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AIRPOWER
A New Way of Warfare (Sea Control)

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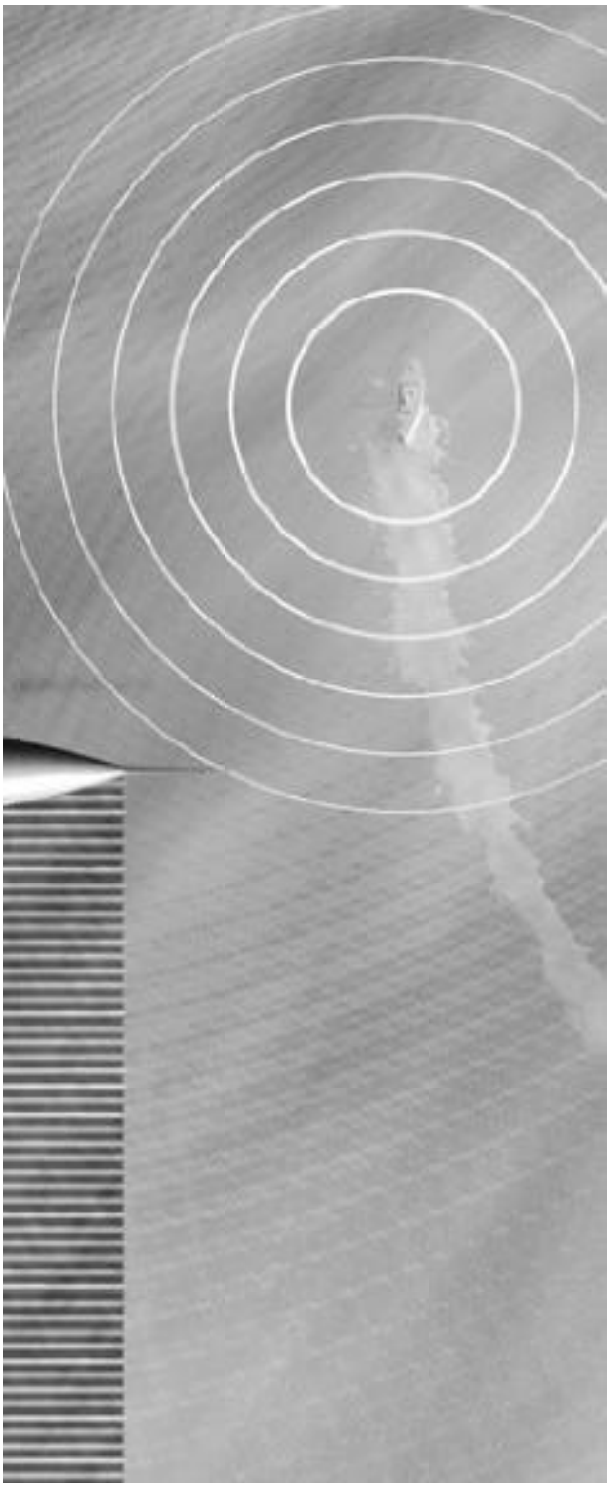


As our nation approaches the dawn of the twenty-first century, we have enough indication to tell us that air power has really changed the American way of war.

—Gen Ronald R. Fogleman
Former Chief of Staff, United States Air Force

VAGUE MILITARY THREATS and reductions in arms manufacturing are forcing new strategic considerations. Gone are the days when America could quickly mobilize and use brute force to overcome the enemy. According to General Fogleman, a new way of war is emerging, one based on technology and airpower. These advantages, he stated, must be exploited "to compel an adversary to do our will at the least cost to the United States in lives and resources."[1]

Historically, America based its strategy on superior numbers fortified by mass production. In 1943, because industries such as the Kaiser Corporation could build a 10,800-ton Liberty ship every 10 days, the United States launched more than fifteen hundred vessels.[2] During World War II, American industries sent more than 19,200 B-24 Liberators to the front.[3] Today, because fewer corporations are involved in the arms business, some industrial experts surmise that the production miracles of the past are no longer possible.[4]

Airpower: America's New Way of War

RAND, however, believes that these gaps can be bridged by the extensive use of technologically sophisticated airpower. Their study claims that "with concentration on air power, U.S. forces could manage concurrent crises, in say, the Persian Gulf area and Korea."[5] Echoing this theme, General Fogleman

US NAVY

A Libyan guided missile corvette burns in the Gulf of Sidra after a confrontation with airpower. In this and other operations, airpower delivered a violent and startling psychological message to Mu'ammar Gadhafi.

believes airpower can "provide a tremendous leverage to resolve future crises rapidly at low cost."[6]

When properly applied in the past, airpower has achieved some great successes. At Normandy, it gained command of the air and thus provided valuable support for the D-day landings. Against Japan, it helped the US take command of the seas and deliver a war-ending blow.

Not all air campaigns, however, were effective. In Vietnam, even after one million fixed-wing sorties, airpower did not prevent the enemy from continuing to advance and to eventually force the United States out of the war.[7] While airpower helped bring the North Vietnamese to the diplomatic table, it was not able to defeat the elusive guerrillas. Ultimately, explained one historian, "at the lowest level of the conflict, protracted guerrilla-style war poses a problem the US military has been unable or unwilling to solve."[8]

Against Iraq, coalition forces found an enemy who was particularly vulnerable to airpower. Still, the lessons from the Gulf War are neither necessarily universal nor applicable in other conflicts. Although airpower dominated the Gulf War as no other, concluded Eliot Cohen, "no military technology (indeed, no technology at all) works all the time." Ultimately, enthusiasts have to realize that airpower is not necessarily a "shining sword."[9]

Yet, airpower is a critical competency in the adoption of a new American way of warfare. Given the right circumstances, it can be effective in acting alone or in the joint arena. "American leaders at the end of this century," acknowledge Cohen, "indeed have been

vouchsafed with a military instrument of a potency rarely known in the history of war."[10]

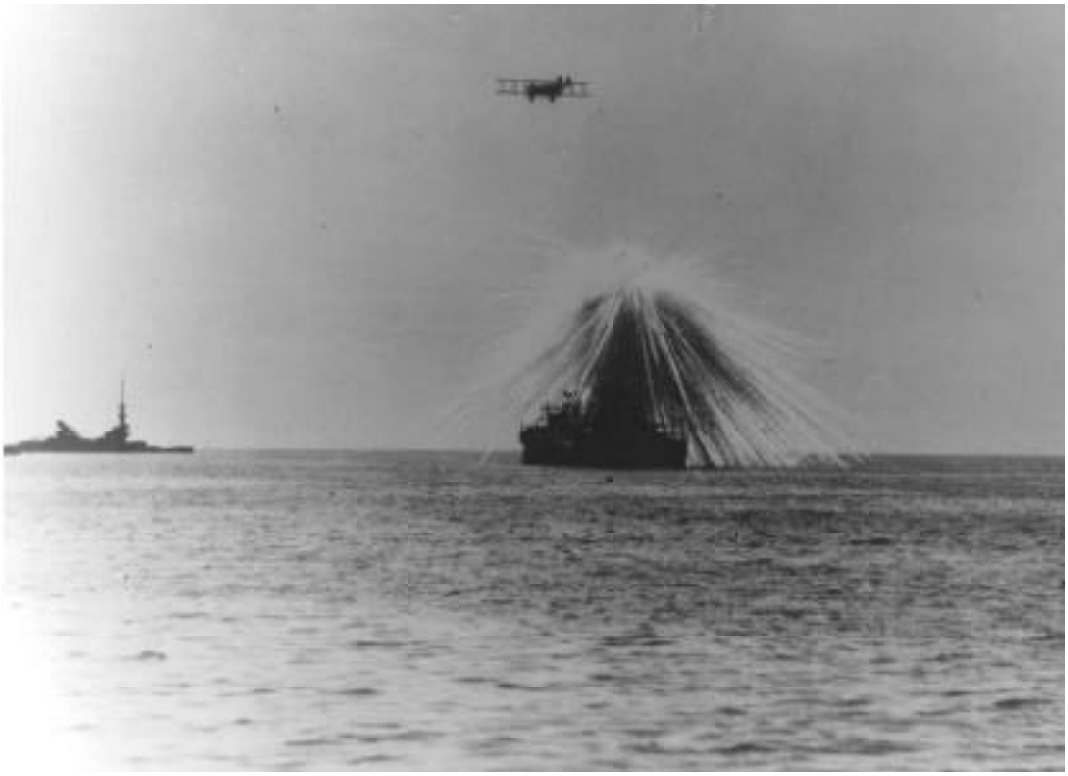
In its past spectrum of achievements, airpower helped control the seas, occupy land, support armies, and supply others. Against Mu'ammar Gadhafi, it delivered a violent and startling psychological message. During the Gulf conflict, in a "war of a thousand cuts," it forced upon Iraq extensive strategic paralysis and ultimately a decisive defeat.[11] As recently as 1995, airpower aided the Bosnian peace negotiations by conducting a "Deliberate Force" air campaign against the Serbs that ultimately encouraged them to sign the Dayton Accords.[12] Within this spectrum of achievements there were many great successes. Among the more prominent, but seldom cited, was the use of land-based airpower to control the seas.

Sea Control: Land-Based Airpower versus Ships

In 1919, Lt Comdr B. G. Leighton, US Navy, began the first serious American dialogue on the use of airpower for sea control. His article, "Possibilities of Bombing Aircraft," outlined how airplanes could attack and destroy the enemy's naval forces.[13] Building upon this concept, William "Billy" Mitchell described a maritime scenario in which dirigibles conducted ocean reconnaissance, fighters gained command of the air, and bombers attacked enemy ships.[14]

In 1921, after sinking the battleship *Ost*friesland, Mitchell proved that many of these theories were possible. Agreeing with both Mitchell and Leighton, an Army and Navy board declared that "aircraft carrying high-capacity, high-explosive bombs of sufficient size have adequate offensive

Billy Mitchell proved a point in l921 when his bombers sank the captured German battleship Ostfriesland, *which had been considered unsinkable.*



power to sink or seriously damage any naval vessel at present constructed, provided such projectiles can be placed in the water alongside the vessel."[15]

Historically, America based its strategy on superior numbers fortified by mass production.

These concepts, however, remained dormant until 1937, when the Japanese marched out of Manchuria and invaded China. In their assault against Shanghai, the Japanese sent the cruiser *Idzumo* into the Yangtze River, where it began firing upon the city. Several miles away, in Nanking, Col Claire L. Chennault, advisor to the Chinese air force, tried to disrupt this attack by sending Northrop 2E bombers against the warship. Piloted by the Chinese, these planes flew over Shanghai and dive-bombed the cruiser. Following behind in a reconnaissance aircraft, Chennault claimed that a five-hundred-pound bomb exploded on the deck and that the ship later sank. "At the end of the war," he explained, "a nose count of the Jap Navy showed the alleged *Idzumo*, sunk in the mud at Kure."[16] Most authorities, however, agree that the bombs fell short and that the cruiser remained unscathed.[17] In any case, this was one of the first attacks by land-based air power against a ship in World War II.

Before America became involved in World War II, the British began fighting Germany for control of the seas around the British Isles. In this struggle, known as the Battle of the Atlantic between 1939 and 1942, 153 German U-boats successfully sank 1,124 British and neutral ships. These losses included the British aircraft carriers HMS *Courageous* and HMS *Ark Royal* and the battleships HMS *Royal Oak* and HMS *Barham*.[18] German submarines sank another 1,160 Allied ships in 1942 and reduced Britain's oil imports to a trickle.[19] "The U-boat attack," acknowledged Winston Churchill, "was our worst evil."[20]

When the war began, Germany had 56 seaworthy submarines. By 1943, however, they had more than three hundred, many of which were patrolling in the mid-Atlantic just south of Greenland. Known as the "Black Pit," this arena was free of Allied air coverage. Because of the submarine's great successes, Churchill told an anti-U-boat committee in October 1942 to find better methods of fighting this menace.[21] One recommendation focused on converting B-24 Liberators into long-range antisubmarine aircraft and deploying them into the Black Pit.[22]

Three months later, 11 Liberators from the Royal Air Force (RAF) Coastal Command's 120th Squadron landed in Iceland. From here they flew into the Black Pit and began patrolling. Armed with machine guns, acoustical homing torpedoes, and fifteen hundred pounds of depth charges, each Liberator had a range of over twenty-three hundred miles and could remain on station for about three hours.[23]

Because Great Britain and the Allies successfully defended several of her convoys, May 1943 became a key turning point in the Battle of the Atlantic. One particular convoy, SC-130, departed Halifax, Canada, on 11 May, with 37 merchant ships and six naval escorts. Proceeding toward England, they sailed for eight days unthreatened through the North Atlantic. The Germans, however, were aware of the convoy's route and prepared for an assault. With approximately 30 submarines in the Black Pit, they planned to coordinate their strikes by using *Rudeltaktiks*, or wolf-pack tactics.[24]

On 19 May, the convoy sighted a distant U-boat and detached naval escorts to drive it underwater. At about 0400, the first RAF B-24 arrived over the convoy. Using airborne radar, it discovered a surfaced submarine and forced it to submerge. Diving down to one hundred feet, the plane crossed over the enemy vessel and dropped three 250-pound depth charges and two acoustic homing torpedoes. After an explosion, U-boat 954 became the B-24's first confirmed kill.[25]

Continuing its patrol, the Liberator sighted five more U-boats. It successfully

forced four to crash-dive and then flew over one submarine that remained on the surface. After the plane sprayed it with machine-gun fire, the U-boat submerged. In each attack, the aircrew marked the spot and called in naval escorts to continue the pursuit. By the end of the three-hour patrol, the Iceland-based B-24 had destroyed one submarine and forced five others to submerge.[26]

During the rest of the day, five more aircraft rotated in and out of the Black Pit. Upon arriving over the convoy at 0915, the second B-24 attacked one submarine and forced six others to crash-dive.[27] In the afternoon, three more planes continued the surveillance.

Air coverage was suspended during the night and restored at first light. During the two-day battle, seven Liberators sighted 24 U-boats and forced 16 to submerge. Of the eight submarines attacked, three were destroyed.[28] When results of these air attacks reached Germany, the high command decided to withdraw their submarines from the Black Pit. Thus unopposed, Convoy SC-130 arrived in Great Britain four days later.

Until this battle, the Germans believed that their U-boats in the Black Pit could fight with impunity. The presence of land-based airpower and other factors such as better intelligence, radar, and the eventual introduction of escort carriers forced a tactical change. During May 1943, Germany lost 41 submarines; of these, 28 were destroyed in the mid-Atlantic.[29] At this point, acknowledged Adm Karl Doenitz, commander of all German U-boats, wolf-pack operations "were no longer possible."[30] "I accordingly withdrew the boats from the North Atlantic."[31] One historian summarized this campaign in these terms:

> The VLR [very long range] B-24 Liberator aircraft of RAF 120th Squadron was the weapon system which tipped the battle in favor of the Allies. What made the aircraft such an effective weapon against the U-boat was their high speed relative to a surface vessel, a speed which permitted them to search a much greater area than a ship.[32]

Doenitz, however, redeployed his submarine forces into the South Atlantic. Since most of the U-boats departed from French ports, patrols began by sailing across the Bay of Biscay. Incapable of transiting totally underwater, these submarines had to surface periodically. As a counter, the British sent long-range aircraft into the bay and began a sea-control campaign later known as the "Big Bay Slaughter."[33]

The lessons from the Gulf War are neither necessarily universal nor applicable in other conflicts.

In October 1942, the US Army Air Forces entered the Atlantic war by creating several land-based antisubmarine squadrons. Officially known as the US Army Air Forces' Antisubmarine Command, these units were designed to help the US Navy hunt for enemy submarines, which, at the time, were patrolling along the Atlantic coast and in the Caribbean.[34]

As the ferocity of battle in the Bay of Biscay increased, two Army Air Forces antisubmarine squadrons joined the hunt. In November 1942, 21 American B-24s landed in South England and began flying out of St. Eval, Cornwall. Between December and March, they flew several patrols across the bay searching for and attacking various German submarines. On occasion they encountered German Junkers Ju-88 aircraft and had to fight their way back to England.

During the bay campaign, the Americans found 20 U-boats and attacked eight. One was a confirmed kill, and three others were classified as damaged.[35] Of the 21 Liberators that began the operation, one plane was lost in combat and six in various accidents.[36]

In March 1943, the two American squadrons were redesignated the 480th Group and sent to Port Lyautey, French Morocco. Here they joined a US Navy squadron of PBY Catalinas, which patrolled primarily along the lit-

toral, up to two hundred miles out. The 480th, however, extended this Atlantic coverage to over one thousand miles.[37]

After several successful submarine attacks, a B-24 crew sighted a U-boat on 17 July about two hundred miles west of Portugal. As the Americans began their attack, the enemy sent a hail of fire into the plane's cockpit, wounding the navigator, bombardier, copilot, and radio operator. Despite damage, the crew dropped a 350-pound depth charge and then struggled back to Port Lyautey. Photos confirmed that the submarine was destroyed.[38] In total, the 480th sank three U-boats and damaged four others.[39] After a four-month tour in Morocco, the 480th deployed to Tunis, where it provided air coverage for Mediterranean convoys.

While the Battle of the Atlantic continued to the end of the war, the spring of 1943 was a turning point. In that year, in addition to land-based airpower, the Allies deployed more convoy escorts, including carriers, and thus extracted a heavy toll on the German U-boats. "The combination of support groups of carriers and escort vessels," acknowledged Winston Churchill, "aided by long-range aircraft of the Coastal Command, which now included American squadrons, proved decisive."[40]

In the Pacific, victory over Japan ultimately depended on the Allies' ability to destroy the enemy's maritime capabilities. As an island nation, Japan depended heavily on imported materials to fuel its steel mills and other industries. Thus, land-based aircraft were used early in the war to attack the Japanese naval and merchant ships. Beginning in September 1942, Fifth Air Force planes, flying out of Port Moresby, New Guinea, started bombing the port city of Rabaul. Through continuous attacks, the Americans eventually sank over 373,000 tons of shipping.[41] After Rabaul, the Fifth flew strikes against enemy vessels in the New Guinea harbors of Wewak and Hollandia.[42]

One of the most successful sea-control strikes occurred off the east coast of New Guinea in March 1943. In that battle, known as the Battle of the Bismarck Sea, approximately one hundred Allied planes, including modified B-25s carrying five-hundred-pound bombs, attacked and successfully destroyed an entire Japanese convoy.[43]

Flying at one hundred feet above the ocean surface, American B-25s skipped their bombs across the water and into the hulls of these ships. At the battle's conclusion, 12 cargo ships and four Japanese destroyers were sunk or severely damaged. Commenting on the Bismarck Sea battle, one historian claimed that airpower "finally achieved what General Billy Mitchell had so breezily predicted 15 years before. They had destroyed an enemy fleet at sea unaided by naval surface forces."[44]

In China, Chennault's Fourteenth Air Force flew against ships in the Gulf of Tonkin, Haiphong Harbor, and Hong Kong and helped close down the Yangtze River. During the fall of 1943, his planes conducted a six-day blitz in which they recorded great achievements. In addition to 71 Japanese aircraft destroyed, contended Chennault, these successes included "three ocean-going ships sunk and damage to docks, coal piles, supply depots, and airdrome installations."[45]

In the fall of 1944, with the Battle of Leyte Gulf under way, the Allies began a campaign to sever Japan's southern sea lanes located in the South China Sea. Initially, though, Fifth Air Force helped secure the Leyte landings by attacking Japanese reinforcement ships in Ormoc Bay, located on the east side of Leyte Island. Each time enemy ships entered the bay, Allied airpower attacked and turned back an estimated 70,000 enemy reinforcement troops.[46] In addition, noted the US Bombing Survey, "twelve merchant ships and 15 naval vessels carrying troops and supplies or performing escort duties were sunk by United States aircraft in or near Ormoc Bay." Of these, Fifth Air Force sank eight.[47]

With the capture of Mindoro in December 1944, land-based airplanes extended their coverage across the entire South China Sea. From these bases they conducted maritime raids against the ports of Saigon, Phan Rang, Cam Ranh, and Hong Kong, and they flew as far north as Shanghai. Japanese merchant and naval ships in or near Hainan Island and For-

"In the spring of 1945, . . . B-29s began mining Japanese waters. . . . From March to the end of the war, these planes flew 1,529 sorties and dropped more than 12,000 mines in various channels, harbors, and straits."

mosa were also successfully assaulted. On 13 June 1945, 62 B-24s loaded with 55-gallon drums of napalm attacked ships in Hong Kong harbor. As they departed, the crews claimed that the bay was a "sea of flames."[48] By March 1945, affirmed the United States Strategic Bombing Survey, "Japanese shipping through the South China Sea had ceased."[49]

Japan's ability to import iron ore and other raw materials now focused on a few sea lanes crossing the Sea of Japan from Manchuria. To further strangle the enemy, airpower was used in the spring of 1945 to plant mines in Japan's inland seas, straits, and harbors.

One of the first successful aerial mine operations occurred in February 1943, when B-24s of the Tenth Air Force closed Rangoon's harbor.[50] This attack was followed by a series of airborne mining campaigns in the Solomon Islands, Bangkok, Netherlands East Indies, South China Sea, and the Bismarck Archipelago.[51]

During the summer of 1944, B-29 Superfortresses of the 20th Bomber Command began flying out of Kharagpur, India. From here, they flew over the Himalaya Mountains and into Chengdu, China. Then they headed out on bombing missions against Japan and Manchuria. One of the first B-29 missions, however, involved a bombing and mining operation against Palembang, Sumatra. On 9 August, 56 B-29s departed Kharagpur and flew to an advance base on the island of Ceylon. Here the planes refueled, remained overnight, and then headed across the Indian Ocean to Palembang. While most of the aircraft bombed the city's oil installation, eight B-29s descended to one thousand feet and planted mines in Moesi River channels leading to the refinery.[52] While the bombing attack accomplished little, the mining operation caused seven ship casualties and closed the river to oil traffic for over a month.[53]

In the spring of 1945, flying out of Mariana Islands, B-29s began mining Japanese waters. Nearly half of these missions were launched against the Straits of Shimonoseki, located between the islands of Kyushu and Honshu. From March to the end of the war, these planes flew 1,529 sorties and dropped more than 12,000 mines in various channels, harbors, and straits.[54]

This aerial effort complemented an ongoing US naval submarine campaign designed to strangle Japan. By the spring of 1945, Japa-

nese imports had declined to about 10 percent of its prewar years, and maritime traffic in the Shimonoseki Straits decreased by nearly 90 percent.[55] In total, B-29 aerial mines sank 287 enemy ships and damaged 323 others. According to the US Bombing Survey, the effects of these operations were devastating:

> The accumulated results of the mining campaign left Japan little hope of continuing the war for long. Resultant shortages of coal, oil, salt, and food contributed so completely to paralyzing industry that shortly before surrender leading industrialists indirectly informed the militarists that industry could not continue. They estimated further that 7,000,000 Japanese would have starved to death if the war had continued another year.[56]

More than anything else, the 1982 Falklands War reemphasized the lethal effects of land-based aircraft armed with antiship missiles.

The mining campaign, however, exacted a toll. Twentieth Bomber Command lost 15 B-29s, and of these, 11 were lost over the Shimonoseki Straits.[57]

The fight for sea control in the Pacific involved more than just American strikes against an unresourceful enemy. Indeed, the Japanese retaliated with one of the most effective antiship weapons yet designed, a manned airborne guided missile. At the time, it was called the kamikaze.

Initial strikes occurred in 1944, during the Battle of Leyte Gulf, when the Japanese sent their kamikazes against the American fleet protecting the landings. One kamikaze dove onto the carrier USS *Santee* and destroyed it. Another hit the carrier USS *Suwanee* and ripped a 10-foot hole in the flight deck. A third struck the carrier USS *Saint Lô* and ignited stored munitions.[58]

After this battle, when the American fleet redeployed to the waters off Okinawa, the kamikazes attacked again. According to one historian, "the Kamikaze was the deadliest aerial antishipping threat faced by Allied surface warfare forces in the war. Approximately 2800 Kamikaze attackers sank 34 navy ships, damaged 368 others, killed 4900 sailors and wounded over 4800."[59] At war's end, the Japanese still had hundreds of kamikazes ready to attack any naval amphibious assault made upon their homeland.

After World War II, US land-based aircraft participated in several other sea-control missions. One of these occurred on 12 May 1975— a Khmer Rouge gunboat crew boarded the American merchant ship *Mayaguez*.[60] After firing a rocket and several machine-gun rounds, the enemy pulled alongside and captured the vessel. Thus began a short conflict in which land-based airpower played a key role.

Shortly after taking the ship, Khmer Rouge guerrillas removed the *Mayaguez* crew and escorted them ashore. At this point, US military forces entered the conflict. While Navy P-3 Orions conducted airborne reconnaissance, USAF A-7s and C-130 gunships attacked several Khmer Rouge gunboats. Three were immediately sunk, and several others were severely damaged.[61]

In an effort to neutralize any remaining enemy soldiers on the *Mayaguez*, an Air Force A-7 Crusader skimmed across the ship's bow and dropped tear gas canisters. While US marines began searching for the American crew on Koh Tang Island, a US Navy destroyer pulled alongside the American merchant ship and recaptured it. After four days of hostilities, the guerrillas suddenly freed their captives.[62]

To this day, there is speculation on why the Khmer Rouge released the crew. Some believe they simply wanted to avoid escalating the conflict. Others claimed that destruction of the gunboats forced the guerrillas to reconsider their plight. One prominent historian, who participated in the battle, contends that "the air presence proved the capability to impose pain, and the sinkings proved the willingness to do so."[63] In any case, with the aid of land-based air power, "a very short war" came to an end.[64]

A B-52 armed with Harpoons. "In 1984, B-52Gs began flying sea-control missions out of Loring AFB, Maine, and Andersen AFB, Guam. . . . Along with planting mines, B-52s conducted simulated Harpoon missile attacks against a variety of ships."

In the 1950s, 1960s, and 1970s, the US Air Force considered sea control a secondary mission. However, during the 1980s, the Air Force upgraded airborne maritime attacks to a primary mission. According to the 1984 Air Force Manual (AFM) 1-1, airpower should be used to "neutralize or destroy enemy naval forces and to protect friendly naval forces and shipping."[65]

The growth of the Soviet naval threat and a maritime war in the Falklands were two factors that encouraged the Air Force to value its sea-control missions. During the 1980s, Soviet naval warships were seen around the world in the Atlantic Ocean and the Caribbean, Mediterranean, and South China seas. In one major naval exercise, the Soviets sent more than 50 ships and submarines into the North Atlantic. Included in this exercise was the extensive use of simulated airborne missile attacks against their own ships.[66] By mid-decade, Norman Polmar suggested that "the Soviet Navy appears to be moving toward a long-range capability of confronting Western or Third World forces at several levels of crisis or combat, including the ability to fight a conventional as well as a nuclear war at sea."[67]

More than anything else, the 1982 Falklands War reemphasized the lethal effects of land-based aircraft armed with antiship missiles. After Argentina invaded the Falkland Islands, the British sent their naval forces into the South Atlantic with the objective of recapturing their territory. Using land-based airpower, the Argentines tried to disrupt these plans.

Early on 4 May, two Argentine naval Super Etendards carrying AM-39 Exocet missiles departed Rio Grande Air Base and headed eastward toward the Falklands and the British fleet. Once en route, the two aggressors acquired vectors from a patrolling Argentine P2-V Neptune aircraft. Then, about 150 miles offshore they refueled from a KC-130 tanker and continued on their trek. Just before entering into shipboard radar range, the two aircraft descended and began skimming across the waves. About 27 miles from their target,

they climbed to five hundred feet and launched their Exocet missiles.[68]

With no reconnaissance aircraft to warn of the oncoming Argentines, the Royal Navy was vulnerable. Because the British ships were unable to detect the incoming Exocets until the last moment, one missile hit the destroyer HMS *Sheffield*. Without exploding, the weapon opened a hole in the ship's side. Fuel from the missile caught fire, and by the end of the day, the British warship sank.[69]

In the US Air Force's new global engagement strategy, sea control must remain an important consideration.

After this success, several other Argentine air force A-4 Skyhawks and Mirages assaulted the fleet, trying to disrupt British amphibious landings in San Carlos Sound. Although unsuccessful in their missions, these planes managed to damage two more ships.[70]

During the war, the Etendards were Argentina's most effective sea-control weapon. On 25 May, two of these planes flew northeast from their base and attacked the British ship *Atlantic Conveyor*. After one missile struck the vessel, a fire broke out and eventually, the ship sank.

Fortunately for the British, the Argentines had only four operable Etendards and very few Exocets. In total, they flew 12 sorties and launched five Exocets. Of these, only two missiles hit their targets. However, because of this threat, the British redeployed their aircraft carriers further eastward, away from the Falklands. Thus, to provide close air support, Harriers had to fly long distances.[71]

While most agree that the Falklands victory was the product of effective British sea power, a few scholars claim that if Argentina had properly planned its sea-control campaign and if it had had a few more antiship missiles, the results might have been different. One particular Falklands War study claims that the Argentines should have sent their Etendards against the British carriers:

> Although they inflicted tremendous damage upon the British, the Argentines failed to strike successfully at Britain's most vulnerable centers of gravity, its carriers. Destroying the carriers would not only have granted Argentina near total air superiority, it would have reversed the outcome of the war. A significant lesson of the air war over the Falklands is that sound operational planning is vital to the air superiority task as it is to all aspects of warfare.[72]

The maritime lessons of the Falklands War were not lost on the Soviets or the Americans. In the Soviet navy digest *Morskoy Sbornik*, one admiral claimed that the British use of self-defense antiaircraft missiles and guns "turned out to be ineffective."[73] In America, US Air Force chief of staff Gen Charles A. Gabriel claimed that the Falklands conflict demonstrated the importance of sea control. Therefore, he reported, "we will be putting more emphasis on such collateral roles as sea-lane protection, aerial minelaying and ship attack."[74] Earlier the US Air Force and US Navy had signed a memorandum of agreement that opened the way for arming B-52s with an antiship missile called the Harpoon.[75]

In 1984, B-52Gs began flying sea-control missions out of Loring AFB, Maine, and Andersen AFB, Guam. For the next several years, these squadrons participated in a variety of maritime exercises designed to test the sea-control mission. Along with planting mines, B-52s conducted simulated Harpoon missile attacks against a variety of ships. After 1989, however, both the Andersen and Loring squadrons were deactivated.[76] Today, sea control is no longer a primary Air Force mission. Consequently, only a few B-52s flying out of Barksdale AFB, Louisiana, and Minot AFB, North Dakota, continue to train in maritime operations.

Although there are no current major naval threats, there are signs that indicate this is changing. A few experts believe Red China is

in the process of adopting a forward *Jinhai*, or green-water, maritime strategy in which it plans to extend its control of the seas outward to over one thousand miles. This Pacific maritime frontier would extend from Vladivostok in the north to the Strait of Malacca in the south. One source estimates that by the year 2000, China will possess a fleet capable of conducting a green-water strategy, and "a blue-water capability is envisaged by the year 2020."[77]

A recent *Foreign Affairs* article entitled "China: The Coming Conflict with America" claims that there are factors which could promote war between the two countries. One of these is Red China's determination to acquire Taiwan. The Chinese have poured extensive money into their military and recently have embarked on a program of weapon modernization. They have acquired early-warning technology, 72 Russian-made Su-27 fighter-bombers, and *Kilo*-class submarines. Since 1994, on their own they have constructed "thirty-four modern war-ships."[78] In addition, noted another new source, there are signs that China may acquire "a naval version of the Russian-designated Su-27 for deployment aboard aircraft carriers."[79]

Despite the questionable future of Red China's maritime strength, one strategic fact remains constant: water covers approximately three-fifths of the globe. Thus, in the US Air Force's new global engagement strategy, sea control must remain an important consideration.[80] In the past, air power was often successful. Among the spectrum of achievements, one of the more significant triumphs was the use of land-based air power against ships. □

Notes

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17. Jack Samson, *Chennault* (New York: Doubleday, 1987), 23; and Martha Byrd, *Chennault: Giving Wings to the Tiger* (Tuscaloosa, Ala.: University of Alabama Press, 1987), 76.
18. Clay Blair, *Hitler's U-Boat War* (New York: Random House, 1996), 418. Blair points out that German admiral Doenitz wanted land-based planes, but they were too little and too late. See page 423.
19. Van der Vat, 309.
20. Winston S. Churchill, *The Second World War*, vol. 4, *The Hinge of Fate* (Boston: Houghton Mifflin Company, 1950), 125.
21. Ibid., 130.
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For good or for ill, air mastery is today the supreme expression of military power, and fleets and armies, however vital and important, must accept subordinate rank.

—Sir Winston S. Churchill