

IN DEFENSE OF DENIAL: WHY DETERRING CHINA REQUIRES NEW AIRPOWER THINKING

MAXIMILIAN K. BREMER AND KELLY A. GRIECO
COMMENTARY

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“There was a distinct difference between the objectives of the opposing sides,” Air Chief Marshal Hugh Dowding, commander-in-chief of Fighter Command, reflected on the Battle of Britain. Whereas the German military sought to end the

war by invading across the English Channel, he explained, “Now, I was trying desperately to prevent the Germans from succeeding in their preparations for an invasion ... I had to do that by denying them control of the air.”

Dowding employed an airpower strategy known today as air denial, in which a military force aims to deny operational freedom to an adversary’s air force without necessarily being able to control that airspace. Applying this asymmetric strategy today could succeed in deterring a Chinese invasion of Taiwan.

Air denial is not a new strategy, but neither is an alternative based on air superiority and penetrating strikes. It is a way to use the U.S. Air Force and surface-based air defenses to increase Chinese Communist Party perceptions of the uncertainty and risks inherent in an invasion without potentially provoking nuclear escalation. This approach is controversial to many in the Air Force because this strategy upends decades of Air Force doctrine. But that doctrine was based on using aviation offensively, which may be unwise in a Taiwan scenario.

BECOME A MEMBER

In *War on the Rocks*, Caitlin Lee recently presented an updated version of the Gulf War paradigm for deterring a Chinese invasion of Taiwan — and argued against our preferred strategy of air denial. She argued that in a future conflict next-generation combat drones should operate inside the range of China’s air defense missiles to “sense and detect invasion forces and kill targets of opportunities” so crewed assets can “deliver firepower at volume.” She rejects air denial as a viable alternative approach for air combat. She called this approach “unproven” and fundamentally flawed.

The future of U.S. Air Force strategy is a debate worth having, particularly given the high stakes. While Lee is correct to call on the Air Force to field a better mix of crewed and uncrewed systems, we nonetheless remain unconvinced by her objections to making air denial a core mission. Instead of trying to symmetrically match (or even overmatch) China, air denial pits U.S. strength, that it is on the strategic defensive, against China's main weakness, that it has to go on the offense to seize Taiwan.

Deterrence by Denial Versus Air Denial

The policy debate about conventional deterrence in the Indo-Pacific employs two distinct usages of the term “denial” — “deterrence by denial” and strategies of “denial.” The former term originated in the nuclear deterrence literature to distinguish between “deterrence by punishment” and “deterrence by denial.” Deterrence by punishment threatens to impose unacceptable costs if an attack occurs. Deterrence by denial relies on convincing an adversary that an attack is “infeasible or unlikely to succeed.”

The 2022 *National Defense Strategy* stresses deterrence by denial, calling on the Department of Defense to “develop asymmetric approaches and optimize our posture for denial” in order “to deter aggression, especially where potential adversaries could act to rapidly seize territory.” The debate in the Air Force is how to begin to implement this approach. There are two schools of thought. The first views air dominance and the ability to defeat China's air force as a necessary condition for deterrence. “Unless the United States and its allies can achieve the strength necessary to defeat both Chinese aggression in Asia and Russian aggression in Europe in near simultaneous time frames,” Lt. Gen. David Deptula (ret.) argues, “we cannot hope to deter our rivals.”

To deter China, some analysts argue, the United States needs to credibly threaten to sink China's invasion fleet inside the first island chain “within 72 hours.” Doing so would require the Air Force to “not just gain air superiority,” as David Ochmanek

argues, “but to actually reach into this contested battlespace ... and find the enemy and engage” its forces. To attain this type of air superiority, U.S. forces would have to attack China’s formidable integrated air defense systems, including key targets on the mainland such as air bases, radar sites, air defenses, and possibly command-and-control facilities.

This approach confuses deterrence by denial with the ability to completely and quickly defeat an adversary. It assumes threatening military defeat is the *only* way to deter an adversary, rather than *a* way — and not necessarily the best way — to posture the Air Force for deterrence by denial. Moreover, it is anything but an “asymmetric approach” against a peer or near-peer competitor, given it seeks to directly combat China’s strengths rather than attack its power-projection weaknesses.

The strategy of air denial, in contrast, would focus on limiting China’s ability to gain and exploit air superiority in offensive military operations. Air denial draws upon the British naval theorist Julian Corbett’s distinction between military strategies of control, aimed at securing freedom of action within a military domain, and strategies of denial, which seek to prevent an adversary from gaining such control. Chinese military writings consistently make the point that offensive amphibious and maritime operations are unlikely to succeed without air superiority — a supposition supported by the fact that modern amphibious operations have succeeded only 14 percent of the time without air superiority. It would thus be prudent to try and create doubt in Chinese leader Xi Jinping’s mind about China’s ability to attain air superiority in such a contingency.

An air denial strategy economizes force by employing sufficiently large numbers of smaller, cheaper weapons in a distributed way. The air defender aims to survive the initial enemy air and missiles strikes and then keep the airspace contested. A doctrine of “volumetric defense” underwrites air denial. This concept employs defense in depth — both laterally (planar distance, or range) and vertically (altitude) — which forces an air attacker to penetrate into what Air Combat

Command's Gen. Mark Kelly described as "layer upon layer upon layer" of air defense systems. The U.S. Navy employs a similar "layered air defense" approach to protect its carrier battle groups, effectively creating a bubble of denial around the carrier through the employment of weapons at different ranges and altitudes.

While combatants have posed high- and low-altitude air threats in past wars, the difference today is that the combination of technological advancements and declining costs is increasing the mobility, range, density, and expendability of modern air defense systems. This opens new and more effective ways for the defender to contest both the lateral and vertical airspace. Volumetric defense consists of a mix of different cyber effects, sensors, platforms with air-to-air missiles, and surface-mobile long- and medium-range surface-to-air missiles. These systems defend the approaches from the "blue skies," where high-end fighters and bombers typically operate. To avoid these dangers, adversary aircraft could try to fly low to evade radar detection. However, this tactic will send them directly into a thick inner layer of air defenses, protected by thousands of anti-aircraft guns, missiles, drones, and rockets.

Each of these layers is mutually supportive but not entirely dependent on the others, making it much harder for an attacker to defeat volumetric defense. To gain air superiority, China's military would need to defeat every layer of the defense, covering both different ranges and altitudes. As long as the United States and its allies maintain an air defense "force in being," however, the airspace would remain contested above China's invading forces. This threat bolsters deterrence by denial.

In her piece, Lee suggests that an air denial strategy would rest mainly on the use of "large numbers of small, short-range, inexpensive [commercial] drones" and warns, "the outcome of America's next war won't be decided by quadcopter dogfights." This is not what we argued in War on the Rocks or elsewhere. We maintain that surface-based air defenses constitute the foundation of an effective air denial strategy, even though other services currently have primary responsibility for air defense and the ownership of systems like the Patriot and

Terminal High Altitude Area Defense. Given the centrality of air defense and denial to the future of air control, the Department of Defense should reconsider existing service roles and missions. It should also move to develop and field smaller and more mobile systems with shorter redeployment times — equivalent to their Russian and Chinese counterparts — in order to make them harder to find and kill. At the same time, swarms of lower-cost drones might open additional possibilities for air defense. Like barrage balloons in World War I and II, swarms of drones could be used to “mine” the low-altitude airspace as a point defense measure or as a means of channeling attacking aircraft into narrow flight corridors, forcing them to run a gauntlet of surface-to-air missiles and other air denial weapons.

Contests for air control are growing both more complex and challenging than in the past, when the outcome of air-to-air battles turned mainly on the high-end fight occurring in the blue skies between attacking formations and defending fighters. This was the case in the 1940 Battle of Britain or between attacking aircraft and surface-to-air missiles in most conflicts since the Yom Kippur war in 1973. Instead, to gain air superiority against today’s air defenses, an attacker has to defeat every layer of air defense, covering both different ranges and altitudes. The United States and its allies ought to exploit the defender’s advantage.

Air Denial Is a Proven Strategy

The Air Force faces the challenge of devising a strategy to deter Chinese military aggression under the nuclear shadow. War with China over Taiwan could lead to a nuclear exchange, particularly if Washington strikes targets on mainland China, prompting China to retaliate in kind. U.S. airpower strategy therefore needs to effectively deter a Chinese attack without committing the United States to mainland strikes and risking a dangerous escalation at the outset of a conflict. Whereas air denial meets both criteria for deterrence success, a strategy oriented around offensive air superiority and large-scale, deep-penetration strikes both lacks credibility and increases escalation risks.



Become a War on the Rocks Member

Ryan Evans

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First, the air dominance approach weakens U.S. deterrence by assuming a high level of risk. Put simply, it presumes that the United States can succeed in gaining and maintaining air superiority inside the first island chain. This is a presumption that lacks credibility, given both China's formidable mix of long-range precision strike and air defense capabilities and home-field advantage against the United States. As a result, the deterrent value is marginalized. Lee, in her piece, concedes it will be "difficult" for the Air Force to gain and maintain air superiority against China, but she offers no theory of victory for securing it. Uncertainty about the outcome of the air war strengthens deterrence only when it increases the risks for the attacker. Instead it has the opposite effect when it magnifies risk for the defender, because deterrent threats become less credible.

Beijing needs to believe the United States has both the capability and resolve to carry out its threats. Mobile ground-based air defenses are inherently harder to find and destroy than attacking aircraft because the ground is more favorable to

cover and concealment than a featureless sky. The Air Force has never fought an air war against a near-peer adversary equipped with an integrated and mobile air-defense system, but the few times it confronted mobile air defense assets, like during the “Scud hunt” in 1991 and the 1998 to 1999 Kosovo war, it struggled to find and destroy them. In addition, new and emerging technologies continue to grow the power of defense. Modern air defenses are increasingly dense, with more types and greater numbers of weapons systems, and because these systems are also cheaper and easier to build than the attacker’s missile-carrying fighters and bombers, the defender might be able to sustain high losses. Because air warfare increasingly favors mobile surface-based air defenses over attacking aircraft, a strategy of air denial has a higher likelihood of success than one that requires overcoming it.

The air dominance approach discounts the dangers of pursuing such a risky course of action. Penetrating heavily defended Chinese airspace would likely result in heavy losses. A proposed solution is to pair next-generation combat drones with crewed platforms. However, these drones will not be “attritable.” Such high costs might cast doubt in Chinese minds on the willingness of the United States to follow through on its threats, owing to allied or domestic political opposition. Moreover, if U.S. efforts to gain air superiority and rapidly defeat Chinese invasion forces should fail, they are apt to fail catastrophically and endanger the Air Force’s capacity to sustain a defensive war of attrition. All of this works to undermine deterrence.

Rather than assume all the uncertainty and risk by trying to symmetrically gain and maintain air superiority inside China’s anti-access/area-denial capabilities, a more effective approach would be to transfer those same uncertainties and risks onto the Chinese strategy. With air denial, deterrence would turn on the question of whether China’s leadership was confident that they would be able to gain and maintain air superiority above their invading forces — a much harder problem for the People’s Liberation Army Air Force to confidently crack.

The Battle of Britain ought to serve as a model. In 1940, the Royal Air Force adopted an air denial strategy to successfully deter an amphibious invasion of the home islands. Consistent with air denial, the essence of the Royal Air Force's strategy was to remain an air force in being — or in the words of Dowding, to “carry on for some time” by dispersing fighter wings across the country and employing them with economy and efficiency. If Britain's fighters could hold out through the summer of 1940, Dowding calculated, the Germans would be forced to either invade in autumn's bad weather or without the necessary air superiority.

Put simply, Britain's air denial strategy confronted the Germans with the prospect of failure and thereby deterred a German invasion attempt. In September, when German dictator Adolf Hitler decided to “postpone” the invasion, he cited the Luftwaffe's failure to achieve “the complete destruction of the enemy's fighter force” as his main reason. Though air denial did not deter the Luftwaffe's attacks on Britain, the dynamics of deterrence continued to play out. The Battle of Britain was a close-run thing, but it showed that air denial, particularly if the defender can sustain the attrition rates, could effectively dissuade an adversary from launching an amphibious invasion.

Second, the air dominance approach runs serious escalatory risks. By adopting an offensive approach, the United States is likely to intensify the security dilemma between China and the United States and its allies and partners in the region, and thereby accelerate arms races in the region. Even though Washington's motives are defensive, an offensive concept of air operations might still appear threatening to China and convince its leaders that they have no choice but to act first. The likely result would be a highly destabilizing action-reaction cycle, in which all sides aggressively pursue a conventional first-strike advantage. This dynamic is particularly destabilizing, as the events of July 1914 illustrate, because perceptions of a first-strike advantage can create incentives for preemption in a crisis and thereby raise the likelihood of conflict.

Should such a conflict occur, the pursuit of U.S. air dominance would then raise the risks of inadvertent nuclear escalation. Some advocates of this approach envision the United States striking targets on the Chinese mainland. “We should not be self-detering,” Deptula admonished, calling offensive military operations in Chinese airspace an “option that should remain in play.” America’s political leaders, however, are likely to see it as too risky and provocative, especially at the outset of a conflict. As Caitlin Talmadge points out, China’s nuclear and conventional capabilities, particularly its nuclear early warning and command-and-control networks, may be intermingled, which means strikes on China’s offensive and defensive missile capabilities would almost certainly erode significant components of China’s strategic nuclear deterrent and, in turn, put Chinese leaders in a dangerous “use-it-or-lose-it” situation. Moreover, if Beijing believes that the United States is unwilling to run such risks, U.S. threats would lack the credibility to deter a conflict. In contrast, the inherently defensive nature of air denial would reduce the risks of escalation.

Make Air Denial a Core Air Force Mission

The United States has the world’s most powerful air force, but it would be a colossal strategic blunder to persist with an offensive air superiority strategy and thereby cede its greatest advantage — the strength of defense in 21st-century air warfare — to China. “If the mutual denial of air superiority is an advantage for the United States,” as Lt. Gen. S. Clinton Hinote, deputy chief of staff for strategy, integration, and requirements of the U.S. Air Force, concludes, “then we need to have a military that can achieve mutual denial, even at the edges of the battlespace, even on the doorstep of our adversaries.”

But defense, as the Prussian military theorist Carl von Clausewitz famously argued, should be active and not passive. In the event of a conflict, the Air Force should make denying air superiority to China its first priority. At the same time, the Air Force ought to weaken Chinese forces, employing mainly stand-off strikes and longer-range attacks. When the tide has turned, as Clausewitz advises, the Air

Force might then unleash the “flashing sword of vengeance” and make the “sudden powerful transition” to offensive air superiority. To make that happen, however, the Air Force will need first to make air denial a core mission. The decision to give primary responsibility for air defense to other services encourages the Air Force to continue to prioritize air superiority and offensive strike missions. It is time for a course correction.

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Maximilian K. Bremer is a U.S. Air Force colonel and the director of the special programs division at Air Mobility Command. The opinions expressed here are his own and do not reflect the views of the Department of Defense and/or the U.S. Air Force.

Kelly A. Grieco (@ka_grieco) is a senior fellow with the Reimagining U.S. Grand Strategy Program at the Stimson Center and an adjunct associate professor of security studies at Georgetown University.

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