a concept meant to reinvigorate the future of maritime campaigns.

CF MAGTEs would draw personnel and capabilities from a MEF: “The intent is to tailor the force for the situation, so it’s never quite the same, but it’s always small, it’s always cross functional.”<sup>23</sup> The mission requirements would drive the components provided by the CE, GCE, ACE, and LCE. A baseline CF MAGTE would be led by a major

serving as the element commander (EC) and would require fifteen plus or minus Marines.

Operationally, LCS remains a flexible platform with untapped potential. The CF MAGTE would significantly increase the LCS and corresponding mission package with carry-on capabilities and highly skilled Marines. A LCS with the Surface Warfare Mission Package (SUW MP) would be the optimal platform for a CF MAGTE: “The SUW MP consists primarily of a vertically-launched Longbow Hellfire missiles, 30mm guns and Visit, Board, Search and Seizure (VBSS) equipment, along with aviation assets.” The SUW MP has organic fires and protection capabilities without the large signature of amphibious ships. On an Independence Variant LCS, the CF MAGTE would also have ample room to accommodate various equipment configuration options in the mission bay.<sup>25</sup> The Independence Class LCS also has a hangar bay and the largest flight deck of any surface combatant in the fleet.<sup>26</sup> LCS also provides the Marine Corps with the option to interchange the SUW MP’s aviation assets for a variation of ACE aircraft.

The CF MAGTE would flex some of the top technical capabilities of the Marine Corps in new dynamic ways. This concept will revolutionize the naval team’s tactics, techniques, and pro-

cedures (TTPs) while fulfilling fleet capability gaps. In preparation, this would require minor training requirement adjustments with a renewed focus on shipboard operations. For example, Marine unmanned aerial vehicle squadrons are already outfitted with a variation of Unmanned Aircraft System (UAS).<sup>27</sup> From an LCS, a CF MAGTE could employ Group 1 small UAS (sUAS) from the ship or at an extended range from its Rigid Hull Inflatable Boat (RHIB).

The CF MAGTE could also utilize the LCS to serve as a spoke location for a hub launched RQ-21,<sup>28</sup> thus extending the range of the aerial reconnaissance, maximizing the endurance of the UAS, and supporting the scheme of maneuver. The physical accommodations of the LCS would allow the CF MAGTE to carry on multiple payloads for mission and sensor flexibility. To facilitate these capabilities, the unmanned aerial vehicle squadrons would need to conduct maritime qualifications from an LCS. These are minor adjustments to facilitate some of the best resources within the Marine Corps.

The CF MAGTE is an unprecedented opportunity for the Marine Corps to integrate within the Navy's Composite Warfare Commander (CWC) doctrine structure. The CF MAGTE would serve primarily in support of the Information Operations Warfare Commander and Surface Warfare Commander.<sup>29</sup> For some, this proposal is an unfavorable

course of action. In the past, relinquishing any aspect of command and control (C2) was unfathomable.

However, this course of action requires analysis beyond the supporting and supported relationships. This integration opportunity would leverage

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**... the Navy and Marine Corps must embrace being uncomfortable with new endeavors.**

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the Marine Corps while facilitating command by negation and decentralized contro.<sup>30</sup> CF MAGTEs integration within CWC would eliminate the idea that Marines are passive passengers in route to an objective area.<sup>31</sup> There are significant long-term benefits to the CF MAGTEs role within CWC.

Because of LCS minimal manning, the CF MAGTE would be heavily integrated with the crew and gain valuable experience operating within CWC. The Marine Corps will subsequently benefit from the operational CWC education gained by the majors serving as ECs. Eventually, the EC majors will continue to ascend to positions of command and serve as conduits for future naval integration. The experiences gained

from CF MAGTE deployments would serve as force multipliers and further strengthen combined arms operations.

### Conclusion

As stated by Edwin Corr, "Change is often difficult and painful. Change of an overarching, long-accepted strategy is particular challenging."<sup>32</sup> Corr's commentary can also be applied conceptually to organizational structures and capabilities. The Marine Corps' reinvigoration of maritime capabilities does not have to be difficult or painful. The road forward requires the appetite to leverage the best technical capabilities that we have in new dynamic ways and CF MAGTE is the answer. The same principles can be applied to the employment of LCS. The LCS is a platform that needs to prove its worth operationally and requires enhanced capabilities to add greater contributions in contested environments.

However, "It's not reality unless it's shared."<sup>33</sup> At all levels, the Navy and Marine Corps must embrace being uncomfortable with new endeavors. The path to victory for grey zone operations resides within the operational factors of space, time, and force. In general, our naval doctrine already exists for GPC. The solutions to our maritime challenges are not inside joint publications nor should we anticipate them to arrive tomorrow through the acquisitions process. Experimentation with concepts like CF MAGTE will drive the development of new TTPs. The CF MAGTE concept is a part of the new wave of kill chain enablers and complement expeditionary advanced bases.<sup>34</sup>

By in large, our adversaries are familiar with our legacy Marine Corps capabilities and tactics. We have all become too comfortable in the execution of legacy amphibious operations:

What men can do easily is what they do habitually, and this decides what they can think and know easily. They feel at home in the range of ideas which is familiar enough through their everyday line of action.<sup>35</sup>

We must change our methodology and adopt low signature afloat force packages. This will enable the naval force to conduct distributed operations and



**LCS-7 USS Detroit launches a Longbow Hellfire missile. (Photo by Ensign David Cravey.)**



**A Firescout unmanned aerial vehicle takes off from the flight deck of LCS-4 USS Coronado.**  
(Photo by Petty Officer 2nd Class Kaleb Staples.)

deliver new tactical dilemmas to our adversaries.<sup>36</sup> The development of new TTPs will create the respective asymmetric advantages we need. The solution to many of the GPC and grey zone operations challenges already reside within our force. Ultimately, our Marines and their skillsets are the solution.

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2020 LtCol Earl “Pete” Ellis Essay Contest: Honorable Mention

# Amphibious, Integrated, Purpose-Driven

The changes the Corps needs to make to survive

by 1stLt Jill Dugan

In the years since the Gulf War, the United States’ adversaries have continued to evolve while we focused on the Middle East. The unfamiliar enemy structure and methods forced the Marine Corps to adapt and change to meet counter-insurgency operational requirements; it did not, however, force growth in our conventional capabilities. As the United States was publicly preoccupied with the Middle East, nations who were near-peer threats became pacing threats as they learned from the mistakes of a global power and the successes of far less technically equipped groups of non-state actors. This article aims to address—using what the Marine Corps currently has access to—how the Corps can embrace changes in its structure, further hone them to an advantageous layout, and how to best train these new designs within the joint and Marine Corps systems. It will do this by outlining one possible model for framing the current challenge, reviewing potential changes to training methods, exploring how technology has impacted the character of war and ways to implement it effectively, and necessary changes to leading personnel.

The Marine Corps has learned through trial and error how to more effectively shape itself to compete with asymmetric, non-state actors who, despite having less funding and high-tech resources, have inflicted millions of

dollars’ worth of damage, and ended many American and allied lives. If the Marine Corps is to continue embodying an “adapt and overcome” mindset, it needs to heed the *Commandant’s Planning Guidance* and *Force Design 2030*.<sup>1</sup> While neither document provides a micromanaging level of detail, it lays a basic framework based on senior leaders’

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***Today’s maritime environment is more populated and contested than ever before.***

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reflections on how to best improve the Corps’ structure and training. Any further attempt by subordinate leaders to alter this framework in favor of a model that closer reflects another Service or civilian organization will only serve to delay the inevitable changes the Corps is facing. Today’s maritime environment is more populated and contested than

ever before. Urbanized coastlines have given rise to a globalized network of illicit trade and open defiance of host nation governments. The threshold for what is considered an action demanding a military response is in constant flux. This is what allows, for one example, narcotics operations to thrive in port cities that lack a strong government presence but have the support of the local people. Military advisor David Kilcullen identifies this occurrence as “Liminal warfare [which] exploits this character of ambiguity, operating in the blur.”<sup>2</sup> There are several historical examples of nations and non-state actors openly undermining America’s political goals through a liminal strategy, doing enough to “further their own interests but not enough to trigger and outright military response.”<sup>3</sup> This is worth keeping in mind as the Marine Corps prepares to enter that contested and ill-defined space.

## A Mental Model

One way to frame this challenge, though far from the only way, is through the concept of the three-block war. The

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three-block war is well understood throughout the force, and while Gen Krulak developed it with the intent to aid commanders on the ground in an urban environment, it is just as applicable to a maritime environment where boundaries are ill defined and ever-changing.<sup>4</sup> The challenges Gen Krulak discusses that cause the three block war—the blurring of the lines that separate levels of war, media presence and use, and global instability—are not things Marines can remedy, but they must be accounted for when making decisions under pressure and without additional resources. This model is equally applicable in an amphibious environment, where ambiguity permeates the perceptions and effects of all actions, perhaps nowhere more so than the South China Sea. Liminal acts by all participants in the global system—allies, non-state actors, or local nations or other global powers—influence the Marine Corps’ ability to inflict America’s desired political end state by creating confusion and causing hesitation. Marines should be prepared to leverage their military operations in urban terrain training in conjunction with coordinating fires, signal management, and reconnaissance efforts. While the Commandant emphasizes expeditionary advanced based operations (EABO), it would be ignorant to believe Marines will not end up operating in coastal, urbanized terrain. Training our Marines to understand there is no definite, all-encompassing solution is crucial, and oversimplifying our current situation to make it fit neatly into a historical example is folly.

### Training

The Marine Corps has a perverse sense of pride in being thrifty, and this must continue, since our budget is not predicted to increase. According to Gen Krulak, “Training presented a real challenge because of the limitations on ammunition, repair parts, and gasoline. But there was nothing Louis Johnson could do to prevent us from maneuvering up and down the brown hills of the 120,000 acre Camp Pendleton reservation.”<sup>5</sup> As the leanest force, Marines have long sought effective ways to

train regardless of allocated resources. Small unit leaders must continue this approach and accept risks as they create new ways to thoroughly train their Marines. Companies cannot feasibly conduct an amphibious landing every quarter, but they can practice swimming in kit, moving their gear from water to land to a covered position, and follow on actions that must occur during beach landings, both contested and uncontested. Commanders at all levels must demonstrate trust in their junior leaders and give them autonomy in training if they expect to give them autonomy in conflict. The way risk assessments are conducted must be based on a long-term plan for mission accomplishment, not a short-term concern for convenience. Creative solutions to training limitations must be encouraged, and this means some failures must be anticipated and accepted before new solutions can be discovered.

Pervasive mission creep throughout all occupation fields in the attempt to secure more funding has severely degraded the Marine Corps’ combat readiness. Moving forward, the Marine Corps must practice as a system to support naval operations through decisive actions that produce opportunities for Fleet Forces to exploit. The Corps’ role in advancing American policy has come to include taking on roles in humanitarian aid and disaster relief missions and cyber operations. Although these are vital operations that reinforce America’s values and technological capabilities, these are not sustainable parts of Marine Corps warfighting culture. The Commandant has called for more joint operations to leverage the other Service branches who have the adequate manpower and resources to complete their own specialized mission sets, rather than developing more branches within the Marine Corps to accomplish the same functions. The Corps must let go of the entirely self-sustaining mindset brought about by the MAGTF and learn when, how, and who to ask for assistance. As the information and cyber environments have come to the forefront of research and development, the tendency for senior leaders to seek to “win” these dimen-

sions as a means of securing victory in the broader war is to the detriment of the other dimensions of war. If the Marine Corps is to reaffirm its dominance as the United States’ expeditionary force in readiness, it must accept its role as an enabler to naval maritime operations and cease attempting to expand its role to cyber, information, or nation building type missions. There are too many variables in kinetic conflict to champion one domain as the bedrock of success. While a cyber unit is necessary for the Marine Corps to incorporate into its ranks, diverting funds and manpower from an already thinning radio, communications, and intelligence battalions to stand up a more robust cyber component is a misuse of time and resources. The cyber arena is only one domain in which wars are waged; to focus on that as a Marine Corps is a disservice to what we are capable of.

As the Corps strives to develop asymmetric and conventional capabilities, it must remember that asymmetric methods and wins are only good so long as they are converted into conventional momentum or political victory. Mao Tse-tung noted, “During the progress of hostilities, guerillas gradually develop into orthodox forces that operate in conjunction with other units of the regular army.”<sup>6</sup> While the Corps is not re-fitting for guerilla operations, the principle of creating lasting victory by using an unconventional capability to generate momentum that can be sustained by more powerful, conventional forces remains the same. He also wrote of Japan’s attempt to defeat China,

The Japanese military machine is thus being weakened by insufficiency of manpower, inadequacy of resources, the barbarism of her troops, and the general stupidity that has characterized the conduct of operations.<sup>7</sup>

These serve as warnings to the Marine Corps as it looks to reshape. Our forces are naturally smaller and not designed for sustained operations; being lean must not be confused with being undermanned or under-resourced. Planning on being outside the reach of supply lines and in a disaggregated structure means all Marines must be prepared to pack in what they need for

their operations. Ensuring a coherent and intelligent operation begins with a clearly defined commander's intent that, once disseminated, serves as the foundation for subordinate leaders' decision making:

Coupled with the task and purpose in the mission, future intent statements should include four elements in addition to the end state: the logic underlying the commander's design, the key decisions that may have to be made, antagoals (unwanted outcomes), and limitations that concern the leader.<sup>8</sup>

Following such a recommendation can help prepare small unit leaders to operate independent of follow on guid-

side who closes a "kill chain" the fastest. In the 21st century, "chains" have been replaced by "webs," and the Marine Corps is but one system in a web of many seeking to shape a global system that America can dominate in. Technology plays a role in that system, however, training Marines to be hyper-specialized creates a gap. The optimal warfighter is not one with great breadth and little depth, nor is it one of great depth but little breadth. It is a constantly fluctuating mix of the two depending on the operating environment and available resources. Current reporting suggests that Marines will need to overcome enemy anti-area/access denial (A2/AD) as

masters of their crafts and transfer their successes, kinetic and non-kinetic, to the next member in the chain of command so they can be leveraged throughout the Marine Corps system.

Expeditionary advanced based operations alleviates some of the pressure on the Navy to get Marines ashore on an urbanized coastline; however, it poses many risks of its own. Wherever those bases are established will almost certainly fall within China's medium range ballistic arsenal, if not their short range; unless Marines are operating outside 5,500 km from China's coast, they will fall within range of China's DF-26, one of the nation's dubbed "carrier killers."<sup>10</sup> Operating within range of such an arsenal will necessitate that Marines employ low-altitude air defense, aggressively conceal their positions, and alter how supply and logistic lines will operate. This kind of contested environment is not one the Marine Corps can sustain a fight in alone. All assets must be levied in order to achieve its desired end state, be that deterrence of conflict, or kinetic victory. This means it is necessary to conduct more joint exercises on a regular basis. Understanding where the Navy can support administrative and logistics moves will be crucial, as will learning how the Air Force can support missions requiring electromagnetic spectrum operations and air operations.

In "Maneuvering in the Electromagnetic Spectrum Unveiled," the author uses the example of a kinetic strike on an Integrated Air Defense system to break out the tactical actions that are supported by "the movement and maneuver of electronic data."<sup>11</sup> He notes the members of intelligence, operations, and communications fields are responsible for meeting the demands of a commander within the electromagnetic spectrum, but the actions of combined arms forces must be interwoven with electronic operations to create the lasting desired effect on operations that will span multiple domains.<sup>12</sup> Marines must embrace the possibility that kinetic operations may be in support of non-kinetic operations, not the other way around.

Generating an asymmetric advantage with antiquated systems, while daunt-

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***... Marines will need to overcome enemy anti-area/access denial (A2/AD) as they occupy or seize an EAB, execute operational deception activities, and be prepared to sustain themselves ...***

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ance. Communications capabilities have enabled commanders to extend their reach by gaining situational awareness of the battlespace and provide direction to junior leaders who lack their experience. The latter practice is no longer in line with the Corps' goal of maintaining command and control in a degraded environment. Experience has to be gained through trial and error. Doctrine and tactical decision games are useful stepping stones to this end, but full autonomy must be given to small unit leaders in training and exercises to further their development. Their decisions should be reviewed in full at the conclusion to expand participant's perspectives. Additionally, foregoing a reliance on radio communications will help diminish unit's signatures across the electromagnetic spectrum. This is a means to deny the enemy any excess information about our size, movement, intent, and capabilities.

**Making Technology Work for the Corps**

The character of war is no longer such that victory is guaranteed to the

they occupy or seize an EAB, execute operational deception activities, and be prepared to sustain themselves at EABs without consistent logistical support as they conduct a myriad of operations in support of the Fleet. Each player in the global system transmits and receives information through their own arrangement of webs, creating a more globalized and difficult to predict world than the Corps has ever been called to operate in. This will deeply affect the Marine Corps integration of non-kinetic operations in support of maneuver elements.

New technologies and changes in the character of war do not necessitate a complete overhaul of how the Marine Corps trains, "No degree of technological development or scientific calculation will diminish the human dimension in war."<sup>9</sup> This axiom reinforces the principle that wars are not won by dominating one domain. Superior performance in the cyber domain will not ensure a U.S. victory, nor would China's dominance in controlling the narrative through disinformation campaigns secure victory for them. Commanders must set the conditions for their Marines to become



ing, is not impossible. The Defense Advanced Research Projects Agency has been developing System of Systems Integration Technology and Experimentation to help the U.S. maintain air-superiority through enabling the different platforms to communicate with each other through providing a common technology that can be updated without re-engineering the entire system.<sup>13</sup> Equipping what aviation asset the Corps does have with these types of systems would be a lower cost option than developing a new platform. Defense Advanced Research Projects Agency has also been integrating System of Systems Integration Technology and Experimentation with another program called Adapting Cross-domain Kill-webs to be used by “mission commanders to assist them with rapidly identifying and selecting options for tasking- and re-tasking assets within and across organizational boundaries.”<sup>14</sup> The Adapting Cross-domain Kill is designed to help commanders select what assets across all branches to call on to accomplish tasks; this is meant to enable disaggregated forces to formulate adaptive kill webs.<sup>15</sup> This asset should be explored at length to determine the best course of action for employment at tactical and operational levels.

### Personnel Matters

Where the Marine Corps can create a deep impact in the information environment is through an intrusive leadership approach on how Marines at all levels use social media. The use of platforms such as Twitter, Snapchat, TikTok, and Instagram to vent, or just outright complain, about toxic leaders, frustrating policies, and operational information creates a clear gap for enemies to exploit. These habits also create a community of Marines focused on a plethora of negative experiences leading to a feeling of separation from their Corps. This contributes to another problem growing from within the Corps: the suicide epidemic plaguing our ranks. This issue makes evident the urgent need for commanders to create an environment where Marines have a purpose they feel fulfilled by working for and where there is a clear place for them to belong in the

future. No Marine Net class or safety brief can fix this. This is not something as final as a command philosophy; it cannot be accomplished in a safety stand down. Only small unit leaders staying engaged in their people’s lives will enable Marines to tear away from the internet as a primary means to have a voice and turn to their peers and leaders in search of a fulfilling purpose and sense of belonging. Addressing these issues will help ensure the capabilities of forward deployed elements are not unnecessarily degraded.

### Key Take-aways

As we prepare our Corps for its next missions, we must train our Marines to operate in the ambiguity that our enemies have been enjoying unhindered for too long. While maneuvering in this contested area, we must remember what makes the Marine Corps unique, enabling Naval maritime operations as we serve as an expeditionary force in readiness, and master it. Training exercises must include meeting joint mission essential tasks as well as mission essential tasks organic to the Corps’ distinctive capabilities. Lessons learned from our time in urban terrain cannot be forgotten in our pivot to EABO. The gaps created by enemy disinformation campaigns and poor leadership cannot be allowed to go unchecked. The Corps is nothing without its Marines, and their welfare requires daily, intrusive, and authentic engagement from all levels of leadership. This sets the conditions for organizational change and progress.

### Notes

1. Gen David H. Berger, *38th Commandant’s Planning Guidance*, (Washington, DC: 2019); and Gen David H. Berger, *Force Design 2030*, (Washington, DC: 2020).
2. David Kilcullen, *The Dragons and the Snakes: How the Rest Learned to Fight the West*, (Oxford, UK: Oxford University Press, 2020)
4. Ibid.
5. Charles Krulak, “The Strategic Corporal: Leadership in the Three Block War,” *Marines Magazine*, (New York, NY: Marine LINK, January 1999).

6. Victor Krulak, *First to Fight*, (Annapolis, MD: Naval Institute Press, 1984).

7. Mao Tse-tung, *On Guerilla Warfare*, (New York, NY: 1961).

8. Ibid.

9. From W.H. Vivian, “Future War Paper: Sustaining Competitive Advantage: Mental Models and Organizational Learning for Future Marines,” (Quantico, VA: School of Advanced Warfighting, 2007). Klein recommends the following seven types of information important for describing intent: 1. The purpose of the task (the higher-level goals); 2. The objective of the task (an image of the desired outcome); 3. The sequence of steps in the plan; 4. The rationale for the plan; 5. The key decisions that may have to be made; 6. Antigoals (unwanted outcomes); 7. Constraints and other considerations. Types 1–3 are already contained in the purpose-method-end state formulation in use by the Marine Corps. Types 4–6 add a deeper understanding behind the intent and would help Marines pursue appropriate goals in ambiguous situations. Type 7 is addressed within the current Marine Corps planning process, but I have chosen to list it as limitations to capture both constraints and restraints and to make it an explicit statement from the leader on what limitations concern him in pursuit of his end state.

10. Headquarters Marine Corps, *MCDP 1, Warfighting*, (Washington, DC: July 1997)

11. Missile Defense Project, “Missiles of China,” *Missile Threat*, *Center for Strategic and International Studies*, (June 2018), available at <https://missilethreat.csis.org>.

12. Carl Nite, “Maneuvering in the Electromagnetic Spectrum Unveiled,” *Marine Corps Gazette*, (Quantico, VA: September 2020).

13. Ibid.

14. Jimmy Jones, “System of Systems Integration Technology and Experimentation (SoSITE),” (n.d.), available at <https://www.darpa.mil>.

15. DARPA Media Outreach, “Creating Cross-Domain Kill webs in Real Time,” (September 2020), available at <https://www.darpa.mil>.

16. Ibid.



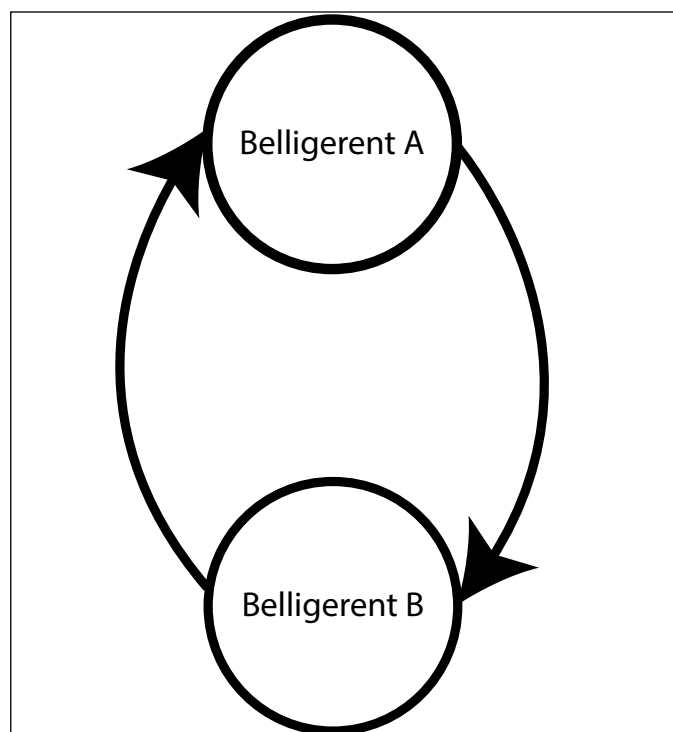
# Introducing the *Dreikampf*

## Maneuverist Paper No. 6

by Marinus

**W**arfighting steals a page from Clausewitz's *On War* by proposing the *Zweikampf*, or “two-struggle,” as the essential, universal definition of war.<sup>1</sup> It defines war as a violent clash between two independent and hostile wills—each trying to impose itself upon the other by force and constrained only by its own limits and the countervailing efforts of the other. In Clausewitz's time, the term *Zweikampf* was used to describe wrestling matches, duels, trial by combat,<sup>2</sup> and even the fights between Achilles and Hector before the walls of Troy. A critical insight of the term is that it is a serious mistake to think of the enemy as an inanimate object to be acted upon like an anesthetized surgery patient—a seemingly obvious point that has been violated repeatedly throughout history. Instead, the enemy is an intelligent will that does everything in its power to achieve its own objectives. Maneuverist No. 2, “The *Zweikampf* Dynamic,” (MCG Oct 2020), argues that the two-struggle is inherently nonlinear and that that nonlinearity makes war fundamentally uncertain, unpredictable, and frictional. It also argues that this way of thinking about war is foundational for, and may even be distinctive to, Marines. (See Figure 1.)

The *Zweikampf* implies cohesion within each fighter and symmetry between fighters. Once we involve more than a single actor on each side, however, we find ourselves dealing



**Figure 1. The *Zweikampf*.**

Marine combined arms and force-on-force training is largely focused on mastering TTPs for the *Zweikampf*. (Photo by SSgt Gabriela Garcia.)

with alliances or coalitions of various sorts—whether between states, within states, or among actors of any kind. This, of course, leads to Sunzi's notion of attacking alliances and Boyd's of attacking cohesion. Moreover, while belligerents in the two-struggle may have different strategic objectives and may employ different capabilities in different ways, the *Zweikampf* is essentially symmetrical in that both belligerents are attempting to get their way by applying force directly against the other. This certainly seems to be true for Clausewitz, as both metaphors he uses when introducing the concept, wrestling and dueling, are symmetrical.<sup>3</sup> Clausewitz was an observer of the Napoleonic wars after all, and so his natural focus would be on regular armies maneuvering directly against each other. The assumptions of cohesion and symmetry do not in any way weaken the concept of the two-struggle.

### Is the *Zweikampf* really universal after all?

But after witnessing nearly twenty years of warfare in Afghanistan and Iraq, we cannot help but question if the *Zweikampf* is a universal construct after all. It strikes us as something of a stretch to argue that the two-struggle has applied cleanly to those conflicts—as well as to many others throughout history. Perhaps the *Zweikampf* applies more narrowly to what we now call regular warfare, and there is an entire other category of war that the *Zweikampf* construct does not capture in its essence and for which another construct might provide more and better insights. We speak of various forms, now most commonly called *irregular warfare*, in which the belligerents, in addition to fighting each other, must also struggle for control over a contested population.<sup>4</sup>

### The *Dreikampf*

For these other forms of warfare, we propose a construct we will call the *Dreikampf*, or “three-struggle,” in which the third actor in the struggle is the common population that both belligerents struggle to impose themselves upon in addition to struggling to impose themselves upon each other. (See Figure 2.)

*Dreikampf* “as we propose it” is not simply any conflict with more than two combatants—which is actually most wars. Wars with multiple combatants are commonplace, but they will tend to coalesce into two-struggles as the various combatants align into two camps based on their overlapping interests. The alliances may be relatively stable and enduring, as were the Allied and Central Powers in the First World War, or they may be continuously shifting, as with the various actors in the Syrian conflict today. But the point is that at any particular time and place, the multifaceted struggle will tend to coalesce into two camps, and the *Zweikampf* dynamic will prevail. As an example, the Chinese Nationalists and Communists fought for control of China in the 1930s. In 1937, Japan invaded, adding a third actor to the struggle, and the two Chinese factions, irreconcilable enemies up until that point, formed a united front against Japan. The Nationalists and Communists eyed the other with suspicion, and even clashed occasionally, but generally cooperated in the defeat of Japan, which both saw clearly as the greater, common threat.

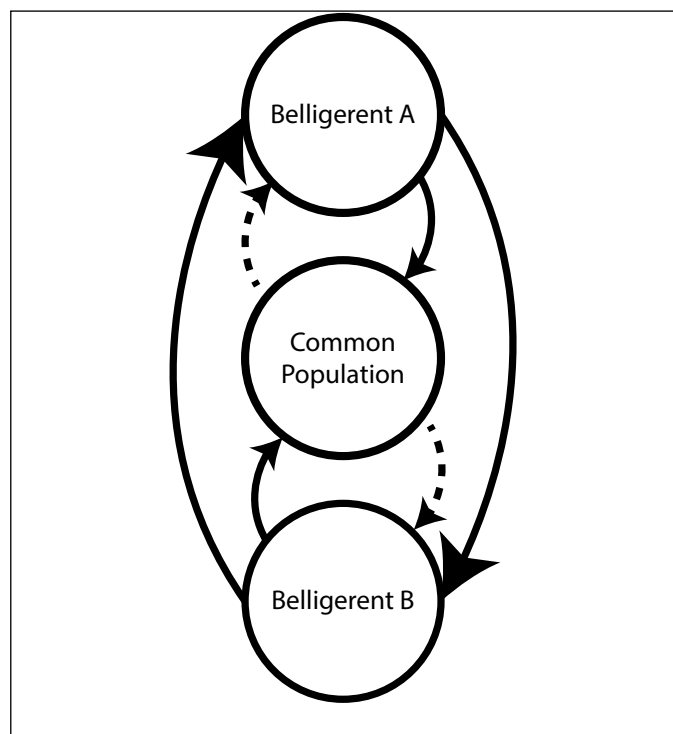


Figure 2. The *Dreikampf*.

Once Japan was defeated, they returned to fighting each other in an existential struggle the Communists eventually won in 1949.

### The Nature of the Three-Struggle

The characteristic essential for a three-struggle as we have proposed is the existence of a common, contested population that seeks to maintain its independence from either of the belligerents. The existence of the *Dreikampf* in no way invalidates the key lessons of the *Zweikampf* but rather is additive to them—or, more accurately, multiplicative. The nonlinearity that leads to unpredictability and friction in the *Zweikampf* is also inherent in the *Dreikampf*—only much more so. The simple addition of a third variable to the equation multiplies the complexity; we know from physics that, in contrast to two-body problems, three-body problems do not submit to closed-form solutions and in fact are chaotic under most conditions.<sup>5</sup> (The classic demonstration of scientific chaos, which Clausewitz almost certainly witnessed, is a magnetic pendulum suspended over three magnets: the pendulum follows an erratic and seemingly random path, pulled by the three magnetic fields, sometimes captured briefly by one of them before careering off wildly again, never repeating the same path.) This may help explain why so many such conflicts historically have defied ultimate solution and instead required prolonged management over time.

More important than the addition of a third independent will to the struggle is the fundamentally different nature of the population from the other two belligerents. We are not fans of the term asymmetrical warfare to describe different operational approaches, but here the relationships genu-



inely are asymmetrical. Where the relationship between the two-struggle belligerents is essentially symmetrical, as we have said, the relationship between each belligerent and the population is far from it—and this diversity increases the complexity and difficulty even more. The interactions among the three interlocked wills are more varied, and these greater degrees of freedom are a primary driver of complexity. (See the discussion of complexity in Maneuverist No. 3.) The population generally does not attempt to impose defeat on either belligerent through force because it usually possesses neither the capability nor the interest. It must be subtler and more indirect, employing influence rather than coercion. Most often, its aim is not to impose itself on a belligerent but to maintain and maximize its own freedom of action vis a vis that belligerent. Basic power theory says that all power relationships are reciprocal even if they are far from balanced. Even a prison population finds ways to exert influence against its armed guards, and so it is with the *Dreikampf*.

Finally, populations are not likely to be as monolithic as the two other belligerents, nor as consistent and coordinated in their actions.<sup>6</sup> The contested population almost always will comprise multiple subgroups, each with different, if potentially overlapping, objectives, means, and methods. Again, this variability only tends to increase the complexity of the dynamics.

The three-struggle itself may be transitory, as once the contested population falls under the control of one belligerent or the other the conflict reduces to a multifaceted *Zweikampf*, as discussed above. But we suggest that, even if sometimes transitory, the three-struggle is an important concept because it manifests different dynamics than the two-struggle.

The *Zweikampf* is a deceptively simple model that produces surprisingly complex dynamics. The *Dreikampf* is a more variable and complicated model that multiplies that complexity geometrically. It is not surprising, therefore, that Western armies traditionally have shown little interest in *Dreikampf* conflicts, after which they are quick to return to preparing for “real war,” which of course means *Zweikampf*. We have seen this in the U.S. military. Most recently, we seem to have forgotten the hard lessons learned in the Vietnam War—“No more Vietnams!”—only to have to go through the pain of relearning them in Afghanistan and Iraq. We do not dispute the rise of potential peer adversaries today, but we cannot help but wonder if the desire to return to “real war” is contributing to the current single-minded focus on Great Power conflict—or to the belief that it will be strictly regular. Even in future warfare against peer adversaries—even totalitarian states—we suggest that the popular will is likely to exert itself directly. Hostilities are not likely to end with the defeat of an enemy state’s regular military forces. In an age when societies are simultaneously fragmented and empowered by the democratizing effects of information technology, populations are less likely to abide by the decisions reached by their governments or the results achieved by governmental military forces—as we witnessed in Iraq in 2004. *Dreikampf* is not likely to disappear, no matter how hard we may wish it. To paraphrase a popular life quote: “*Dreikampf* is what



**Preparing decision makers for the Dreikampf requires investment in realistic training support capabilities. (Photo by 1stLt Virginia Lang.)**

happens when you’re planning for *Zweikampf*.” We suggest that we ignore that at our own peril.

## *Dreikampf* and Insurgency

*Dreikampf* is not synonymous with insurgency/counter-insurgency, although we suggest it may provide insight into the dynamics of many such conflicts, just as the *Zweikampf* continues to provide insight into regular warfare. Not all insurgencies are three-struggles. Nor do all insurgents employ irregular methods, although many do because they lack the resources to engage the established order on an equal footing, at least initially. Although not often thought of as such, the American Confederacy, for example, was an insurgency seeking to establish its independence from the United States. But the American Civil War was a classic *Zweikampf* fought primarily using regular warfare. The Confederacy could fight this way because it was able at the outset of the conflict to appropriate the national warmaking resources located in the Southern states.<sup>7</sup> The Civil War was not a three-struggle because the American people were not an independent entity (or a unitary one). When Gen William T. Sherman cut a destructive swath through the South on his March to the Sea in 1864, he understood that the population of the South was an integral part of the Confederacy and not a separate thing. No application of population-centric counterinsurgency doctrine would have won the Southern populace over to the Northern cause. The same was true of the Northern population.

Conversely, not all three-struggles are insurgencies. The War in Afghanistan was a conflict between the United States and the Taliban in which the Afghan population, at least initially, had little interest beyond wanting to be left alone to pursue its interests without the interference of any national government.

The point is that the proposed *Dreikampf* is not simply synonymous with insurgency or even narrowly a construct of insurgency. Not all insurgencies are *Dreikampfe*, and not all *Dreikampfe* are insurgencies. There is, however, a class of insurgency in which the popular will is central, *protracted*

popular war,<sup>8</sup> which is common enough that it is synonymous with insurgency in many people's minds. Which is another way of saying that *Dreikampf* will remain a frequent challenge in the future.

### Implications of the *Dreikampf*

The key insight of the *Dreikampf* is this: Just as the *Zweikampf* asserts that the enemy is not an inanimate object to be acted upon, so the *Dreikampf* asserts that neither is the population an inanimate object to be controlled or influenced at will. The population is not merely "human terrain" to be fought through or a prize to be won, but rather is a third independent, or at least semi-independent, will with its own interests that do not align with either belligerent. (If they did align with one of the belligerents, the conflict would not be a *Dreikampf*.)

As with the *Zweikampf*, it is not merely the characteristics of the individual contestants in the three-struggle that give the conflict its essential nature but the even more complex and now asymmetrical *interactions* among the three. We suggest that this makes the *Dreikampf* dynamic chaotic and exceedingly challenging.

Importantly, the *Dreikampf* model is not necessarily an argument for a hearts-and-minds, population-centric counterinsurgency doctrine. One of the requirements the tripartite construct imposes on each belligerent is how much time or effort to devote to the other belligerent and how much to the population. For the latter, the question is how much effort, and what kind, to exert against either of the two belligerents. And for all parties, there is a question of how the two efforts relate to each other within the broader concept of operations.

One key implication is the critical importance of understanding the true dynamics of the conflict at hand. There are a few ways to go wrong. It is always an option—a temptation even—to treat a *Dreikampf* as a *Zweikampf* either by ignoring the contested population and focusing on defeating the enemy militarily or by *treating* the population as part of the enemy even when it is not. The former risks ignoring a potentially valuable ally, which may or may not be a fatal mistake. The latter likely will drive the population into the enemy's camp, becoming a self-fulfilling prophesy. The converse mistake is to treat a *Zweikampf* as if it were a *Dreikampf*, wasting time and effort trying to win over a population that has already sided with the enemy. Similarly, it is a serious miscalculation to underestimate the population's determination not to be controlled by either belligerent, wasting time and resources that could better have been put to defeating the enemy. In either of the last two cases, a tendency to try to win over a population that will not be won over seems to be a dangerous tendency of population-centric counterinsurgency doctrines. Some populations may not be co-opted, only subjugated.

The overriding insight of the *Dreikampf* model, again, is the importance of recognizing the population as an independent will with its own interests and objectives, always maintaining the ability to adapt and surprise.

### Conclusion

We have argued that Chapter 1 of *Warfighting*, "The Nature of War," is the most important in the book because it establishes for Marines a common and compelling understanding of the nature of war, which is a fundamental prerequisite for determining how to fight. Foundational to that description in *Warfighting* is the concept of the *Zweikampf* with all its implications. *Warfighting* starts by asserting the *Zweikampf* and then proceeds to discuss its subject consistently in that context. Nowhere does it address specific forms of warfare, such as regular and irregular, but many readers over the years have inferred a regular warfare bias. The *Zweikampf* model itself may help explain that interpretation. (While it may have attempted to address war in timeless and universal terms, *FMFM/MCDP 1* was a product of the Cold War era, as were most of its early readers.)

We sense from recent and historical operational experience that the *Zweikampf* may not be a universal model after all, and we wonder if it may be time to expand the taxonomy of war to acknowledge a class that is better described by the *Dreikampf* model. In fact, an increasing number of Marines who are not products of the Cold War seem to be arguing, on these pages and elsewhere, that *MCDP 1* as written does not meet current requirements. If *Warfighting* is to be revised, we suggest that this issue might be worthy of consideration.

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### Notes

1. Carl von Clausewitz, *On War*, trans. and ed. by Michael Howard and Peter Paret, (Princeton, NJ: Princeton University Press, 1984).
2. An obsolete method of Germanic law to settle accusations in the absence of witnesses in which two disputing parties fought in single combat, and the victor of the fight was proclaimed to be right.
3. Ibid.
4. "Irregular warfare: A violent struggle among state and non-state actors for legitimacy and influence over the relevant population(s). Also called IW," *DOD Dictionary of Military and Associated Terms*, s.v. "Irregular Warfare," available at <https://www.jcs.mil>.
5. Deterministically chaotic. See "Maneuverist No. 3," (*MCG* Nov20).
6. Not that the armed belligerents will necessarily be all that coordinated.
7. Insurgencies in which the insurgent and establishment fight on more or less equal, conventional terms are often called civil wars. (E.g., the American Civil War.)
8. See Bard E. O'Neill, *Insurgency & Terrorism: Inside Modern Revolutionary Warfare*, (Dulles, VA: Brassey's, 1990).





# Marine Corps Postmortem

by Dr. David Pinion

*"If we are ignorant of the changing face of war, we will find ourselves unequal to its challenges."*

—MCDP 1

**O**n 8 February 2030, Congress passed a law that abolished and dissolved the Marine Corps and merged its personnel and assets into the Army, Navy, and Air Force. It should not have come as a surprise to anyone. After a bruising two-month war with China in which the United States never landed a meaningful punch, there was bound to be a reckoning across the entire DOD.

In the decades building up to the conflict, China did not attempt to mask its military modernization nor its ambitions to displace the United States as the dominate power in Asia. China spent decades studying the U.S. method of fighting and openly developed systems that exploited U.S. vulnerabilities. The U.S. way of warfare had reached an evolutionary dead end and was easily picked apart by 21st century technology.

Since the end of the Cold War, the U.S. method of warfighting had become both efficient and lethal. The United States developed long-range precision systems that were highly effective, minimized risk to U.S. forces, and had a disproportional adverse effect on adversaries. However, the Chinese military recognized that the weapons and platforms built by the U.S. maximized efficiency by consolidating firepower, command and control, and mobility into a single platform—which in turn made their use conditional. U.S. strike platforms had also become enormously expensive, which in turn greatly reduced the total number of platforms and systems available. These factors presented the Chinese a

gap to exploit in any military conflict with the United States. Given the very fluid continuum of great power competition that developed in the early 2010s, the lockstep phasing and deployment model and dependence on standoff weapons made any U.S. response very predictable. In the early 2020s, it became increasingly clear that hypersonic anti-ship missiles, smart mines, and global satellite surveillance systems would allow any ship to be targeted long before a carrier strike group or an amphibious task force could get in range to conduct strike operations.

The Chinese strategy against the United States was simple but effective. The Chinese forced the United States to pit expensive, high-value, low-density assets—like billion-dollar aircraft carriers, amphibious assault ships, and F-35s—against their inexpensive, expendable, and easily reproducible weapons and platforms. The strategy was reminiscent of the U.S. victory at Guadalcanal in 1942 where the United States forced the Japanese to risk irreplaceable capital ships against replaceable Navy and Marine aircraft from the unsinkable Henderson Field. The Chinese rightly realized that they could deplete the U.S. stockpile of expensive, exquisite weapons and munitions with cheap unmanned threat systems and decoys. Since the Chinese could outrange any Navy or Marine Corps strike capability, they complicated U.S. entry into the theater by targeting every port and airstrip in the first island chain and tracking every aerial refueling tanker and Navy resupply ship in the western Pacific. However, that was only if conflict reached the kinetic stage. The goal of Chinese leadership was to win without fighting by defeating the systems that enabled the United States to project power. The even published their theory of victory in the work titled "Systems Confrontation and System Destruction."<sup>1</sup>

In the years leading up to the conflict, senior Marine leaders had ample opportunity to reinvent the Marine Corps "brand." In response to the Senate Armed Services Committee re-evaluation of Service roles in peer competition, a proposal from Command and Staff College suggested transforming each MEF into a standing Joint Task Force (JTF). The key difference between a MEF and the new Marine led JTF was the dedicated strategic lift and the necessary key enablers from across the DOD to allow for rapid deployment. The JTFs were to be tailored for specific geographic regions in order to deploy quickly and win the first round in any peer conflict until war winning

**>Dr. Pinion is a retired Infantry Officer and author of the book, Do Good and Fear No Man.**



forces could be marshalled and deployed to theater. This would require new and innovative methods of organization, deployment, and transportation of equipment beyond traditional amphibious shipping. Furthermore, instead of the constant rotational deployments, the new JTFs would work with the Combatant Commander's Theater Security Plans in a manner that was strategically reassuring to partners and allies yet operationally unpredictable to adversaries by varying the size, method, and duration of deployments. But old traditions die hard. Some senior leaders could not conceptually move past the current organization, deployment schedule, and doctrine that had grown operationally predictable and technologically outdated.

Marines had once been the vanguard of innovation and adaptive thinking. However, as the technological landscape was changing, senior Marine leaders continued to spend billions on 20th century capabilities by buying new versions of old equipment like the Amphibious Combat

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***Some senior leaders could not conceptually move past the current organization, deployment schedule, and doctrine that had grown operationally predictable and technologically outdated.***

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Vehicle, the Landing Craft Utility, the CH53K, the Joint Light Tactical Vehicle, and Landing Craft Air Cushion, that offered virtually no increase in capability. The Marine Corps became optimized for the fight senior leaders wished to have rather than the one they would actually face.

So in the summer of 2029, after Taiwan rebuffed the mainland's attempts at peaceful reconciliation, China took the island by force in under two weeks. The Chinese government issued a stern warning to the rest of the world that any attempt to intervene in an "internal" Chinese matter would be met with overwhelming force. The United States responded predictably by sending two carrier strike groups to the western Pacific and an expeditionary strike group to the Philippines to launch strikes against the Chinese fleet in the South China Sea.

The Chinese anticipated such a deployment and launched cyberattacks on the U.S. homeland to shut down the power grid by destroying generators on the east and west coasts. The Chinese President then contacted the White House and explained that China had both military and commercial satellite surveillance of all U.S. preparations and ship movements, and that if U.S. forces approached the South China Sea, those ships would be unceremoniously sunk by a volley of DF-26 missiles. Faced with a humanitarian crisis at home and without a viable conventional option, the

United States chose to accept Taiwan's "reunified" status and turned around the forces headed into theater. As a result of the economic crash caused by the cyber attacks, defense spending was slashed from \$700 billion per year to \$250 billion. Since the Marine Corps offered no operationally relevant capabilities different from the Army, it was a luxury the struggling economy could no longer afford. Sadly, the Marine Corps was disbanded after 265 years of service to the Nation and its major weapon systems merged into the other branches of Service.

In hindsight, the pace of innovation in relation to adversaries would prove to be the truest indicator of future success. For years, senior leaders mistakenly made procurement decisions that merely laminated new technology onto outdated concepts of operation. The Marine Corps could have developed organizations and systems that dispersed sensors, payloads, radars, and communication networks to increase adaptability and survivability. The Marine Corps could have made systems that were easily reproducible in theater, resilient to attacks and not dependent on an airfield, refueling tanker, or ship in order to project a strike capability. The Marine Corps could have developed an in-theater concept of logistics that reduced the distance between the point of supply and the point of demand instead of shipping everything from CONUS. The Marine Corps could have developed the capability to use commercial sensor data from the Internet of Things/ocean of things for targeting. The Marine Corps could have reorganized into rapidly deployable JTFs with the organization and equipment specific to the assigned region's threats. If only the Marine Corps had taken a different approach to warfighting. If only the Marine Corps had heeded the words of a young Gen Neller from 1985 when he wrote in a *Marine Corps Gazette* article, "Let us not become slaves to tradition when technology and reality make it apparent that another solution is at hand."

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### Notes

1. Jeffrey Engstrom, *Systems Confrontation and System Destruction Warfare, How the Chinese People's Liberation Army Seeks to Wage Modern Warfare*, (Santa Monica, CA: Rand Corporation 2018).
2. Robert Neller, "New Look 13 Man Squad?" *Marine Corps Gazette*, (Quantico, VA: October 1985).



# Hell to Pay

reviewed by Maj Timothy Crawley, (USMCR, Ret)

***“Suppose Congress and the American people learned that Truman had at his command a weapon developed at tremendous cost to the American taxpayer, and he had refused to use it? Truman would have been held personally accountable for the awful waste in American lives, and he almost certainly would have been impeached.”<sup>1</sup>***

Dennis M. Giangreco’s thesis in *Hell to Pay: Operation Downfall and the Invasion of Japan, 1945–1947* is simple: President Harry S. Truman and his advisors did not deliberately and knowingly exaggerate U.S. casualty estimates after the fact to justify using the atomic bomb to compel Japan’s surrender.<sup>2</sup> Though not a controversial decision at the time, as Giangreco says:

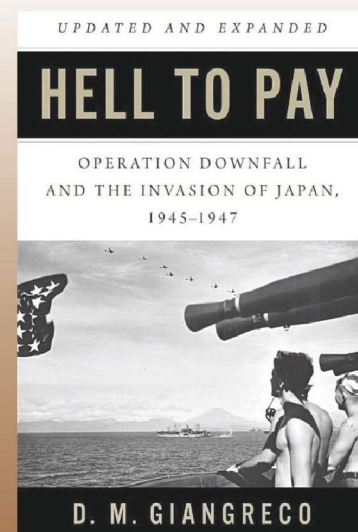
[s]ome scholars have for years—indeed, decades—picked over the bones of every decision relating to the use of nuclear weapons against Imperial Japan. Every nuance of Truman’s most casual asides has been examined, parsed, and psychoanalyzed as critics of the decision have tried to prove that the president lied when he stated that the atom bombs were dropped in the hope that they would induce a defeated Japan to surrender.<sup>3</sup>

Conventional wisdom paints a picture that Japan was on the verge of surrendering or, if not actually about to surrender, that Japan was prostrate before the United States, and it was only a matter of time before they would have recognized the hopelessness of their situation and surrendered. In short, today many people think the decision to drop the atomic bomb on Japan was unnecessary. But,

**>Maj Crawley is a former infantry officer who served during Operation DESERT SHIELD/DESERT STORM. He is currently the Central Region Network Coordinator for the Marine for Life Program.**

as Giangreco shows, the Japanese were not on the verge of surrendering. They were making extensive and thorough preparations “designed to inflict the maximum ‘bloodletting and delay’... on U.S. forces” in order to “salvage a victory of sorts ... [v]ictory ... redefined as achieving a military stalemate that left, at minimum, the core empire intact ... and guaranteed the continuance of the imperial structure.” Furthermore, as Giangreco points out, “Japan was a defeated nation long before *Enola Gay* lifted off from Tinian Island ... [but] [a]n enemy facing what appears to be certain defeat doesn’t necessarily *surrender*.”

The central issue Giangreco explores is whether the estimate “that the invasion of Japan might cost half a million” killed was being used *before* the invasion—contrary to what some present-day historians claim, which was that the estimate was provided to the American public after the fact to justify dropping the atomic bombs on



HELL TO PAY: Operation Downfall and the Invasion of Japan, 1945–1947. By D.M. Giangreco. Annapolis, MD: Naval Institute Press, 2017. ISBN: 978-1682476437. 584 pp.

Japan. However, as Giangreco clearly and convincingly illustrates, the estimate of 500,000 killed was what soldiers overseas *and* civilians on the home front were being told well before the bombs were dropped on Hiroshima and Nagasaki:

Interestingly, briefings ... held by the Army at such diverse locations as the Pacific-bound U.S. First Army Headquarters, still in ... Germany, B-29 training bases in the southwestern United States, and the Pentagon all utilized a uniform figure for expected casualties ... 500,000.

During this period, an article in the *Los Angeles Times* quoted their paper’s Pacific war correspondent as saying “it will cost 500,000 to 750,000, perhaps 1,000,000 lives of American boys to end this war.” An estimate from the Selective Service to the War Department during this time stated that the invasion of Japan “might cost us between 1.7 and 4 million casualties including 400,000 and 800,000 killed.”

So, where are these much smaller casualty estimates that present-day historians use to buttress their claims

that the atomic bomb was unnecessary? First,

casualty-related data was produced ... by an extremely wide variety of staff elements ... done to meet the needs of individual staff elements and their own chain of command. Consequently, the output from these groups is often narrowly focused, based upon assumptions held by the individual staff element and its chain of command.

In other words, historians can, and do, selectively choose which estimate they use without understanding the context it was derived from. For example, during the mid-1990s Enola Gay Smithsonian controversy, the museum used an estimate of 63,000 “as the total number of casualties expected by the U.S. military during the invasion of Japan.” This 63,000-casualty figure apparently comes from an estimate General of the Army George C. Marshall, Chief of Staff of the Army, made concerning the number of casualties that would be suffered during the *first month*, and only the first month, of Operation OLYMPIC—the invasion of Kyushu.

What about present-day conventional wisdom that the Japanese were on the verge of surrendering? While it is true that “[s]ome civilian elements within Japan’s ruling circle were determined to try to find a way to end the war before the U.S. invasion was launched,” it was also true “the militarists were in firm control of the government, and Japanese moderates had to tread gingerly for fear of arrest or assassination.”<sup>4</sup>

What about Emperor Hirohito’s dispatch of Prince Konoye to the Soviets “as a special envoy to discuss ways in which the war might be ‘quickly terminated’?” As Giangreco explains,

far from a coherent plea to the Soviets to help negotiate a surrender, the proposals were hopelessly vague and viewed by both Washington and Moscow as little more than a stalling tactic ahead of the Potsdam Conference to prevent Soviet military intervention.

Bottom line: “The fanatical Japanese militarists retained their grip on the decision-making process until the ... shocks of the atom bombs and Soviet entry into the war in August 1945.”

What about the view that Japan was military powerless? Not true. At the time, it was believed “that there were only 5,500, or at most 7,000, aircraft available.” In reality, “the U.S. occupation forces found ... that the number of aircraft exceeded 12,700.” Furthermore, “highly technical priority items” such as midget submarines, “could still be produced in quantity.”

Giangreco gives the reader some interesting and little-known historical tidbits in *Hell to Pay*. The Japanese had several thousand obsolete “wood-and-fabric aircraft” that “were the functional equivalents of today’s stealth aircraft” because they “defied radar detection at militarily useful distances.” Another factoid is that the Army and the Navy were frantically attempting to increase the supply of Purple Hearts in anticipation of the massive casualties projected for Operation DOWNFALL. Lastly, manpower shortages were so severe “that the U.S. House of Representatives ... passed a bill authorizing the drafting of women nurses.”

### Conclusion

While an excellent work, setting the record straight that there was nothing nefarious about the “half a million” fatality estimate, *Hell to Pay* has a couple of weaknesses. First, almost 30 percent of the book consists of appendices that, in my opinion, provide little, if anything, of substance to the main narrative. Second, Giangreco believes that the primary reason Eisenhower did not attempt to capture Berlin was the supposed pressure he was under from Washington to start transferring elements of his forces to the Pacific for Operation DOWNFALL even while they were still actively engaging the German Army. I do not believe Giangreco makes his case. In every account that I have ever read about Eisenhower’s decision not to attempt to capture Berlin, nothing has ever been said about transferring troops from his theater to the Pacific for the invasion of Japan. Notwithstanding the above weaknesses, in *Hell to Pay*, Dennis Giangreco puts to rest “[t]he long-lived and much-quoted ca-

nard that estimates of horrific casualties during an invasion of Japan were postwar apologetics for the atomic bomb.”<sup>5</sup> I recommend *Hell to Pay* to anyone who wants to know how the causality estimates for the invasion of Japan were arrived at and the historical context in which the decision was made to drop the atomic bomb on Japan.

### Notes

1. Arthur M. Schlesinger Jr., *A Life in the Twentieth Century: Innocent Beginnings, 1917–1950*, (New York, NY: Mariner Books, 2002).

2. Operation DOWNFALL was the codename for the overall invasion of Japan; Operation OLYMPIC, the codename for the scheduled 1 November 1945 invasion of Kyushu, the southernmost of the Japanese home islands; Operation CORONET, the codename for the planned 1 March 1946 invasion of Honshu Island.

3. Some scientists of the Manhattan Project and a handful of senior people in the U.S. Government aware of the atomic bomb program were against using the atomic bomb on Japan. But public opinion was overwhelming in favor of having used the atomic bomb to bring the war against Japan to a successful conclusion and to avoid the massive casualties that invading Japan would have entailed.

4. In 1939, Admiral Isoroku Yamamoto, the driving force behind the attack on Pearl Harbor, was appointed Commander-in-Chief of the Combined Fleet. This was partly to get him aboard a navy warship where he would be out of reach of potential assassination by elements of the Japanese Army. The Japanese Army was still in power up to the bombing of Hiroshima. Edwin Hoyt, *Yamamoto: The Man Who Planned Pearl Harbor*, (New York, NY: McGraw-Hill, 1990).

5. D.M. Giangreco, *Hell to Pay: Operation Downfall and the Invasion of Japan, 1945–1947*, (Annapolis, MD: Naval Institute Press, 2017).





# Force Design Capability Decision Game 02-21

The distributed deployment option

by Staff, MCWL Wargaming Division

**D**esign Note  
In Spring 2021, the Marine Corps Warfighting Lab is running a series of wargames focused on the future MEU in the 2030 timeframe. This is to support the Commandant's force design task related to transforming future amphibious capabilities to remain relevant to the needs of combatant commanders. This tactical decision game is intended to crowd source ideas and concepts surrounding the future MEU, specifically the potential to conduct more frequent dis-aggregated operations centered on an landing platform/dock (LPD) class ship.

## Situation

It is spring 2030. You are in command of a landing force on an LPD distributed from the remainder of the ARG/MEU for a six-month deployment to Europe and Africa.

While the LHD and the other LPD operate in the Mediterranean, for the first few months, you will operate on

**>The Wargaming Division plans, coordinates, executes, and assesses the Marine Corps Wargaming Program using simulations and qualitative methods, models, and tools to inform and refine CMC force design and emerging naval concepts as well as identifying areas for follow-on study and analysis as part of the force development process.**

MCWL 2030 LPD Fit 1 TDG  
(Single Ship Deployer Scenario)

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DRAFT: Ver 23 Nov 2020

FORCE PACKAGE OPTIONS						
<b>HQ</b>	TF HQ HQ 4 JLV	Co HQ HQ 4 JLV	Co HQ HQ 6 ULTV	Co HQ HQ 4 JLV	Btry HQ HQ 1 BTV 4 MTRV	LAR Co HQ HQ 1 BTV 1 ARVL
	75 PAX	25 PAX	25 PAX	20 PAX	30 PAX	10 PAX
	700 VEH SQ	700 VEH SQ	400 VEH SQ	-	1600 VEH SQ	400 VEH SQ
<b>MAN</b>	Rifle PLY Rifle PLY 8 ULTV	Rifle PLY Rifle PLY 8 ULTV	ACV Sect ACV Sect 2 ACV-P 2 ACV-S	ACV Sect ACV Sect 2 ACV-P 2 ACV-S	ENG SQD ENG SQD 3 JLV	HMGS Sect HMGS Sect 4 JLV-HMG
	50 PAX	50 PAX	20 PAX	10 PAX	15 PAX	15 PAX
		500 VEH SQ	1800 VEH SQ	900 VEH SQ	500 VEH SQ	700 VEH SQ
<b>FIRE</b>	CHLR PLY CHLR PLY 2 JLV 2 JLV	ACVSP ACVSP 2 ACV-P 2 ACV-S	NIM PLY NIM PLY 2 JLV 2 JLV	M777 PLY M777 PLY 2 JLV 2 JLV	Drone Sect Drone Sect 2 JLV	ST Mtr Sect ST Mtr Sect 2 JLV 2 JLV
	15 PAX	20 PAX	10 PAX	40 PAX	5 PAX	10 PAX
	1500 VEH SQ	2100 VEH SQ	1100 VEH SQ	2000 VEH SQ	400 VEH SQ	500 VEH SQ
<b>ISR</b>	Recon PLY Recon PLY 6 ULTV	Recon PLY Recon PLY 6 ULTV	Drone Sect Drone Sect 2 JLV	LAR PLY LAR PLY 4 ARV	CBRN Im CBRN Im 5 PAX	IW Im IW Im 5 PAX
	30 PAX	30 PAX	5 PAX	15 PAX	5 PAX	5 PAX
		400 VEH SQ	400 VEH SQ	700 VEH SQ		500 VEH SQ
<b>AD</b>	AD Sect AD Sect 2 MADIS	AD Sect AD Sect 2 MADIS				
	5 PAX	5 PAX				
	400 VEH SQ	100 VEH SQ				
<b>LOG</b>	CLD CLD 5 MTRV, 1 EBPL 1 Wrecker	CLD CLD 2 MTRV, 2 EBPL 1 Wrecker	STP STP 2 JLV 2 MTRV	STP STP 1 JLV 1 MTRV	LSP LSP 1 JLV	
	20 PAX	20 PAX	20 PAX	10 PAX	10 PAX	
	1500 VEH SQ	1100 VEH SQ	800 VEH SQ	400 VEH SQ		
<b>AIR</b>	Mixed Det Mixed Det 4 ULTA 4 UN-LY	HMLA Det HMLA Det 4 AH-1Z 4 UN-LY	VMH Det VMH Det 4 MV-22	HMH Det HMH Det 4 CH-53K	VMU Det VMU Det 8 MAUX VTOL	HWS Det HWS Det 4 MTRV, 2 JLV 3 TAGS/HERS
	75 PAX	75 PAX	100 PAX	100 PAX	20 PAX	20 PAX
	ALL FLIGHT DECK	ALL FLIGHT DECK	ALL FLIGHT DECK	ALL FLIGHT DECK	600 VEH SQ	1500 VEH SQ
<b>BOAT</b>	LCAC LCAC 1 Spot	LCU LCU 1.6 Spots	26m FAC 26m FAC 1 Spot	18m USV 18m USV 2/3 Spot	18m CCM 18m CCM 2/3 Spot	CCM-USV CCM-USV 2/3 Spot
	1 Spot	1.6 Spots	1 Spot	2/3 Spot	2/3 Spot	2/3 Spot
			Manned	Unmanned	Manned	M/UM

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the northern flank of Europe. Your unit will conduct a series of exercises with a NATO maritime group that includes the UK's *Prince of Wales* aircraft carrier, a small force of Dutch Marines on a Dutch Navy LPD, and UK Royal Marines embarked on a Future Littoral Strike Ship. You will operate in the Norwegian Sea from Iceland to Scotland to Norway for about six weeks, then head to the Baltic Sea to work with Baltic regional allies and partners for another six weeks.

Following your time in northern Europe, you will transit to the west coast of Africa and link up with a French amphibious force on a *Mistral* class amphibious assault ship escorted by a French destroyer. You will conduct a series of partnership exercises from Morocco to Senegal to Cameroon.

Throughout this deployment, while your planned activities focus on multi-lateral exercises, you must be ready to respond to any emerging crisis that sparks in Europe or Africa. This includes U.S. embassy reinforcement, non-combatant evacuation, disaster response, raids, maritime interdiction operations, and port/airfield seizure.

While you operate in these distant regions, the MEU will maintain a shore-based aviation detachment with long range unmanned intelligence, surveillance, and reconnaissance aircraft along with KC-130J transports/tankers that can reposition to support your detachment in a crisis.

#### Task

You and your staff must decide on the composition of your embarked landing force and your ship-to-shore connectors for this deployment. You have the authority to task organize for this deployment leveraging any of an array of force capabilities. Given the distributed nature of your impending mission, your force will operate independent from the remainder of the ARG/MEU and be unable to selectively interchange force elements. It is assumed that you will receive routine sustainment and maintenance activities.

From the facing page menu of units, select the capabilities, in the quantity desired, that you want to embark on

the LPD. You are limited to no more than 700 personnel and 12,000 square feet of vehicle space. What force do you choose?

### ***You ... must decide on the composition of your embarked landing force and your ship-to-shore connectors ...***

#### Submissions

At the following link, additional supporting materials are provided to aid in your planning. Your electronic submission must include:

1. The Force Calculator spreadsheet filled out with your force selections, not to exceed 700 personnel or 12,000 vehicle square of space.

2. A Word document no more than one page in length that provides the justification and concept of employment that guides your proposed concept. Frame your concept of employment by warfighting function and address any critical assumptions, risks, and concepts that guided your choices.

Submit your proposal no later than 31 March 2021 to Maj Jonathan Zainea, Operations Officer, Wargaming Division, MCWL. Email: Jonathan.zainea@usmc.mil

Link to site with supporting materials: <https://cdi.usmc.mil/org/futures/MCWL/wgd/FDTDG/SitePages/Home.aspx>

*Contributing authors: Col Timothy Barrick, LtCol Brandon Mills, LtCol Roy Miner, Maj Christopher Tierney, Maj Jonathan Zainea and, Maj Bruce Sims.*



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The Board of Governors of the Marine Corps Association & Foundation has given the authority to approve manuscripts for publication to the editor and the Editorial Advisory Panel. 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 judges all writing contests. A simple majority rules in its decisions. 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 5,000 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. Use the *Chicago Manual of Style* for all citations.
- **Ideas & Issues:** Short articles, normally 750 to 1,500 words. This section can include the full gamut of professional topics so long as treatment of the subject is brief and concise. Again, DOUBLE SPACE all manuscripts.
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# WE ARE MARINE RAIDERS

THE MARINE CORPS IS THE NATION'S FIRST  
READY TO RESPOND TO ANY CRISIS. ANYTIME  
ALWAYS FOUGHT OUR NATION'S SMALL  
WARS...THE WARS OF THE FUTURE.



ONLY STORAGE / E / EXCHANGE/VIDEOREGISTER/3541525/ 43%  
SYS...OK LOADING...MARSOC.COM SERVER IP 172.0.0.168 FIRMWARE V16.2.31  
MODE SELECT MARINES ARE WHO WE ARE...SPECIAL OPERATIONS IS WHAT WE DO.

