



An artilleryman assigned to 2nd Battalion, 17th Field Artillery Regiment, 2nd Stryker Brigade Combat Team, 2nd Infantry Division, fires an M777 howitzer during an artillery training exercise on 12 January 2023 in South Korea during Korea Rotational Force 12. (Photo by Sgt. Jerod Hathaway, 2nd Infantry Division Rotational Brigade)

# Army Fires

## Enabling Joint Convergence in a Maritime Environment

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Since America's emergence as a global power following the Spanish-American War in 1898, there has been a long running national security debate on what capabilities, composition, and strength our military services should possess to ensure our Nation's strategic interests abroad.<sup>1</sup> The experience of over 125 years of global conflict and competition has shown that the most efficient path toward victory lays in a balanced approach, predicated on joint interdependence and unified action. Over time, the military has recognized—through lessons learned in warfighting and war games, as well as the harsh realities of the federal budget—that the best way to complement the capabilities of our services and buttress their limitations is through increased integration and mutual support. It is the diversity of the joint force that gives it its strength across all domains, and each service must be prepared to support and enable each other's combined arms maneuver regardless of the operational environment. This is especially true when confronting the rising threat posed by China, which has embarked on a rapid, unprecedented, and well-documented campaign of military expansion and modernization that challenges the ability of the United States and its allies to counter their malign influence in both the western Pacific region and globally.

In the era of integrated deterrence, all services have an important strategic role in achieving our national policy ends.<sup>2</sup> In 2021, Secretary of Army Christine Wormuth accepted this challenge and laid out her vision for the employment of the Army in the Indo-Pacific to support the joint force and counter the rising threat with enduring American landpower.<sup>3</sup> Her guidance focused on five core tasks for the Army, which were further codified in the Army's capstone doctrine, Field Manual (FM) 3-0, *Operations*, subsequently released in October 2022.<sup>4</sup> More recently, in a May 2023 essay published for the Association of the U.S. Army, Gen. Charles Flynn, commander of U.S. Army Pacific, reiterated the service's commitment to being the "backbone of joint operations" and highlighted the Army's historic and enduring role in the maritime environment.<sup>5</sup> Among the "linchpin" tasks laid out by both Wormuth and Flynn, were establishing, building up, securing, and protecting joint staging areas and bases; providing command and control at multiple levels; and most notably, providing ground-based offensive fires to

the joint force. This final task, and its implications, are the focus of this article. *In the Pacific, Army fires will be essential to enabling joint force convergence but will require new approaches to employment and revisiting traditional concepts of fire support in a maritime context.*

To understand why, we will review how Army fires are vitally important given some of the targeting challenges that the joint force will have to address in the Pacific theater. Next, we will explore what history can tell us about employing ground-based fires in maritime operations through a brief examination of a notable case study from the Second World War. Finally, we will conclude with some general observations about how we should employ Army fires in a future conflict. While modernization and technology will be discussed in this article, the focus of this effort is less about the tools and more about the rationale and methods for the employment of Army fires in the maritime domain. As we will see, Army fires will play an indispensable role as part of any operations in the Pacific and will truly deliver the steel in the Army's "linchpin."

## Defining the Environment: The Chinese Targeting Challenge

As previously stated, the expansion and modernization of the People's Liberation Army (PLA) in the western Pacific are creating the conditions for functional, physical, and political standoff by offsetting the joint force's traditional approach to warfighting.<sup>6</sup> Their military capacity and capability enable the corrosive rhetoric and aggressive actions of the Chinese Communist Party, which seeks to destabilize the region and threaten the world order.<sup>7</sup> The United States and its allies, distracted by small wars and confronted with the challenges of enabling global security, have struggled to simultaneously modernize and maintain an appropriate force structure necessary to deal with the litany of emerging threats to U.S. interests. The result is that America is now faced with a broad and complex Chinese target set that exceeds the capacity, and in some cases the capability, of individual U.S. military forces in the region to cost-effectively deter and conventionally defeat without a fundamental shift in our approach to warfighting.

This challenge extends across all warfighting domains. In the maritime domain, the PLA Navy, with over 370 ships (not including sixty Houbei class patrol





combatants armed with antiship cruise missiles), now has the largest fleet in the world. While America still retains an edge in submarine technology and undersea capabilities, the Chinese are gaining ground here too and fielding aircraft carriers at a pace that suggests they will have global power projection capability on par with the United States by 2030. In the air, Chinese theft of Western fifth-generation fighter technology has significantly closed the qualitative gap, while their production seeks to further expand the PLA Air Force (PLAAF) beyond the 2,700 combat aircraft they currently possess (which include six hundred multirole fighters) to surpass Russia as the second largest air force in the world.<sup>8</sup> Supporting their efforts to exert and extend their control of the air within the first island chain, the PLAAF has colluded with Russia to import and engineer one of the most robust integrated air missile defense structures on the planet, supporting a broad array of tactical and strategic surface-to-air missiles including the SA-20/21. Additionally, their domestic market has home grown the CSA-9 and are intent on fielding the new CH-AB-X-02 soon.<sup>9</sup> The Army, still the heart of their military, remains robust, and their strategic PLA Rocket Force (PLARF) has

Soldiers in the 1st Battalion "Dragons," 82nd Field Artillery Regiment, 1st Armored Brigade Combat Team, 1st Cavalry Division, coordinate fires 10 May 2016 with South Korean artillery batteries from the 26th Mechanized Infantry Division Artillery. The exercise, less than six miles from the demilitarized zone that separates North and South Korea, involved thirty self-propelled artillery systems from the United States and South Korea. (Photo by Staff Sgt. Keith Anderson, U.S. Army)

fielded numerous long-range systems that can hold American interests and territories in the Pacific at risk from conventional attack, despite recent corruption scandals that have called the reliability of the force into question.<sup>10</sup> Of note, the PLARF is estimated to have thousands of missiles capable of ranging the Philippines and our bases in Japan from mainland China, as well as over five hundred DF-26 missiles capable of ranging Guam.<sup>11</sup> This arsenal also includes DF-17 hypersonic missiles that, when coupled with their coastal defense cruise missile force, has the potential to keep a naval task force at bay. In addition, the PLARF continues to pursue even longer-range weapons and is developing and fielding DF-27 hypersonic missiles (presently in low numbers) capable of ranging Hawaii with conventional munitions.<sup>12</sup> Reducing this standoff and

neutralizing the sensor and command-and-control (C2) array that supports it is a major task for the joint force. In the cyber and space realm, the Chinese are also incredibly advanced and can contest U.S. and allied advantage in the information space. In short, in the Pacific, there is no shortage of targets, and every day, the list gets longer. Defeating this while maintaining security elsewhere around the globe will take the entirety of the joint force effort as well as the support of our allies and partners in the region.

Given this reality, one could rightly ask, “Why don’t we just buy more ships and aircraft if they are better suited to the environment?” This is a fair question, and this article does not suggest that our naval and air forces don’t need additional funding to support this threat. What it does suggest is that all services have inherent limitations, and Army fires present the adversary with a unique dilemma that forces them to consider the land domain and how to pry U.S. forces from key terrain. The diverse target set developed by the Chinese requires the joint force commander to have an equally diverse portfolio of fires options to counter it, and the breadth of Army fires, both extant and in development, support this effort. Furthermore, highly advanced aircraft and capital ships represent huge expenditures, which offer great capabilities but also carry significant risks and are difficult to replace. The bottom line is the Army’s sister services need help.

To see why this support from the Army is critical, one need only consider the challenges of warfare at sea. The Navy must be prepared

for threats from every direction: air, surface, and subsurface. Its targeting enterprise must rely almost entirely on beyond-line-of-sight communications, limited by the bandwidth and communications capabilities of their network afloat and with little to no support from the terrestrial transport layer, limiting the amount of targeting data that can be shared between the combatants. This has a profound effect on the submarine force, whose tactical survival and employment is predicated on stealth and requires that they deliberately avoid contact and communication that may divulge their location to the enemy. The Navy’s fires enterprise is further constrained by maritime sustainment operations and the complexity of rearming and resupplying while under way, which in many cases, limits their

on-station effectiveness, the capacity of their magazines, and the volume of fires they can generate. In addition, the Navy must contend with the weather and the sea, which is often highly unpredictable and may inhibit the operations of carrier strike groups’ other surface vessels.<sup>13</sup> Clearly, establishing

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sea control within the First and Second Island Chains under the umbrella of formidable Chinese land-based fires will be a challenge. The ability for the other services to support striking vessels and defeating maritime targets will be a necessity. Accomplishing this, however, will not be as easy as it once was. Warships have always been designed to remain afloat in combat, and the survivability of modern enemy warships make them more difficult to sink than ever. Recent U.S. exercises designed to practice sinking ships, known affectionately as “SINKEXs,” have illustrated just how resilient modern combatants can be to the types of munitions the U.S. military has developed over the last eight decades since we last engaged in a conflict with a major maritime power. As a notable example, during the 2005 deliberate sinking of the decommissioned aircraft carrier USS *America*, it took four weeks to sink the vessel after repeated attacks during an experiment to collect data on the survivability of supercarriers.<sup>14</sup> The fact maritime targets are harder to sink than ever before suggests that we need to temper our expectations as to what can be reasonable accomplished for a given level of effort. It may be sufficient for the Army to achieve “mission kills” to give the Navy the edge it needs to finish the job and achieve the access needed to pass the baton to another lead service, which will exploit that window of opportunity to consolidate the gains.<sup>15</sup>

The 3rd Multi-Domain Task Force fires the High Mobility Artillery Rocket System (HIMARS) at targets in the ocean from Pacific Missile Range Facility, Barking Sands, Hawaii, on 11 July 2024 during Exercise Rim of the Pacific, the world's largest international maritime exercise. (Photo by Sgt. Perla Alfaro, U.S. Army)

The air component in the Pacific likewise has challenges with its ability to maintain a persistent presence in the region. Given the wide expanse of the ocean and reduced ranges of modern fifth-generation fighters, the Air Force will have to balance the need to position forward with the need to maintain airbase survivability under the threat of overwhelming Chinese ballistic missile fires. While the Air Force's adoption of the Agile Combat Employment concept and recent incorporation of mission command as a central tenet of airpower will assist in this effort, their ability to generate combat power forward for extended periods of time may be challenged.<sup>16</sup> Furthermore, the susceptibility of high-value airborne assets and our workhorse strategic bombers, like the B-52 and B-1, to long-range strategic surface-to-air missiles means that the joint force will have to deal with those threats simultaneously while addressing the coastal defense cruise missile and the ballistic missile threats. The simultaneity of addressing multiple threats, in depth and with varying degrees of protection, suggests that Army-fires-enabled

convergence provides the joint force with useful alternatives if they find themselves denied in a particular domain.

Even in the land domain outside of its own service, the Army can provide fires to our joint partners. During sustained large-scale combat, the U.S. Army has always worked alongside its brothers in the Marine Corps, assisting them in achieving the multidomain operations tenets of depth and endurance. Those challenges will be magnified as the Marine Corps achieves greater agility by pivoting toward expeditionary advanced-based operations as supported by *Force Design 2030*.<sup>17</sup> This pivot has notably streamlined their traditional fires structure, divesting much of its cannon artillery in favor of longer-range rocket and missile systems.<sup>18</sup> This decision places a sizable bet on preventing an enemy from achieving a joint forcible entry rather than the ability to defeat it once it occurs. While *Force Design 2030* makes the Marine Corps significantly faster and more capable of enabling maritime operations, it simultaneously makes them less resourced for a traditional close combined arms fight on land and more reliant on the Army to backstop its lightened structure with cannon artillery. In the key terrain of the Pacific, cannons will remain relevant because they deliver a different portfolio of munitions for longer durations and at a reduced cost than rocket and missile fires.

All these challenges point to a need for Army fires to support joint operations in a broad way. But the question remains, how best to accomplish this? What practices and procedures should the Army pursue to put its capabilities to work in support of the joint effort? Are there principles that are universal, regardless of operational domain, that perhaps we can apply in nontraditional ways? And what can the past tell us about how we can think about the future of Army fires in the Pacific? To examine these questions, we can look at a notable case study from our last major joint maritime combat experience during the Second World War to help chart a path.

## Guadalcanal 1942: A Study in Army Maritime Fires and Joint Interdependence

The Battle of Guadalcanal, fought from 7 August 1942 to 21 February 1943, was the longest battle in the Pacific theater and the turning point in the war

against Japan.<sup>19</sup> Following the battles of the Coral Sea and Midway, America had established sufficient sea parity to conduct amphibious operations in the Solomon Islands. This effort was of strategic significance as it sought to secure the eastern flank of the Southwest Pacific Area Command and ensure open sea lines of communication between the United States and Australia. Vital to this campaign was the seizure of the key terrain at Guadalcanal. The struggle for Guadalcanal is relevant in a contemporary sense because sea control remained contested throughout much of the battle. At least six significant sea engagements were fought during the campaign, which limited the ability of the Navy to provide continuous support to troops ashore.<sup>20</sup> This forced the services to maintain operations through a degree of functional separation, a condition that may be similar the initial phases of a war with China.

When examining Guadalcanal through the lens of the Army's multidomain operations doctrine along the lines of depth, endurance, agility, and convergence, one can easily see the utility of Army fires applied in the maritime domain. In enabling joint force depth and endurance, it is important to understand that Guadalcanal, despite being fought over an island one-sixth the size of Taiwan, was a large-scale combat operation, both at sea and on land. Following the initial expeditionary operation of the 1st Marine Division, led by Maj. Gen. Alexander Vandergrift, the Army began arriving in early October with the lead elements of the 23rd Infantry "Americal" Division. This de facto joint force land component command grew throughout November and December, adding the 2nd Marine Division, the 25th Infantry Division, and the 147th Regimental Combat Team. By January, despite the departure of the exhausted 1st Marine Division in early December, the land component and its associated air forces had expanded significantly and reorganized under the newly established XIV U.S. Army Corps led by Lt. Gen. Alexander Patch. The supporting fires force ashore had likewise grown, from three Marine direct support 75 mm and 105 mm field artillery battalions to a mixed composition of thirteen battalions organized across three division artillery units, including larger-caliber 155 mm howitzers. This did not include a separate coastal artillery battalion, which also supported the corps by providing protection to the staging





Marines work a 155 mm gun position on Guadalcanal in 1942. (Photo courtesy of the U.S. Marine Corps via the National Archives)

base at Noumea, New Caledonia. In this battle, cannon artillery was critical because the fight over key terrain on Guadalcanal was a close fight. The volume of fires was high as well, with some units expending upward of 330–500 rounds a day. Because of the high demand for these assets, the interoperability of Army and Marine fire support at Guadalcanal was essential; common surface-to-surface systems, munitions, and approaches to C2 enhanced cooperation, depth, and endurance.

Simultaneously, with the early capture of Henderson Field, the organic Marine air assets and various squadrons of orphaned Navy aircraft (arriving as a result of the losses of the USS *Enterprise* and USS *Saratoga*) were joined in early August by a squadron U.S. Army Air Force (USAAF) P-400s and later, P-39s.<sup>21</sup> This ad hoc organization, constituted under Marine control and subsequently referred to as the

“Cactus Air Force,” demonstrated the agility in joint air operations C2 that will be necessary in any future fight with the Chinese. This formation was reinforced by USAAF B-17s of the 11th Bomb Group, which supported actions in the Guadalcanal campaign from their nearby base on the island of Espiritu Santo. While tested early, the airborne element of fire support likewise grew and delivered effects across all domains during the fight for Guadalcanal. As the battle progressed, the spatial depth and mass afforded by the presence of Army air, and the arrival of longer-range Army 155 mm howitzers, which showed up on 2 November, was decisive.<sup>22</sup> Following an initial U.S. naval setback at the





Battle of Savo Island and a series of costly at sea battles that pushed the United States to the brink of defeat, the timely arrival of Army fires and forces facilitated the consolidation of gains and the defense of the joint force on Guadalcanal. In the face of reinforced and relentless counterattacks from August to mid-November, the collective joint force wrested the initiative back from the Japanese and surged over to the offense in January, pushing the enemy to try to extricate itself from a now losing situation. Army forces actively supported the Navy's fight during these battles, throwing their weight behind the interdiction campaign against the Imperial Japanese Navy and reinforced the Marine Corps, allowing the Navy to focus its attention at sea. The operational endurance provided by Army forces, both on land and in the sky, set the conditions for resumed offensive operations that used fires to isolate the battle area and fix and finish Japanese forces ashore, enabling their ultimate defeat.

Within the human dimension, it should be noted that while the fires community of the Marine Corps and the Army might have been separated by statute, ashore, the services were extremely well aligned and worked well together. Artillerymen at Guadalcanal shared doctrine, training, and a professional culture

A Mid-Range Capability (MRC) Launcher from Charlie Battery (MRC), 5th Battalion, 3rd Field Artillery Regiment (Long Range Fires Battalion), 1st Multi-Domain Task Force, is loaded into a U.S. Air Force C-17 Globemaster III on 4 April 2024 at Joint Base Lewis-McChord, Washington. The system's deployment to the Philippines for Salaknib 24 marked the first time it was flown into the Pacific theater. (Photo by Capt. Ryan DeBooy, U.S. Army Pacific Public Affairs Office)

that were ingrained at Fort Sill, Oklahoma, home of the U.S. field artillery. This supported common understanding and unified action across fire support and execution. The success of this integration can be illustrated in the artillery organization for combat during the battle of Mount Austen, which occurred in late-December 1942 and involved elements of the 2nd Marine Division fighting alongside elements of the Americal Division. One of the participating battery commanders, Capt. John Casey Jr., described the degree of fires integration in the October 1943 edition of the *Field Artillery Journal*, stating that the command/support relationship involved "two Marine 75-mm howitzer battalions ... in direct support of two regiments of (Army) infantry, one Army 105-mm battalion supported a Marine regiment, two 105-mm battalions were providing reinforcing fires, and two batteries of 155-mm howitzers (one Army and one Marine) were





in general support.”<sup>23</sup> From this, it appears that, in the close fight anyway, the ideal of “any sensor, any shooter, any C2 node” was achieved as early as 1942 in a very rudimentary but functional sense.

While all of this was happening at the tactical level, Army P-400s and P-39s and Navy scout bombers were attacking Japanese landing sites in the corps deep areas, and Army bombers were attacking Japanese troop transports, warships, and seaports of embarkation at the operational level. Factoring in simultaneous Navy actions at sea, one gets a clearer picture of what successful “convergence” looked like in the early battles of the Second World War.

Internal to the service, Army fires forces learned valuable lessons that remain relevant today about operating in a distributed maritime island environment. The challenges of the terrain; the cover, concealment, and conditions of the jungle; and the strength of Japanese positions necessitated new fires techniques and process adaptations. For example, the fires community experimented a variety of shell-fuse combinations to facilitate marking and penetrating jungle canopy, employed high-angle fires to mitigate the rugged terrain, and innovated the “time on target” fire mission, used for the first time during the battle, to leverage the simultaneity of surprise and mass against fleeting and protected targets. The limitations of ground-based sensors and observation in the jungle compelled wartime adaptation and promoted air-ground integration with Navy and Marine aircraft to act as spotters. This was critical due to the lack of quality maps, which precipitated a rapid and intense engineering effort to establish survey for the guns to achieve position control and enhanced precision and accuracy. Communications were also a major issue; heavy rainfall, terrain, and foliage in the jungle decreased the range and quality of fire-control-related transmissions and created a huge demand for upgraded radios suitable for the environment. Instituting change under fire is never easy, but

the lessons of Guadalcanal set the course for the future employment of the Army fires throughout the rest of the war and the environmental factors encountered continue to guide our modernization priorities for operations in the region.<sup>24</sup>

Studying Guadalcanal comprehensively, what becomes apparent is not only the value of having robust Army fire support in the maritime environment but also important factors that enhance its effectiveness: C2, engineer support, logistics, and intelligence support to targeting. Even prior to Guadalcanal, the value of these factors to Army fires forces was clearly understood and observed during the defense of the Corregidor.<sup>25</sup> There, Army coastal artillery, acting as stand-in forces, demonstrated a capacity to endure relentless assault by the Japanese, soaking up enemy combat power and quashing the initiative of vastly superior forces through a combination of fortitude and fortification, relenting only when their logistics had failed. In the same vein, intelligence support to targeting and preparation of the operational environment tailored to the maritime domain can significantly enhance the lethality and effectiveness of land-based fires. This level of fire planning requires doctorate-level awareness of not only the land but the littoral conditions as well. Future Army fires forces operating in the maritime domain will need to consider those factors that led their 1942 ancestors to strike the embarkation/debarkation sites and sea lines of communication of the Japanese at Guadalcanal.<sup>26</sup> This involves greater awareness of beach and tidal conditions, hydrology and currents, undersea terrain and obstacles, as well as other environmental features that shape the most likely and most dangerous courses of action for our adversaries in the Pacific.

At Guadalcanal, beyond functional considerations, traditional Army fire support planning principles—such as providing adequate fire support for committed units, weighting the main effort, providing immediately available fires to maneuver commanders, facilitating future operations, maximizing centralized control to the extent feasible, and never placing artillery in “reserve”—were also on display and regularly applied across the pantheon of available joint fires capabilities. These principles, commonly referred to in the artillery community by the acronym “AWIFM-N,” endure because they are timeless and form the backbone of deliberate fire support planning. Future

**Previous page:** Rockets launch for a live-fire demonstration during Exercise Talisman Sabre 2019 on 8 July 2019 at Shoalwater Bay, Queensland, Australia. Talisman Sabre is a bilateral, combined Australian and United States training exercise in which the military services train with associated agencies to plan and conduct combined and joint task force operations. (Photo by Sr. Airman Ashley Maldonado, U.S. Air Force)



conflict, because of modern capabilities, will see these principles elevated from the tactical to the operational and strategic levels of war.

## Past Is Prologue

The experience of Guadalcanal provides valuable lessons about how Army fires can deliver effects and enable decisive operations in a maritime environment. Faced with functional separation and a contested maritime domain at Guadalcanal, Army fires back-stopped the expeditionary Marines and provided much needed range and lethality, enabling a rudimentary level of convergence that bought time for the Navy to recover and achieve maritime superiority. While today, the bomber and fighter aircraft that were once organic to the Army in 1942 no longer reside in the service, it is possible for Army fires to re-create a “Cactus Air Force-in-the-aggregate” through the pre-positioning and concerted employment of low-cost mass-produced unmanned aircraft systems providing intelligence, surveillance, and reconnaissance as well as lethal effects, in close coordination with tactical and long-range precision fires. Adopting this “Moneyball” approach to airpower and coupling it with effective surface-delivered firepower would allow the Army to shape the environment and influence outcomes at multiple levels of war while reducing the financial, logistical, and existential risk to the joint force.<sup>27</sup> Given the highly contested air environment that may exist in a war with China, this approach may ultimately be more cost effective in terms of both equipment and human lives than pre-positioning the actual Air Force within the threat rings of enemy integrated air defense systems. This is the *de facto* approach that has perpetuated the Ukrainian army for over two years in their current war with Russia.

Beyond enhancing range and lethality, the agile C2 structure for achieving maximum centralized control of fires at Guadalcanal irrespective of service was significant and further serves as a guide for how Army fires will need to remain responsive in a maritime environment, even if under the control of another service. As mission command empowers leaders at the tactical edge to execute appropriate to the situation, fires must be flexible enough to deliver immediate mass in support of the main effort regardless of whether that main effort occurs on land, in the air, or at sea. This will require all-domain awareness

and assured communications. Here again, the lessons of Guadalcanal are prescient—the communications challenges of the maritime environment experienced then persist and remain daunting. The robustness of the Army signal enterprise will work to ensure that U.S. forces can not only shoot but also communicate in a degraded and potentially denied communications environment.

Finally, the Japanese reinforcement and subsequent withdrawal of forces from Guadalcanal reiterates this idea that to secure key terrain, the enemy must come within range of land-based Army fires, support expeditionary amphibious operations, and deliver a force ashore. In so doing, it is vulnerable, both during transition and in its continued support to the amphibious force. The fight for the land and control of its resources, populations, and terrain will be decisive. Perhaps more importantly than the operational aspects of retaining key terrain and perpetuating a joint campaign plan is the strategic and morale effect of bolstering the national will in the minds of the American public, who have difficulty conceptualizing the movements of maritime and air forces but are very attuned to the persistent presence of ground troops and the gain or loss of territory. To that end, ground forces must have the tools at their disposal to not only support the maneuver of their joint colleagues but also the ability to effectively hold the ground they possess indefinitely. All of this suggests that the force best suited for sustained delivery of landpower must be present, supported by organic fires, ready and postured for large-scale combat operations.

## Conclusion

After over 125 years on the global stage, America’s position is once again under threat by great power competition. While the acute threat posed by Russia in the land domain remains significant, the rising maritime threat in the Pacific posed by our “most consequential strategic competitor” is not only driving public debate and national policy over the composition and capabilities of the joint force but is also forcing the military to relook its methodologies and operating concepts.<sup>28</sup> Successful deterrence and dominance in future conflicts is less about what we have in terms of quantity and more about how effective it is and how we use it. History is replete with examples of smaller, more balanced forces prevailing

over numerically superior ones. Diversity is a virtue. It presents an adversary with multiple dilemmas and inspires new and creative opportunities. The joint force can only accomplish this if it is balanced, and the Army is present to contribute its unique fires capabilities to the equation. Army fires can and must complement the capabilities of the air and maritime components in that environment. With the adoption of FM 3-0, the Army has taken the first doctrinal step in meeting this challenge. Equally as important, the Army fires community has responded with remarkable speed and has rapidly fielded an updated version of their capstone fires doctrine, FM 3-09, *Fire Support and Field Artillery Operations*, to provide authoritative guidance to the force and address the utilization of Army fires in the maritime domain.<sup>29</sup> This document draws on the lessons of the past, applies the context and capabilities of the present, and anticipates the environment of the future while describing, but not prescribing, new techniques and how to apply timeless fire support principles to maritime conditions. On the materiel front, the investments the Army has made to date have been a good start in posturing the force to step into this role, but more is needed. As Army materiel developers shift focus toward nontraditional

roles for Army systems and apply science and technology to solving problems in the maritime domain, there must be a realization that these things take time, and we need to temper our expectations about what we will be able to accomplish in the near term. That said, enhancements in fire control, range, lethality, and both the processes and systems of C2 are coming and can contribute greatly. In view of the lessons on large-scale conflict coming out of Ukraine, this must be done at scale and in a manner that ensures the force is able to deliver the volume and the types of fires necessary to address the seemingly ever-expanding array of targets. New technologies must enhance our integration with our joint partners and allies and field low-cost solutions that can be manufactured rapidly and rushed to the point of need. In the near-term, as new systems come online, the joint force also needs to be prepared to explore alternative ways of integrating Army fires into a maritime setting through training and experimentation. In summary, the Army fires community can and will rise to the mandate laid forth in the secretary's Pacific vision, it will enable convergence in accordance with the multidomain operations concept, and it will ultimately deliver the steel in the Army's linchpin for the joint force. ■

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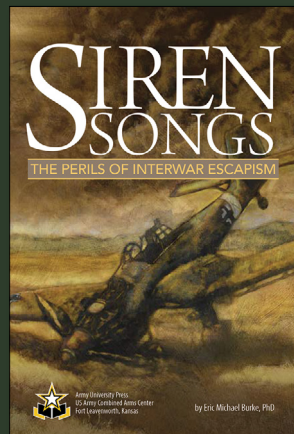
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