

Airpower's Role in Maritime Operations

by

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Chesapeake Bay, June 1921: Aboard the USS Henderson a group of admirals were gathered on deck to observe the attempt to sink the former German warship Ostfriesland with land based aircraft. After the successful attack, and with the Ostfriesland committed to the deep, the admirals were reported to have wept openly. The martyred Teutonic dreadnought had been lost to the aircraft. Billy Mitchell had destroyed their unfounded faith in the invincibility of the battleship.¹

This article seeks to highlight land airpower's unique advantages over navies. The evolution of airpower tactics and capabilities through history demonstrates the need for a fundamental shift in thought regarding the use of airpower. Additionally, the use of land based Air Expeditionary Forces (AEF) can provide the Theater Commander a flexible, responsive force substituting in the absence of a Carrier Battle Group (CVBG).

Historically, national strategies have required matching force with like force. Thus it was common for a nation to stand up an army, navy, or air force when it perceived a threat from a similar force. It is understandable to expect that it takes a powerful navy to subdue another navy. The capabilities of modern land airpower have changed this paradigm for warfare.

Where is the challenge today to the US Navy? To gain control of the sea, navies were designed to take on enemy ships. Blue water battles drove ship design and operations. The Carrier Battle Group concept was developed to pack a powerful punch in one package. So powerful in fact, it has no surviving competitor. It has literally pushed the Russian Navy out of the business. They only have one operational carrier, the Admiral Kuznetsov. Their second carrier, Varyag, sits unfinished in a Ukrainian port.

While most will agree that no country has a navy left to challenge the United States on the high seas, almost all countries have some form of "brown water" navy. These brown water navies are for coastal defense and extending local influence. In the event that US interests in the area are in jeopardy, we must readily contend with these brown water threats. As the US Navy rapidly draws down to approximately 350 vessels we need to continue our emphasis on littoral warfare. With no blue water threat, we should maintain a Navy which emphasizes small surface combatants to match the projected littoral threat of the future.

However, we no longer always need to wait for the power of the US Navy to steam to the area to defend our interests in littoral areas which coincidentally place the fleet within range of enemy mines or shore-to-ship weapons. Land based airpower can be anywhere in the world in a matter of hours. The historic notion that only ships are needed to extend maritime influence has ended.

These ideas are not new to warfare. Brigadier General Billy Mitchell's sinking of the Ostfriesland brought the idea to the forefront of the military and the public. At the time,

parochial interests caused disputes of the results. The bottom-line had Mitchell sinking a battleship, as he claimed he could. This reality gave impetus to the creation of the Naval Air Service.² The potency of airpower against navies and shipping was not lost on our Navy or the rest of the world.

The British Royal Navy's air attack on the Italian fleet at Taranto harbor in November 1940 was a highly innovative use of airpower. In an attack using shallow water torpedoes and bombs, the British force of 21 Swordfish aircraft sank or disabled seven vessels and destroyed a seaplane base.³ The loss of three battleships and three destroyers later caused the Italians to withdraw their fleet to safer waters outside the range of the British aircraft. The Japanese, who studied the action at Taranto in great detail, attacked the US Pacific Fleet at Pearl Harbor in December 1941 using the same techniques. With one swift stroke, the Pacific Fleet's battleship force was crippled. Fortunately, the Pacific Fleet aircraft carriers were at sea during the attack. This left the US a powerful force with which to stem Japanese expansion.

Courageous airmen during the Battle of Midway in June 1942 sank four Japanese aircraft carriers and a cruiser which resulted in the Japanese decision to withdrawal from their planned invasion of Midway. This action by airpower proved decisive by wresting the initiative from the Japanese and eventually enabling US forces to carry the fight to the Japanese homeland.

Meanwhile in the Atlantic, German Luftwaffe crews sank 179 Allied ships during a three month period in early 1941.⁴ Italian air attacks sank 63 Royal Navy ships in the Mediterranean. Land-based airpower also accounted for 132 of the 140 U-boats destroyed by air attack in the last year of the war—over 94%.⁵

Jumping to a more modern example during the Cuban Missile Crisis of 1962, the US Navy requested the Strategic Air Command's (SAC) help in locating the freighter Odessa. After a SAC B-52 located it, the Odessa immediately stopped, "never came any closer to Cuba, and eventually turned around and returned to the Soviet Union." Altogether, SAC flew over 5,000 sea-surveillance sorties during the month-long crisis, demonstrating the value of land-based strategic bombers employed in maritime roles.⁶

The Falklands War in 1982 further demonstrated land-based airpower capability against vulnerable naval targets. The Argentine Exocet missile strikes against the radar picket HMS Sheffield and transport Atlantic Conveyor greatly hindered Great Britain's strategic plans during the conflict. After the sinking of HMS Sheffield the Royal Navy task force never operated so close inshore to the Falklands.⁷ They were forced to retreat to the east side for the islands, maximizing their warning time against attacking aircraft from Argentina.⁸

While the British did hold their losses to two ships during the Falklands conflict, their victory is as much owed to the inexperience of Argentine airmen and bomb fuzing as to a robust defense. During the Argentine attacks on the British task force, 22 bombs struck of which 12 failed to detonate. The 10 bombs that were released high enough to arm and detonate upon impacting a ship, sank two frigates, a destroyer, and a fleet auxiliary. If all 22 weapons had detonated, it is likely that at least six more vessels would have been lost. This could have weakened the task force to the extent that they could not support the Falklands invasion.⁹

A few years later the tensions of the Persian Gulf Oil Crisis provides several examples. In 1987, two Iraqi Exocet missiles struck USS Stark and severely damaged her. Only the courage and skill of her seamen rescued the ship from sinking. In any case, the ship and crew were out of action. During the Gulf War on January 30th 1991, naval aircraft savaged the Iraqi navy, destroying or damaging 19 vessels including seven missile boats, three amphibious ships, and a minesweeper. Thanks to this action, the Iraqi navy played no further useful role in the war.¹⁰

History also provides several examples of highly successful aerial mining campaigns. Royal Air Force mining during World War II constrained the movement of German capital ships, keeping them bottled up in the harbor. This mining campaign forced the German Navy to use up to 40% of its personnel on mine clearance operations.¹¹ It also forced German planners to devote ever larger portions of their maritime efforts to building replacement ships and repairing others damaged by mine attack.¹²

In the Pacific, aircraft accounted for 86% (21,389) of the 24,876 mines deployed against Japan. Allied mining efforts sank or damaged 961 vessels (over two million tons of shipping) representing nearly a quarter of the prewar strength of the Japanese Merchant Marine.¹³ Mine-laying B-29s (in addition to their land attack missions) sank or damaged over 1.2 million tons of shipping in the last five months of the war through the deployment of 57% of the 21,389 Allied aerial mines laid.¹⁴ The Japanese later conceded that B-29 mining was so effective that it eventually starved the country - and shortened the war.¹⁵

During the Vietnam conflict in May 1972, the United States escalated the pressure on the North Vietnamese by mining seven North Vietnamese ports, compelling North Vietnam to the peace table. Mines deployed by carrier-based A-6 Intruder aircraft brought all maritime commerce to a halt and stranded 27 ships in Haiphong harbor. The outcome of this interdiction was predicable. The US Navy's Seventh Fleet commander, Vice Admiral William P. Mack, said "The North Vietnamese ran out of ammunition, just as we always said they would."¹⁶

History, especially wartime operations, has shown the value of airpower in maritime operations. Land based airpower, traveling at 420 knots, can quickly deploy to a world trouble spot and immediately begin combat operations. Even with advanced warning, ships will always be limited by the time it takes them to reach a given point on the earth. For example, a typical Atlantic crossing from Norfolk, Virginia to the Western Mediterranean could take around seven days. To compensate, we could deploy our fleet to cover all the world's possible problem areas with ships, but this would quickly break our nation's budget. Today's selective use of land based airpower affords the nation a cost effective and quick alternative to engaging an enemy navy or performing a variety of maritime missions. However, Navy aircraft carriers cannot be everywhere when needed.

The US invested in the USAF bomber force during the Cold War for the maritime mission. The B-52 can carry multiple Raptor or Harpoon missiles and along with the B-1 can dispense Mk-62 bottom mines. This mining capability was demonstrated in April 1997 when two B-52s flew from Barksdale AFB, Louisiana in support of exercise Blue Harrier 97. Each aircraft deployed eight mines in the North Sea on time, on target, then returned non-stop to Barksdale. In addition, the B-52 is configured to dispense "captive mines." These sophisticated mines wait for the

sounds of passing vessels before releasing a torpedo against them, thus effectively denying selected areas to an adversary. These capabilities allow the US land based anti-ship missions from the air today. Finally, bomber use of high technology Synthetic Aperture Radar allows reconnaissance of vast ocean areas, thus relieving stress on hard-pressed maritime patrol aircraft resources.

The AEF provides the Theater Commander a flexible and responsive force. The AEF is a specially tailored package which can be composed of support and strike aircraft, quickly deploy, and be ready for sustained combat operations. AEF aircraft, like the F-16 or F-15E, could engage enemy shipping with the Maverick missile or laser guided munitions. AEF bombers can add immeasurably to maritime operations with their long range and massive firepower. Air Force units which compose AEFs could quickly train for these operations in addition to maintaining the readiness required for projecting power over land. AEFs can give the US a global engagement capability to control sea lines of communication and bottle up enemy shipping when needed, freeing expensive naval assets for other tasks.

Where foreign navies have more capable ships, our current aircraft inventory can defeat them as well. Strike packages can be built with the EA-6B Prowler or F-16s equipped with the High-Speed Anti-Radiation Missile (HARM) which can effectively blind enemy ships before air attacks destroy them.

Airpower will play a key role in the future of maritime interdiction. Chairman of the Joint Chiefs of Staff, General Shalikashvili, has directed his forces to prepare for warfare in the future in his document, Joint Vision 2010 (JV 2010). In it, he provides the concepts for "Full Spectrum Dominance." One of the pillars of JV2010 is Information Superiority which gives the battlefield commander full knowledge of the location of enemy forces. In maritime cases, this would entail the knowledge of where each enemy ship is positioned. The commander can see which enemy ships are a threat and the location of commercial shipping in the area and position his forces accordingly.

Current Precision Guided Munitions (PGMs) provide the accuracy to readily attack ships and are instrumental to the future of maritime operations. Terminal guidance seekers allow the weapon to home in on the ship, not just a specific location. Location awareness and identification of ships will be essential in high traffic areas like the Strait of Hormuz where heavy commercial shipping may be present. Additionally, large scale warfare often requires unhampered access to ports. Advanced stealth aircraft, such as the B-2, F-117, and F-22 will be able to clear defensive ships in port areas as well as eliminate port defenses, like SILKWORM anti-ship missiles. This will allow the unimpeded entry of friendly naval forces and cargo ships bearing ground forces and equipment.

The capabilities force us to reconsider our current strategy. Airpower brings asymmetric advantages while opposing naval forces. If a nation deploys its navy in its sovereign coastal waters, this does not mean we have to apply the historical approach of sending in our naval forces to engage their ships. Airpower has the advantage of three dimensional movement, which provides many more avenues to enter their country and perform our mission. Airpower is not effectively threatened by most foreign navies unless we choose to attack those same ships.

Unless our interests are near the waters of a foreign nation, why bother with their naval forces? Airpower provides the asymmetrical advantage to further US interests.

Our nation's interest in waterways really lies with sea lines of communication, commercial shipping in reality. This interest is tied to our value of open trade and commerce, so waterways and ports are important to our nation. Here again, the asymmetry of airpower provides great advantage. High flying aircraft (manned or unmanned) or satellites can survey visually and electronically for miles around. Ships easily stand out on the surface. As General Mitchell stated, "Surface seacraft cannot hide... They must stand boldly out on top of the water."¹⁷ Under way, they leave telltale wakes which extend for several ship lengths behind them making them even easier to spot with the naked eye or satellite sensors. Advanced electro-optical and signal analysis sensors make this task much quicker.

Anti-ship missiles hold surface ships hostage, just like Iraqi tanks were hostages of airpower during Desert Storm. Like tanks, ships use the concept of maneuver to gain an advantage over the opponent. But at sea, there is nothing to hide behind. A ship is big, relatively slow (around 30 knots), and on the defensive compared to aircraft and missiles which are small, fast (thousands of knots), and on the offensive. Ships are capital intensive and filled with expensive people. Missiles are cheap; if the missile makes a mistake, we lose a missile. If a ship makes a mistake, a nation loses an expensive asset and many sons and daughters.

During the Persian Gulf Oil Crisis, as the US Navy escorted oil tankers through the area, they relied on helicopter and aircraft support to extend the eyes of the ship over the horizon. If the same were to occur today, you can count on the use of the Joint Surveillance Target Attack Radar System (JSTARS) radar aircraft which can see moving ships and vehicles for several hundred square miles. Any fast patrol boat headed toward the convoy would be known well in advance. Since patrol boats have limited or no anti-aircraft defense, they are easy targets for aircraft.

Ships with more extensive defenses are still at a significant disadvantage. Many advanced missiles, like the SS-N-22 (NATO code name SUNBURN), travel faster than the speed of sound (over Mach 2) and have terminal maneuvers to disrupt any defense in the last few seconds of flight. Seeker heads on missiles and PGMs can discriminate decoys from the target and maneuver with the ship. When all else fails, the concept of massed attacks still apply. Salvo launches of several missiles or PGMs can easily overwhelm ship defenses. It is difficult enough to react and defend against a single warhead, reacting to and defending against 10 or 20 warheads would be unlikely.

Conclusion

Airpower tactics and capabilities have improved enormously since the time of Billy Mitchell. However, the paradigms for its use have changed little. DESERT STORM blurred the distinction between the traditional uses of strategic and tactical airpower platforms. The F-117 was used to strike Iraqi strategic targets because it was the best for the job while the same could be said of B-52s pounding the Republican Guard day after day. Conversely, we should not be necessarily tied to just one Service accomplishing a role or mission exclusively if another can do so for less cost

or put fewer people in harm's way. The Revolution in Military Affairs has placed the ship as a weapon of war in the same position as a Knight from the Middle Ages. Knights were well trained and armed; expensive to maintain. Along came cheap Longbow technology which pierced a Knight's defenses. European battlefields were quickly covered with expensive casualties. The era of Knights came to an end. Navies are well armed and expensively manned. Today, we have the potential for a new innovative use of high tech airpower and missiles. Should the next battleground be covered with sacrificial ships?

The next month's lead news story on CNN could very easily read: "United States aircraft ended the naval blockade of Country Y by the Nation of Z, forcing them both to the negotiation table. Three B-52s, flying from the United States armed with Harpoon missiles, sank or disabled 16 ships imposing the blockade. In retaliation for the Nation of Z's action, the United Nations sanctioned the aerial mining of the Nation of Z's primary port facility."

Notes

1. Burke Davis, *The Billy Mitchell Affair*, 1967, pg 108. Isacc Don Levine, *Mitchell, Pioneer of Air Power*, 1958, pg 256.
2. Alfred F. Hurley, *Billy Mitchell Crusader for Air Power*, 1975
3. Thomas P. Loury and John Wellam, *The Attack on Taranto, Blueprint for Pearl Harbor*, 1995.
4. Richard P. Hallion, *Air Power and Maritime Operations*, June 1996
5. *Ibid.*
6. Hallion, pg 62.
7. Max Hastings and Simon Jenkins, *The Battle for the Falklands*, 1983.
8. *Ibid.*
9. Hallion, pp 67-68.
10. Hallion, pp 70-71.
11. Hallion, pg 25.
12. Hallion, pg 26.
13. Naval Analysis Division., *The Offensive Mine-laying Campaign Against Japan*. 1946.
14. Hallion, pg 52.
15. *Ibid.*

16. Ibid.

17. William Mitchell, "Winged Defense," 1925.