



Lt. Gen. Daniel L. Karbler, then commanding general of U.S. Army Space and Missile Defense Command, delivers the keynote address 8 August 2023 during the 26th Space and Missile Defense Symposium at the Von Braun Center in Huntsville, Alabama. He focused on how the command ensures space remains a capability for the soldier, the Army, and the Nation. (Photo by Dottie White, U.S. Army)

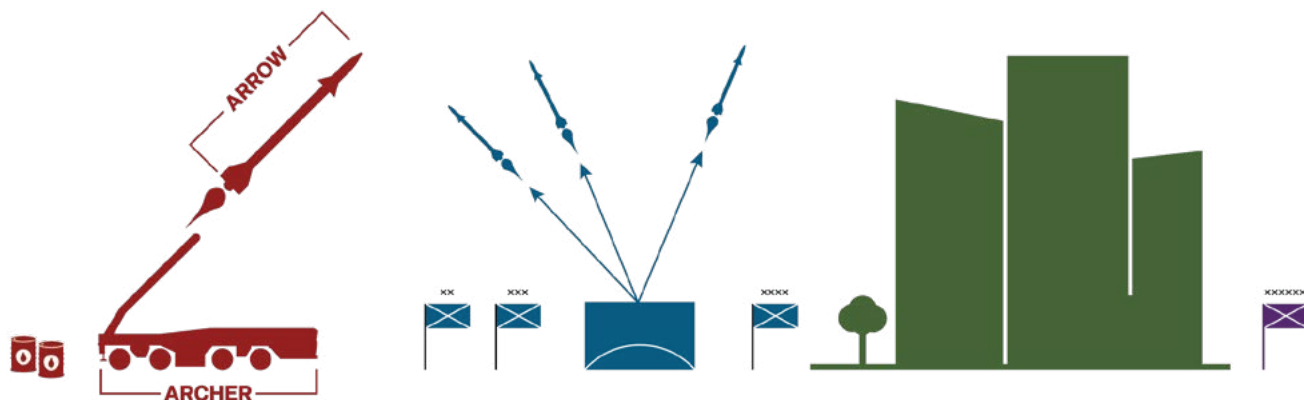
Introduction

From Missile Defense to Missile Defeat

Lt. Gen. Daniel L. Karbler, U.S. Army, Retired

My Army story started in 1983, right in the middle of the “new” Cold War. As a plebe at West Point, I watched what happened

in Beirut and Grenada in October of that year. After commissioning, I watched from Europe as the United States conducted Operation Just Cause into Panama



(Figure by Allen J. Meeks)

Figure 1. The Missile Dynamic in 1991—Defending against a Bow (Archer) and an Arrow (Tier 1 Supplier)

in 1989. Soon, it was my turn. In 1990, I deployed the recently fielded Patriot system to Tel Aviv as a first lieutenant during Operation Desert Storm.

The operating environment, in retrospect, was simple. The adversary was on their side, firing missiles, and we were on the other, shooting them down (see figure 1). We referred to enemy missile systems as “archers and arrows.” Our goals were also simple: strike the “archers” first and intercept the “arrows” before they hit military capabilities and civilian populations.

Things have obviously changed, and I will leave some of that discussion for the articles in this publication. But I would posit that we are not thinking far enough, or deep enough, upstream against “archers and arrows,” and we need to adapt our Army’s thinking toward one of missile defeat.

Running thirty-six-plus years deep in air and missile defense, I consider Operation Desert Storm the first missile defense fight, and we learned a lot. However, let us consider also what has happened since 1990: the USSR collapsed; helicopters were employed in the dense urban areas of Somalia, Bosnia, Haiti, and Kosovo; drone and cyberattacks intensified throughout Afghanistan and Iraq; similar operations happened in Syria, Niger, and Ukraine; and the list continues.

Accordingly, the question on everyone’s mind is, What kind of war will we face in the future? Conversely, we might ask ourselves, What have we really learned from the past, where we faced threats that merely crossed two or three domains and from just one or two directions?

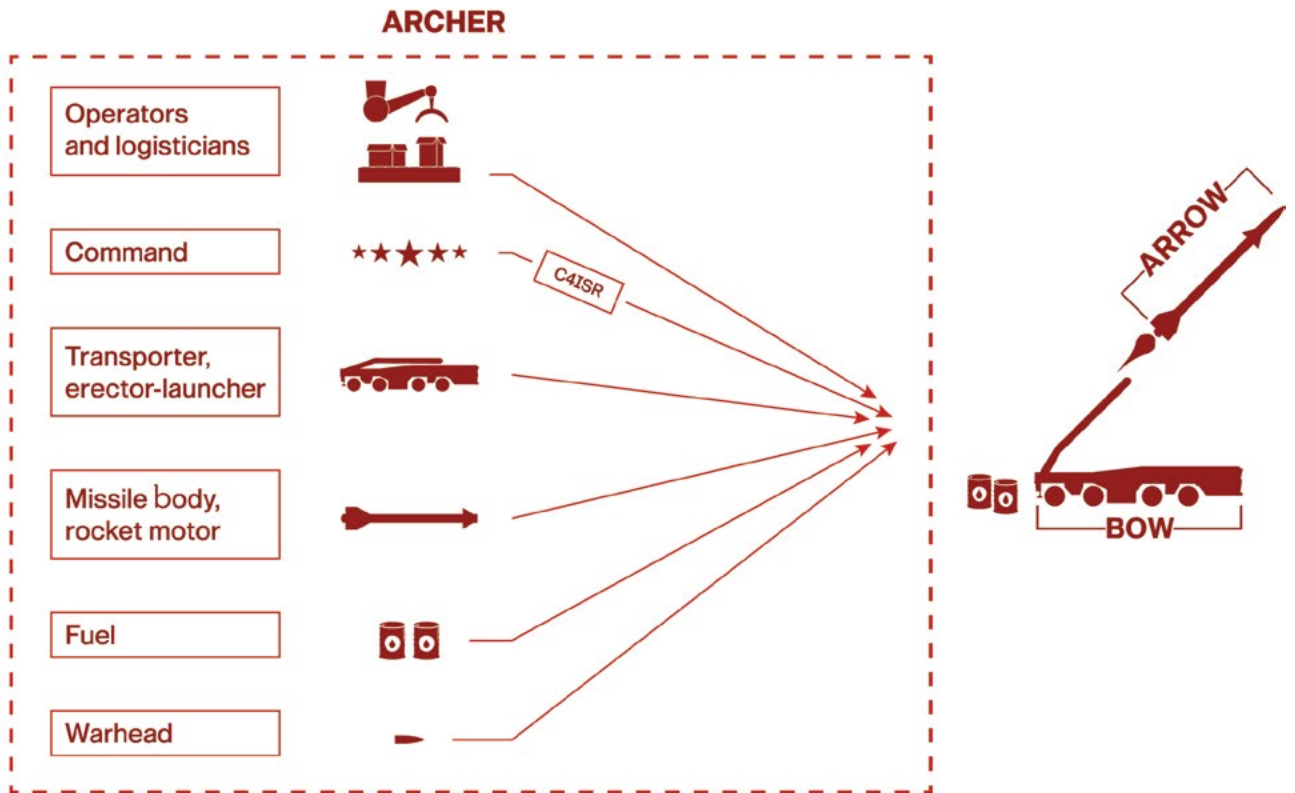
Don’t get me wrong; I do not have all the answers. But I can tell you what I have learned, especially in command at the U.S. Army Space and Missile Defense Command (USASMDC): pay attention to complex unmanned systems and space warfare and to a future that portends directed energy, autonomous systems, machine learning, and distributed operations. And consider all this with lower barriers to entry than we have ever seen—with a continued normalization of use. With so many variables at play, it is hard to tell what emergent technology will be as promising as the radio and what will fizzle out—short-lived ideas that had no applications whatsoever.

So, against this backdrop of uncertainty, I contend *missiles*, especially in our current and forecasted security environment, will be at the forefront of the next war. Combined with unmanned aircraft systems, they are the *poor man’s air force* and the culmination of what a state can do regarding hard power. As I testified to Congress last spring, “I have never seen adversary threat activity, be it in test or operationally, as great as I see it today.”¹ In this, it is not that historian T.

R. Fehrenbach was wrong about putting our service members into mud to win a war.² I see another missile defense fight emerging first.

But here is the rub: we do not have, and we will never have enough interceptors. Therefore, we must adjust our theories

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(Figure by Allen J. Meeks)

Figure 2. Basic Upstream (Tier 2 Supplier) Components of an Adversary Missile System

of victory to include *missile defeat* as a major principle—if not the first principle—of future wars, especially considering what we have seen take place in Ukraine.

Dr. Stephen Biddle, professor of international and public affairs at Columbia University, stated in regard to Ukraine, “Instead, as has often been the case in the past, the best path forward will involve incremental changes, not tectonic shifts.”³ While Biddle does not discuss these “incremental changes” and outcomes when fighting shoulder-to-shoulder with NATO or other allies and partners, he explains that “the most important adaptations are often not technological but operational and tactical. They involve changes in how armies use the tools at their disposal.”⁴

It so happens the latest edition of our capstone doctrine, Field Manual (FM) 3-0, *Operations*, recognizes the speed at which conflict is shifting, stating that the “rapid advances in, and the proliferation of, air, space, and cyberspace capabilities with military applications are changing warfare,” and that “space and cyberspace

capabilities can provide commanders with options to defeat, destroy, disrupt, deny, or manipulate enemy networks, information, and decision making.”⁵

What I would like to lay out here is not a new revolutionary theory or strategy. Rather, it is a simple idea of missile defeat being a premier mission for multi-domain operations by our Army and for our Army. The reason for this is threefold: our Army has its unique missions, enables the joint force, and never fights alone.

The early twentieth-century air-power theorist Italian Gen. Giulio Douhet was prescient nearly two decades before World War II. He wrote that technological advances would change the way we all fought, stating, “For now *it is possible* [emphasis in original] to go far behind the fortified lines of defense without first breaking through them.”⁶ Obviously, this vision drove a lot of change in what militaries looked like in preparation and the execution of that war.

I think Douhet was right. He was ahead of his time, and even though he was thinking in bombs and bombers, his idea of “going far behind” applies against

adversary missiles and unmanned aircraft systems in depth. This time around, for the next missile defense fight, we can—we must—apply Douhet’s theory of “bypassing rather than breaching” to create nonkinetic effects across active campaigning, through crisis and into conflict, using all domains, and coming from all directions, including from way, way up.

An “arrow/archer” metaphor has often been used to explain missile launchers and interceptors. However, a new—and necessary—mental model for missile defeat may best be described as an arrow, bow, archer, and quiver.⁷ This is an *evolutionary idea*. It is the natural progression of our strategic thinking considering our technology, the majority of which we already have, and the ever-increasing cost of inaction or passivity.

Let us begin with a simple breakdown of what makes a missile system work (see figure 2). There are, essentially, six components: the people that set up and operate the equipment (operators and logisticians), the command itself to fire, the delivery vehicle (e.g., transporter erector launcher, silo, aircraft, ship, submarine, launch pad), the rocket body and motor, the fuel to make it fly, and the warhead that explodes—in some cases as a weapon of mass destruction.

Generally, these components are dispersed throughout a given country, but in figure 2, we assume a system without geography (or other limitations). In the real world, you may not be able to prosecute the targets you should (that is the problem with models). As an additional aside, along the left-hand side of the figure, the “softer” targets are generally up top, accessible, and particularly vulnerable to nonkinetic effects (to include influence); whereas the components that make up the bottom left are the most vexing, deep, and difficult targets to prosecute in the world—by our adversaries’ design!

This is not meant to be a targeting systems analysis; it is a base of understanding we can use together, as in mission command. And since we have that coursing through our Army veins, we can take a quick shortcut; much like the phrase “left-of-boom” that we used in Iraq and Afghanistan, we need to adopt a “left-of-launch” approach to missile defeat—and, by the way, designate a commander to lead a newly developed position of “missile defeat effects coordinator.”

I need to pause here, before we go deeper, to make an important point: *missile defeat* must first be approached through the lens of the *art of command*. We

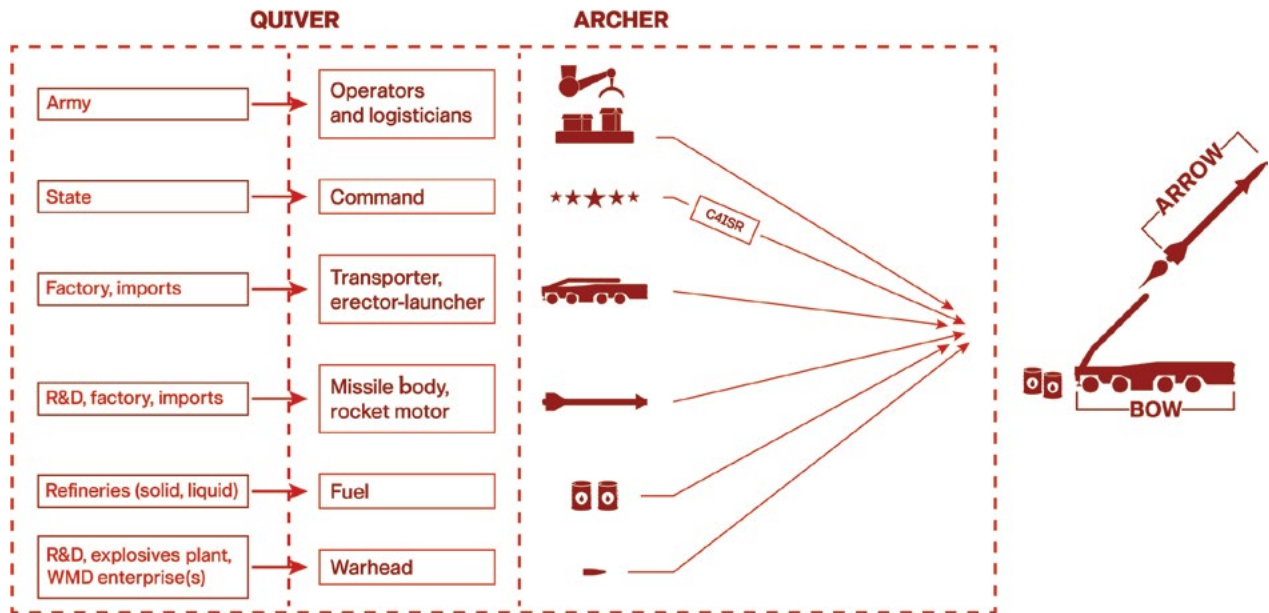
should be thinking about who should be doing what, creating which effect, under their own given missions, functions, roles, responsibilities, and authorities.

Now, onto the quiver, the support system to the components laid out in the first upstream diagram (from figure 3). Here, we go even deeper into the supply chain in both senses of the word: upstream and underground—harder targets. Not many factories produce rockets, even in our own country. The fuel generally comes in one of two states of matter: solid (part of the rocket body) or liquid. The refineries are usually centralized, so the fuel can be distributed. Even then, the variant fuels are limited because of the cost. Finally, we get to the warhead—the pinnacle of current military science, from guidance system to release and timing mechanism—and that warhead may be developed in a lab or a reactor, manufactured, or refined.

I borrowed some of these ideas from the discipline of supply chain risk management because it seems timely. Across electronic enterprises, all over the world, we have great fragility in critical systems, from the optical to the magnetic. Post-COVID, it also seems our publics are keenly aware of how critical shortfalls can affect availability of goods, services and, in some cases, military capability. Hence, the use of the graphics in terms of tier 1, tier 2, and tier 3 suppliers—the next missile defense fight is a war of supply and the will to preserve or expend it. Every war is that way.

Now, I would like to pivot from the problem set of missile defeat to a solution set that USASMDC has been working on in partnership with the strong leadership and commitment of Lt. Gen. Jon Braga, U.S. Army Special Operations Command, and Lt. Gen. Maria Barrett, U.S. Army Cyber Command. Some of you have heard the three of us and our staffs talk about a modern “Triad” that offers options to Army and joint force commanders across active campaigning, crisis, and conflict should deterrence fail.

I assure you that the Triad is not just talk. We are experimenting and demonstrating our unique and complementary capabilities at least monthly and, in some cases, near our adversaries. In this way, Triad is a clever name for our collaborative efforts among the three commands. It also is an interesting choice of label because of how it affects our adversary’s decision calculus.



(Figure by Allen J. Meeks)

Figure 3. Secondary Upstream (Tier 3 Supplier) Support to Missile System Components

In broad strokes, the traditional triad of nuclear-capable bombers, nuclear attack submarines, and nuclear intercontinental ballistic missiles has contributed to deterrence through the imposition of cost—the ability to threaten or hold at risk what the adversary values or requires to operate. So, for over seven decades, we’ve been maneuvering at the strategic level to communicate our intent with the traditional nuclear triad.

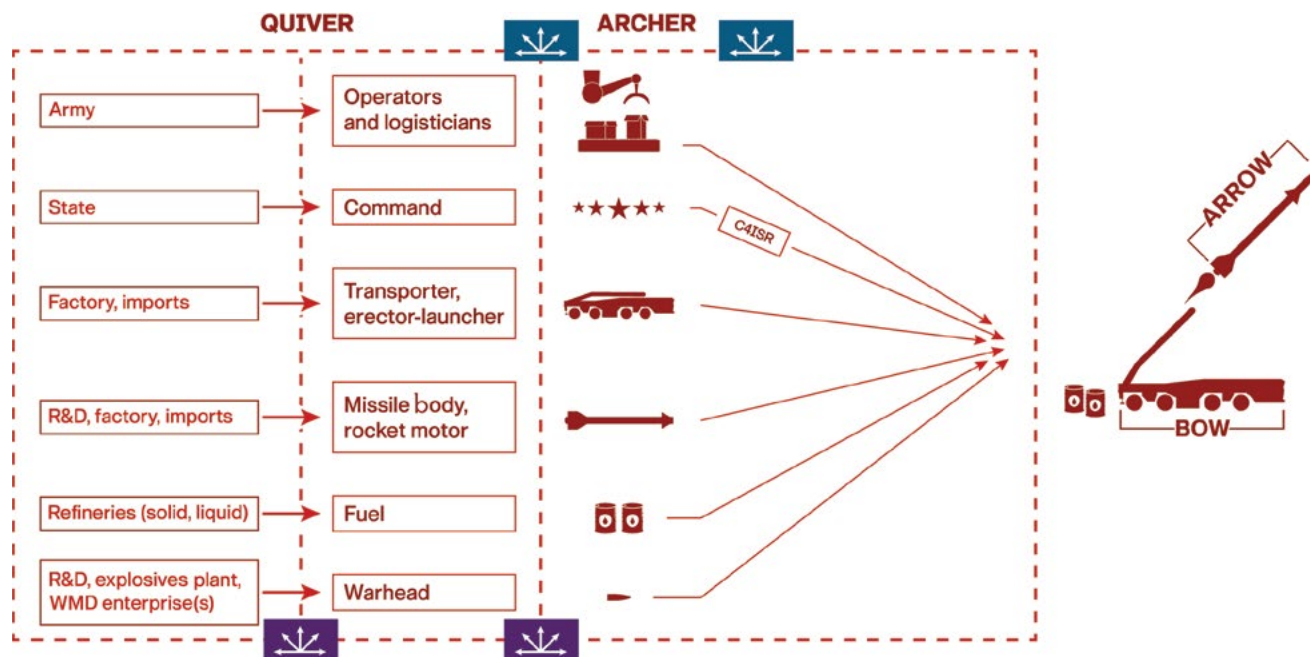
What we’ve seen in the current security environment, and will continue to see in the future, is the threat of selective use of nuclear weapons, which erodes the deterrent effect of massing them. Heaven forbid we have a limited nuclear exchange, but the immediate effects of heat, blast, pressure, and radiation won’t be the worst part. It will immediately establish a “new normal” because the consequences of limited nuclear use have yet to be established. In other words, limited nuclear use can only beget more limited nuclear use.

As a soldier, the options to demonstrate resolve usually come down to which instrument the military can employ to threaten or impose cost without crossing a nuclear threshold from a nuclear power. As an air defender, I have only lately seen the idea of denying benefit in our national security documents. That is, the adversary attempted to strike us, but we blocked it, or they hit us where it didn’t matter because we were dispersed and resilient.

There are two final points I would like to make in this imperfect crash course in strategic deterrence. It doesn’t really work if you can only make empty threats, so credible communication is a pillar. In other words, your capabilities have to work, be proven to work, and be observed by the intended audience. But just as the imposition of cost has its mirror of denying benefit, credible communication also has a mirror: doubt. And so, the question becomes, how do I—and where can I—instill doubt?

Enter the Triad, in what I would consider our return on the USASMD investment in this body of work for *missile defeat*. First, we must accept the premise that you may conduct offensive action at the tactical or operational level to maintain an overall strategic defense—in other words, there is great utility in a well-timed (or continuous) spoiling attack. Second, we must accept that the next missile defense fight will be a race for us to contain the fight in a single combatant commander’s area of responsibility, while our enemies will be racing to expand the war horizontally and out of theater.

Therefore, the Triad is as much a call to action as it is a proof of concept—not only for convergence and broader multidomain operations and formations among three Army Service component commands but also as the test bed for future Army epochs, whether in 2030, 2040, or



(Figure by Allen J. Meeks)

Figure 4. The “Triad” Applied to Each or All Adversary Missile System Components

beyond. Because, when applied to missile defeat, unique applications of Triad cyber, special operations, and space capabilities can deceive, delay, degrade, deny, disrupt, and destroy myriad components of adversary missile systems across time and space to achieve a broader strategic defense (see figure 4).

Our capstone doctrine, FM 3-0, states, “Strategic leaders may task Army long-range fires, cyberspace, space, and other global capabilities to support attacking targets in the extended deep area to set conditions for friendly defensive operations.”⁸ But what has our Army done thus far to prepare for these strategic leaders’ orders?

Assuming we are talking about combatant commanders, or joint force commanders, I would suggest that the multidomain operational graphics (as depicted in figure 4) provide some options against adversary missile systems; against that tier 1, tier 2, and tier 3 supplier; and against that arrow, bow, archer, and quiver. Within our Army, we essentially control the Triad among the three Army Service component commands. It is incumbent on us in this corner of the coming missile-defense or missile-defeat fight to continue to

chip away at the “with what” and the “how” of conducting multidomain operations. We are not alone, as we continue to drive the Triad body of work, our joint partners are already forming in the Nexus community of interest, built with different capabilities and authorities (represented in purple at the bottom of figure 4).

At the risk of being too prescriptive on the “with what” or “how” we should conduct missile defeat using the Triad and multidomain approaches, I will wind this note down. How cyber, special operations, and space capabilities converge to deceive, delay, degrade, deny, disrupt, and destroy enemy missile systems in breadth and depth is up to you now. Ultimately, it is your Army, and we have an outstanding record of adapting to new wars, but we usually bleed while we are learning. Wouldn’t it be great to see us adapt a little beforehand, at a low cost, and with outsized effect? And, we are merely doing as FM 3-0 instructs, “Operational headquarters conduct activities that physically and psychologically isolate enemy leaders from their formations and other sources of support.”⁹

Stated another way, I believe that modest investments in time and money using Triad and missile defeat as organizing principles, ideas, and experiments will lead

to a more survivable “first battle.” But most of all, if we can do this forward in our adversaries’ backyards and demonstrate forward that we have the will and capability to hang weights on or render ineffective their missile systems, we get a triple return on investment.

By modifying our approaches from missile defense to missile defeat, we get to make the most of what we

have already and are not waiting on a sudden influx of resources, we get live practice with the most tactically and technically proficient forces in our Army, and above all, we deter our adversaries by denying the benefits of their desire to impose cost. And by doing so, we seed doubt in whether they can win the fight they might consider picking. ■

Notes

1. *Strategic Forces Subcommittee Hearing: FY24 Budget Request for Missile Defense and Missile Defeat Programs, Before the House Armed Services Committee*, 118th Cong. (2023) (statement of Daniel L. Karbler, Commanding General, U.S. Army Space and Missile Defense Command), <https://democrats-armedservices.house.gov/2023/4/strategic-forces-subcommittee-hearing>.

2. T. R. Fahrenbach, *This Kind of War* (1963; repr. London: Brassey's, 2000), 290.

3. Stephen Biddle, “Back in the Trenches: Why New Technology Hasn’t Revolutionized Warfare in Ukraine,” *Foreign Affairs* 102, no. 5 (August 2023): 2, <https://www.foreignaffairs.com/ukraine/back-trenches-technology-warfare/>.

4. *Ibid.*, 10.

5. Field Manual (FM) 3-0, *Operations* (Washington, DC: U.S. Government Publishing Office, 2022), 1-8, 2-2.

6. Giulio Douhet, *The Command of the Air*, trans. Dino Ferrari (1921; repr. Washington, DC: Air Force History and Museums Program, 1998), 9.

7. Daniel L. Karbler, “People First, Threat, Response, Space Branch, and Recruiting Challenges” (keynote speech, Space and Missile Defense Symposium, Huntsville, AL, 8 August 2023).

8. FM 3-0, *Operations*, 6-36.

9. *Ibid.*, 6-23.

Military Review

WE RECOMMEND

Assuming past is prologue, to provide some context for the articles in this edition, *Military Review* invites your attention to two notable previously published articles dealing with space for consideration of perusal.

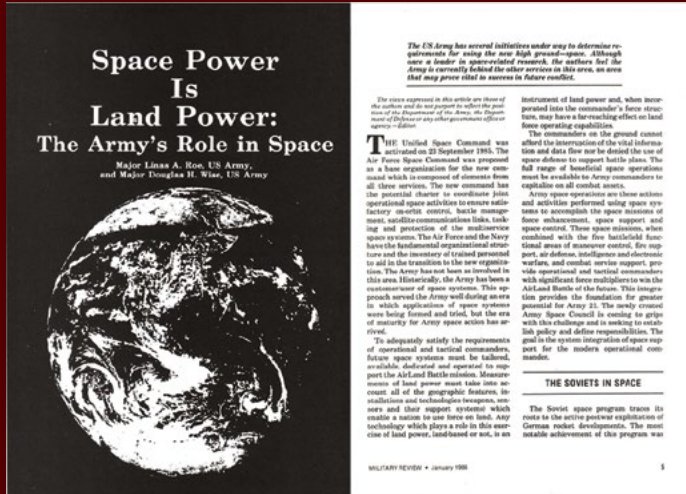
“Outer Space and National Defense”

Lt. Col. Robert B. Rigg, U.S. Army

Your attention is invited to a legacy article of *Military Review* forecasting the importance of space to the U.S. Army. See pages 21–26 of the May 1959 edition at <https://cdm16040.contentdm.oclc.org/digital/collection/p124201coll1/id/804/rec/1>.



May 1959



Originally published in January 1986

“Visualizing the Synchronization of Space Systems in Operational Planning”

Maj. Jerry V. Drew II, U.S. Army

Gaining and maintaining a relative advantage in a multidomain environment will require the synchronization of tactical actions across all domains—including the actions of space systems—to achieve strategic ends. The author offers an explanation of space systems and provides a visualization tool that a staff might produce to achieve that synchronization. To read this article online, visit <https://www.armyupress.army.mil/Journals/Military-Review/English-Edition-Archives/Jan-Feb-2019/Drew-Space/>.



January-February 2019

“Space Power Is Land Power: The Army’s Role in Space”

Maj. Linas A. Roe, U.S. Army
Maj. Douglas H. Wise, U.S. Army

Long before the Army’s focus on multidomain operations, the space domain was discussed in *Military Review*. The authors considered space systems to be critical even then for success in future combat operations. To read this article online, visit <https://www.armyupress.army.mil/Journals/Military-Review/English-Edition-Archives/January-February-2022/Roe-Wise-Space-Power-1986/>.