Theorists and practitioners have long debated what constitutes the most effective use of air power. Arguments have pitted advocates of deep strike (strategic attack and air interdiction) against proponents of a combined arms, direct attack on enemy armies (close air support and battlefield air interdiction). This article examines this debate in the context of the 1972 Easter Offensive in the Vietnam War. The traditional conclusion that the air interdiction and strategic attack of the Linebacker I and II campaigns were decisive is wrong. Instead, air power was most effective in the direct attack on the North Vietnamese Army (NVA) in the south.

Most accounts of U.S. air power in the latter phases of the Vietnam War revolve around the Linebacker campaigns of 1972. Although scholars offer a range of explanations for the success of these campaigns, the United States Air Force (USAF) has long seen them as proof of the politically decisive effects of interdiction and strategic attack. The widely held belief that these independent air operations on North Vietnam coerced Hanoi into signing the 1973 Paris peace accords is wrong. It was, rather, the defeat of the NVA during the Easter Offensive in South Vietnam that convinced the North to accept a peace agreement in October 1972. U.S. air power was decisive, not with deep interdiction or strategic air strikes, but by stopping North Vietnam’s blitzkrieg in the south and breaking its army in the process.

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U.S. air power proved most effective in the role of close air support (CAS) and battlefield air interdiction (BAI), relying on tactical aircraft (tacair), ground radar controlled B-52 Arc Light strikes, and gunships to attack NVA conventional formations. Although the aircraft and weapons were important, it was the system of U.S. targeting and fire control that was the critical factor in the U.S./South Vietnamese victory in the south. A small cadre of U.S. Army ground advisers and Air Force liaison officers used the tactical air control system (TACS) to provide the targeting information, coordination, and final strike control for successful air operations. Where a U.S. TACS was present, U.S. air power and South Vietnamese troops formed an effective combined arms team, blunting the NVA attacks near Saigon and in the Central Highlands. By contrast, in Quang Tri Province, where the U.S. TACS had been transferred to Vietnamese control, the lack of effective coordination resulted in the collapse of the South Vietnamese Army of the Republic of Vietnam (ARVN) along the demilitarized zone (DMZ). The subsequent reintroduction of a U.S. TACS, the replacement of the South Vietnamese commander, and hard fighting on the part of the ARVN culminated in the recapture of Quang Tri City and the final collapse of the NVA’s Easter Offensive. In the fall of 1972, with its army crippled and its forces falling back on all fronts, North Vietnam opted to pursue a peace deal with the United States.

Only in May 1972, in the second month of the Easter Offensive, did the United States launch the Linebacker I air interdiction campaign to cut the flow of supplies to the south. By that time, however, the NVA had already deployed its heavily armored divisions and had stockpiled sufficient supplies and ammunition to wage a multi-month blitzkrieg in the south. As a result, Linebacker I did not play a significant role in the defeat of the NVA in the Easter Offensive, nor did it play a major, independent role in compelling the North Vietnamese to seek a diplomatic agreement.

The persistence of the Linebacker myth and the neglect of the role of CAS and BAI in the Easter Offensive have their roots in service politics. For the USAF, Linebacker I and II were the exorcism of the political constraints of the 1965–68 Rolling Thunder air campaign and a validation of precision attack on strategic targets. The USAF had little institutional interest in telling the story of how independent air operations in North Vietnam failed in Linebacker I or how Linebacker II succeeded only in bringing the North Vietnamese back to Paris to sign an agreement to which they had previously agreed. It had even less incentive to acknowledge the decisive impact of CAS and BAI missions in the south, as they represented a subordination of air assets to ground commanders. Similarly, the Army had little to gain by high-
lighting how the largest battle of the Vietnam War was won, not by U.S. combat troops, but by a weak ally supported by a handful of military advisers and air liaison officers who coordinated the firepower of the Air Force and Navy to tip the scales against a more powerful opponent.

This reexamination of the air offensives of 1972 has a direct bearing on the contemporary debates over U.S. air power and its integration with ground forces. First, it shifts the debate from the general efficacy of air power to an evaluation of rival uses of air power. The experience of the Easter Offensive suggests that direct attack on conventional armies is more effective than interdiction and strategic attack. By contrast, the history of the 1972 air campaigns undercuts claims that Linebacker I and II are examples of decisive air campaigns independent of friendly ground forces. Second, this case highlights the primacy of the air control system and missions over the aircraft and weapons involved. Having a system to integrate U.S. air power into a friendly ground force’s scheme of operations is as important as the specialized platforms, sensors, and precision weapons employed to seek out and destroy enemy armies. Third, the key ingredient in the air control system is the small cadre of trained ground advisers, air liaison officers, observers, and controllers. The history of the Easter Offensive suggests that a sufficient number of skilled personnel, supported by a moderately capable client army, can stop and even roll back large-scale conventional invasions. Although much has changed in weapons technology since 1972, the primacy of the air control system and the importance of small numbers of skilled air and ground controllers have not. The experience of 1972 strongly suggests that the presence of ground advisers and air liaison officers in a U.S.-run TACS can make the difference in the effective use of U.S. air power alongside allied ground forces. These findings have important implications for the contemporary debates over the significance, scale, and efficacy of U.S. air power employment and advisory support across a range of theaters including Afghanistan, Libya, Yemen, Syria, Iraq, and Ukraine.

This article proceeds in five sections. The first section examines U.S. air power doctrine and the distinction between attacking enemy armies directly with close air support and battlefield air interdiction, and the indirect approach of strategic attack and air interdiction. In addition, we review several specific air power technologies employed in Vietnam for CAS and BAI: tacair, B-52 Arc Light, and gunships. The second section evaluates the impact of air power on two of the three major battles of the Easter Offensive: the fall of Quang Tri Province and the defense of An Loc. The outcomes of all three battles—Quang Tri, Kontum, and An Loc—were determined before Linebacker I could have had an impact on the battlefield, thus isolating the ef-
fect of CAS and BAI on the North Vietnamese Army. The third section evaluates Linebacker I and its impact on the resupply of the NVA fighting in South Vietnam. The fourth section assesses the role of air power in the South Vietnamese recapture of Quang Tri City, an event that directly led to Hanoi seeking a diplomatic solution in October 1972. In the fifth section, we review the diplomatic maneuvering that delayed a settlement and the impact Linebacker II had on the final agreement in 1973.

Air Force Counterland Doctrine

As a result of its experiences in World War II and Korea, the USAF had by the time of Vietnam refined its Counterland doctrine to include interdiction and close air support. Airmen defined interdiction as “the application of air fire power for the purpose of neutralizing, destroying or harassing enemy surface forces, resources and lines of communication” deep inside enemy territory. Battlefield air interdiction, by contrast, directly attacked the enemy’s fielded forces, lines of communication, and supplies within the battle area. The delineation between an air interdiction and a battlefield air interdiction mission was the bomb line. Beyond the bomb line, air commanders selected targets, while missions inside the bomb line required coordination with ground commanders. In addition to BAI, air power short of the bomb line could be employed as close air support. CAS placed even more controls on aviators than BAI, as strikes required detailed coordination and clearance by the friendly ground commander operating in close proximity to enemy forces.

All of South Vietnam and Route Pack 1 just north of the DMZ fell within the bomb line. As such, U.S. air strikes within this territory were under the con-

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3. The Battle of Kontum, which mirrors that of An Loc, was excluded from this article because of space constraints. A full discussion of the Kontum case is available at philhaun.scripts.mit.edu/Researchwebpage/.
8. The bomb line is now referred to as the fire support coordination line.
9. For deconflct the U.S. Air Force and Navy divided North Vietnam into six sections called Route Packs. Route Pack 1 was the most southern and Route Packs 5 and 6 the most northern, next to the Chinese border.
control of U.S. Army Gen. Creighton Abrams, who had replaced Gen. William Westmoreland as commanding general of MAC-V in 1968. 10

The United States relied on three air power technologies for BAI and CAS. 11 First, tacair included an assortment of fighter-bombers flown by the U.S. Air Force, Navy, and Marine Corps as well as the South Vietnamese Air Force (VNAF). 12 These fast jets carried an assortment of air-to-ground munitions. 13 Tacair was most effective during the day and under conditions where aircrew could visually identify targets or be directed by forward air controllers (FACs) who located, identified, and marked targets for them. 14 Tacair proved lethal against tanks, artillery, and concentrated troops in the open.

Tacair could operate in high threat environments where North Vietnam operated SA-2 surface-to-air radar-guided missiles and MiG interceptors. As a result, tacair could be employed where B-52s, gunships, and airborne FACs could not, just north of the DMZ in Route Pack 1 and just south of it in Military Region I (MR I). 15 Because of its survivability and versatility, tacair was also tasked with penetrating deep inside North Vietnam’s air defenses in the Rolling Thunder and Linebacker I and II air campaigns.

Whereas tacair was most effective during the day, B-52 Arc Light missions offered distinct advantages for night and all-weather CAS and BAI. Vulnerable to SA-2s and MiG interceptors, the B-52s did not participate in the Rolling Thunder air strikes aimed deep into North Vietnam. General Westmoreland instead utilized the heavy bombers for BAI throughout South Vietnam and

10. Pacific Air Force Headquarters (HQ PACAF), Evaluation Report for the NVN Offensive (April–August 1972), K717.04-9, AFHRA. In June 1972, Abrams was appointed chief of staff of the Army and was replaced as MAC-V by Gen. Frederick C. Weyand.
11. We also examined the impact of helicopter gunships using experimental tube-launched, optically tracked, wire-guided anti-tank missiles in the battle of Kontum. For a complete account of this technology, see philhaun.scripts.mit.edu/Researchwebpage/.
12. These included A-4s, A-6s, A-7s, F-4s, F-100s, and F-105s.
15. From March 31 to October 23, 1972, the U.S. Air Force, Navy, Marine Corps, and Vietnamese Air Force conducted more than 18,000 strikes in Southeast Asia (North and South Vietnam, Cambodia, and Laos), of which 94 percent were flown as CAS or BAI missions. Sixteen thousand of these missions were flown south of the DMZ in South Vietnam, Laos, and Cambodia, while another 1,000 were conducted just north of the DMZ in Route Pack 1. Still further north, another 1,250 missions were flown in the North Vietnamese panhandle in Route Packs 2, 3, and 4 between the 18th and 20th parallels, and 360 strikes were conducted north of the 20th parallel, near Hanoi, Haiphong, and the Chinese border. See THOR Database, March 31–October 23, 1972, courtesy of U.S. Air Force Lt. Col. (ret.) Jens Robertson.
across the border into Laos, Cambodia, and Route Pack 1. B-52 air strikes packed a punch, as a three-ship formation could spread up to 320 500-pound general-purpose bombs over an area of one-by-two kilometers (km).

By the time of the 1968 Tet Offensive, the B-52 Arc Light missions had proven lethal against concentrations of enemy troops in the open. Arc Light was the code name for missions flown under the control of one of five ground-based radars distributed throughout South Vietnam and Thailand. By 1972, B-52 Arc Light missions had become accurate enough to employ within a kilometer of friendly positions, which made them capable of night and all-weather CAS. As the senior fighter duty officer at the II Direct Air Support Center (DASC) later explained, the procedures used to control tacair and B-52s varied considerably: “TACAIR is used with FACs. FACs go out and look for targets, or the ground commander will direct them to a target or give them an area to check out. He calls back here with the coordinates to be cleared, and also requests air at the same time. We clear the target here by going through ARVN channels. After that’s done, we have our incoming air that’s been fragged to us; we parcel it out to the FAC depending on what priority target he’s got. . . . [As for the B-52s] frankly, that’s no longer an Air Force weapon. We fly the airplanes, but the (U.S.) Army puts in the target request; they handle the clearing, etc.”

A single B-52 bomb run could destroy most of the supplies and troops within its vast bomb pattern. Whereas previously the NVA and the Viet Cong had been able to escape B-52 strikes by tunneling, in the Easter Offensive NVA units on the march were exposed to air attack. For all its capability, the B-52 did have limitations. First, air strikes were only as effective as the quality and timeliness of available intelligence. Second, the NVA reacted to B-52 strikes by dispersing troops and supplies to decrease


17. To increase the bomb load, the older B-52D models were modified to carry 108 conventional 500-pound bombs. The B-52G models had internal fuel cells that increased range but, as a result, they could carry only 27 conventional bombs, just double the number carried by an F-4. See ibid., p. 22.


the effectiveness of the strikes. Dispersion increased the survivability of troops but also made it more difficult for the NVA to concentrate to conduct offensive operations. Third, B-52 air strikes, though lethal against soft targets, were less so against armor and artillery.\textsuperscript{20} As such, the B-52 was best suited for area targeting.

A third weapons system developed during the Vietnam War was the fixed-wing gunship. The USAF began by converting cargo planes into gunships, first with the AC-47, then the AC-119, and finally the AC-130.\textsuperscript{21} These gunships took advantage of a unique operating method in which the pilot used a pylon turn to train a battery of laterally mounted guns on a target. The pylon turn enabled the pilot to adjust fires in close proximity to friendly forces.\textsuperscript{22} By 1972, more than two dozen AC-119s and AC-130s operated in Southeast Asia.\textsuperscript{23} The AC-130 proved most effective against NVA conventional forces.\textsuperscript{24} The gunship was armed with a 40-millimeter cannon, and in early 1972, the first AC-130 was upgraded with a 105-millimeter cannon, giving the aircraft an improved antiarmor capability. Its low-light television and infrared sensors combined with its digital fire control computer and inertial navigation system to make the AC-130 adept at night operations.\textsuperscript{25} From 1968 to 1972, during the Commando Hunt interdiction campaigns along the Ho Chi Minh Trail, the AC-130 earned a reputation as a truck killer. In the Easter Offensive, during the battles of An Loc and Kontum, South Vietnamese forces relied on gunships to loiter for prolonged periods over friendly positions and provide precise, around-the-clock CAS during the most critical portions of the battles.\textsuperscript{26} Although the AC-130 could safely operate above small arms fire, it was vulnerable to surface-to-air missiles and antiaircraft artillery. The loss of an aircraft near the DMZ on March 28, 1972, prompted the gunships to be withdrawn from operations near Quang Tri.


\textsuperscript{22} Ibid., p. 2.


\textsuperscript{24} From April to June 1972, AC-130s conducted 1,117 combat sorties in South Vietnam, Laos, and Cambodia, with 55 percent of the missions providing CAS for troops-in-contact situations. See Eighth Tactical Fighter Wing, \textit{History of the Eighth TAC Fighter Wing, Vol. 1: Narrative}, April–June 1972, K-WG-8-H1, AFHRA, pp. 16, 18, 19.

\textsuperscript{25} HQ PACAF, \textit{Evaluation Report for the NVN Offensive (April–August 1972)}.

\textsuperscript{26} Eighth Tactical Fighter Wing, \textit{History of the Eighth TAC Fighter Wing, Vol. 1}, p. 24; and HQ PACAF, \textit{Evaluation Report for the NVN Offensive (April–August 1972)}. 
The Easter Offensive

In 1968, following the operational defeat of the NVA and the Viet Cong in the Tet Offensive, Hanoi began reconstituting its forces in the south. In response, the USAF conducted a series of seasonal air interdiction campaigns into Laos, known as Commando Hunt, with the objective of curbing the flow of men and supplies down the Ho Chi Minh Trail. In 1970, U.S. and ARVN troops crossed into Cambodia to cut enemy lines of communication to the port of Sihanoukville and deny sanctuary for NVA units threatening the southern Military Regions III (including Saigon) and IV (the Mekong Delta) in South Vietnam.

The success of the joint U.S./ARVN operations in Cambodia encouraged U.S. commanders to propose a more ambitious ARVN ground offensive in Laos to cut the Ho Chi Minh Trail.27 The resulting operation, Lam Son 719, was launched in late January 1971 to disrupt the NVA buildup adjacent to MR I in the western Quang Tri Province and test the mettle of the ARVN.28 Critically, the domestic blowback from the invasion of Cambodia had led to a legal prohibition on the employment of U.S. ground forces outside South Vietnam. As a result, the 20,000 ARVN troops of the Lam Son 719 raid would enjoy ample U.S. air support but would advance without the direct support of U.S. combat troops or advisers. Although the first week of the operation was encouraging, the raid stalled as South Vietnam’s president, Nguyen Van Thieu, sought to limit ARVN casualties and the NVA concentrated more than 60,000 troops to cut the ARVN salient into Laos.29 After forty-five days in Laos, the ARVN units withdrew. For the ARVN, the results of Lam Son 719 were Pyrrhic at best; although it had managed to destroy numerous NVA stockpiles, the heavy losses and the mixed performance of the South Vietnamese units undermined ARVN morale and drew into question the efficacy of Vietnamization. Although the NVA lost more than 20,000 troops to U.S. air power and ARVN firepower, the North Vietnamese were emboldened by the outcome of the Laotian campaign.30

30. Ibid., pp. 154, 162–163, 188. Vietnamization was the Nixon administration’s policy of training and equipping the South Vietnamese military to take over combat roles as the U.S. military presence in South Vietnam was reduced. See Wilbanks, Abandoning Vietnam, pp. 5–20.
The North Vietnamese decision to launch the Easter Offensive in March 1972 was a reaction to opportunities and threats. The failure of Lam Son 719 suggested that a major conventional offensive against the ARVN might succeed; the steady withdrawal of U.S. ground forces meant that the ARVN would face such an invasion alone. Still, there were reasons for North Vietnam to fear that this window of opportunity might be closing. In the aftermath of the Tet Offensive of 1968, the U.S. military and its ARVN allies had been increasingly successful in suppressing resistance in the south. President Richard Nixon’s successful overtures to the Chinese and his pursuit of détente with both China and the Soviet Union now jeopardized North Vietnam’s ties with its two sponsors. Unless the North moved swiftly to topple its neighbor, it faced the prospect of a stronger Saigon and diminishing support from its Communist patrons.

Recent research on North Vietnamese decisionmaking suggests that it was Le Duan and Le Duc Tho who championed a major, conventional offensive to resolve these dilemmas. At a minimum, such an offensive would upset the Nixon administration’s progress in isolating the regime from its sponsors; at best, it might break the ARVN and trigger the southern uprising the North had failed to achieve in 1968. Having decided on an invasion, the NVA next needed to translate these abstract goals into concrete military objectives. The destruction of large ARVN units and the seizure of major cities and towns were seen as ways to shatter Vietnamization, strengthen the North’s hand in the Paris negotiations, and precipitate the collapse of the South Vietnamese regime.

To accomplish these sweeping goals, the North Vietnamese committed fourteen of its fifteen divisions and twenty-six separate regiments, a total of between 130,000 and 150,000 troops. These units were equipped with new Soviet conventional equipment to include 1,200 tanks and armored fighting vehicles, long-range artillery, advanced air defense systems, and anti-tank guided missiles. The NVA forces would attack on three separate axes: the main attack across the DMZ in MR I, a second attack from Cambodia toward Saigon in MR III, and a third attack from Laos and Cambodia into the Central Highlands of MR II (see map 1). A breakthrough on any of these axes would

34. For a discussion of North Vietnamese debates about the main effort, see Nguyen, *Hanoi’s War*, p. 245.
Map 1. South Vietnam and the Easter Offensive

NOTE: Map reprinted with permission from the West Point Department of History, http://www.westpoint.edu/history/SiteAssets/SitePages/Vietnam%20War/vietnam%20war%20map%2033.jpg.
be fatal; the wide distribution of the attacks forced the South Vietnamese to divide their attention and resources. On each of the axes, North Vietnam planned to combine long-range, heavy artillery fire with the shock of tank attacks to shatter ARVN resistance and produce a breakthrough that could be exploited by its infantry and mechanized formations. 35

On paper, the ARVN was large, robustly equipped, and reasonably well trained. On the eve of the invasion, it boasted eleven infantry divisions, fifty-eight artillery battalions, nineteen armor battalions, and an additional 550,000 men of the Regional Forces and Popular Forces. This otherwise impressive force faced four problems. First, the removal of U.S. ground troops required the ARVN to thin its defensive lines. In MR I, the target of the North Vietnamese main effort, 80,000 U.S. troops had been replaced by 25,000 ARVN troops holding the same ground. 36 Second, the geography of South Vietnam gave the North Vietnamese an opportunity to strike at multiple points from its sanctuaries and left the ARVN with no easily defensible frontiers or strategic depth. Third, the quality of the ARVN leadership varied widely; President Thieu’s struggle to maintain power and preserve the Republic of Vietnam led to countless political compromises that put political generals with little combat experience in critical positions. Fourth, the ARVN had been focused almost exclusively on counterinsurgency rather than on conventional warfighting. Although this had contributed to impressive gains in pacification from 1968 to 1972, it meant that the ARVN lacked experience in combined arms warfare. 37

Although the United States had removed almost all of its ground forces by late March 1972, the U.S. advisory command (MAC-V) and air forces remained in place. The senior U.S. commander, Gen. Creighton Abrams, recognized the North Vietnamese buildup in the fall of 1971. He correctly assessed that the attack would be a massive affair and the ultimate test of Vietnamization. 38 Abrams’s plan was to use the NVA’s offensive as an opportunity to focus U.S. firepower and inflict overwhelming damage on North Vietnam. 39 The records of Abrams’s staff meetings in late 1971 and early 1972 reveal a clear anticipation of the centrality of U.S. air power and particularly the power of B-52 Arc

37. Ibid., p. 166.
39. Ibid., pp. 568, 779, 782.
Light missions inside South Vietnam. Abrams was equally adamant that such fires be targeted by U.S. advisers or forward air controllers: “You know, air is really very good if you’ve got a way of putting it on the enemy, and it’s always really tied down to that—some guy out there that can see them, or knows where they are, and if he’s got communications to a FAC, you’re in business. And if you haven’t got that, if you haven’t got that, you’re going to wind up bombing trees.”

Stripped of U.S. ground forces, Abrams planned to use the B-52s as his mobile reserve and the U.S. advisers as his eyes to break the impending North Vietnamese onslaught.

Commando Hunt VIII, the latest air interdiction campaign against the Ho Chi Minh Trail, did not stop the deployment of enemy forces but did delay the NVA’s timetable. As a result, Hanoi postponed the start date for invasion until the end of March and shifted the primary front from MR III near Saigon to MR I next to the DMZ to shorten its supply lines.

The following section evaluates the impact U.S. air power had on two of the three major battles that occurred at the onset of the Easter Offensive: the fall of Quang Tri Province near the DMZ and the defense of An Loc near Saigon.

Critically, all three battles were decided before the Linebacker I air interdiction campaign could have had an impact on their outcomes. As such, the effects of air power were limited to direct attacks by CAS and BAI on the NVA’s fielded forces. At An Loc, U.S. air power played a key role in stopping the NVA’s offensive and destroying large portions of the North Vietnamese army. The fall of Quang Tri, however, is the story of the failure of U.S. air power to stop the NVA advance.

**THE BATTLE IN THE NORTH: MR I AND THE FALL OF QUANG TRI**

On March 30, 1972, the Communist offensive opened with a massive artillery barrage aimed at ARVN positions south of the DMZ. The ARVN forces were spread across a series of firebases originally established by the U.S. military to support counterinsurgency and fend off attacks from the sanctuaries in Laos.

Taking advantage of the longer range of its artillery, the NVA fired more than 5,000 artillery shells and rockets in the first twenty-four hours of the attack. These fires largely silenced the ARVN artillery arrayed across the twelve

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40. Ibid., p. 784.
41. Ibid., pp. 782, 807.
43. The third battle of Kontum can be reviewed in an extended version of this article at philhaun.scripts.mit.edu/Researchwebpage/.
44. Thi, *The Twenty-Five Year Century*, p. 267; and McKenna, *Kontum*, p. 64.
northern firebases, allowing NVA infantry to encircle those isolated posts. The 40,000 troops of the 304th and 308th Divisions and three separate infantry regiments, supported by 200 tanks, enveloped the ARVN frontline positions from the north and the west.46

The defenders in MR I were unprepared for an assault of this scale and intensity. The guardian of the northern border was the newly formed ARVN 3rd Division, numbering roughly 11,000 men.47 Before the offensive, the ARVN command had been confident that its artillery and U.S. air power would be sufficient to defeat any assaults launched across the open terrain south of the DMZ.48 The 3rd Division was not prepared, however, to respond to an invasion without fire support.49 To make matters worse, the division had ignored specific invasion warnings from its own Joint General Staff and was instead engaged in a rotation of two of its three regiments on the day of the North Vietnamese attack.50

A successful forward defense would have required the timely application of overwhelming artillery and air power and robust ARVN resistance on the ground. For several reasons, neither of these came to pass. First, the NVA artillery attack destroyed or silenced the ARVN artillery; without the use of its artillery, the ARVN were unable to defend the firebases, fire on the attacking columns, or suppress the NVA artillery. Second, bad weather prevented the use of tacair. During this critical first week, the only sources of fires were unobserved B-52 Arc Light missions and naval gunfire from U.S. destroyers offshore. Third, the Communists had moved substantial air defenses, including SA-2 radar-guided missiles, into the forward area; these defenses led to the withdrawal of vulnerable U.S. and Vietnamese aircraft, including fixed-wing gunships. And finally, as part of the Vietnamization process, the United States had removed its tactical air control system from MR I. For the first month of the invasion, difficulties in coordinating observers, aircraft, and artillery severely limited the effectiveness of U.S. and ARVN firepower in the north.

Under such adverse conditions, the forward ARVN line began to crumble on the second and third days of the offensive.51 Once the line of forward fire bases had been breached, the ARVN scrambled to establish a defensive line along the Cua Viet River anchored around the town of Dong Ha north and west of Quang Tri City. The difficulties experienced by the North Vietnamese in coor-

47. Turley, The Easter Offensive, p. 23.
51. Ibid., p. 73.
dinating their armored assault and delays in moving their own artillery forward led to a temporary pause. Gen. Houang Xuan Lam, the senior ARVN commander in the north, took this as an opportunity to launch a counteroffensive on April 14, Operation Quang Trung 729. Lam lacked the reserves, air power, and coordination, however, to make any substantial advance against the numerically superior NVA forces; instead, the offensive further weakened the 3rd Division’s defenses and set the stage for the final ARVN collapse in Quang Tri Province.52

On April 27, the NVA renewed its attack with another massive artillery barrage followed by a tank attack. Once again, weather severely limited the effectiveness of U.S. and South Vietnamese tacair. The ARVN was driven back from the Cua Viet River and was encircled in the provincial capital of Quang Tri. A flurry of contradictory orders from General Lam first to withdraw and then to hold in place contributed to the disintegration of the defenses of Quang Tri and a pell-mell retreat toward Hue. By May 2, the ARVN 3rd Division had been destroyed and the entire province of Quang Tri was in NVA hands.53

The collapse at Quang Tri led General Abrams to intercede with President Thieu and demand that General Lam be replaced by Lt. Gen. Ngo Quang Truong.54 Truong’s prompt moves to prepare a new defensive line along the My Chanh River north of Hue and the A Shau Valley in the west marked the end of the Communist advance in MR I.55 The ARVN losses during the month of withdrawal had been severe. In addition to the disintegration of the 3rd Division, the South Vietnamese had suffered 50 percent casualties in its ranger units and had lost 140 artillery pieces and more than 200 armored vehicles.56

AIR POWER AND THE FALL OF QUANG TRI
The South Vietnamese Air Force maintained a fleet of light, fixed-wing, propeller-driven, O-1 forward observation aircraft, along with A-1 and A-37 attack aircraft to provide CAS and BAI for MR I. The VNAF was quickly overwhelmed, however, by the magnitude of the NVA’s offensive and the lethality of its air defenses. As a result, the ARVN relied on U.S. air support. At the outset of the invasion, the USAF had more than 180 forward air controllers, 200 tacair, 23 fixed-wing gunships, and 30 B-52 bombers deployed to South

53. Ibid., p. 145.
54. Ibid., pp. 141–142.
55. Thi, The Twenty-Five Year Century, p. 279; and Willbanks, Abandoning Vietnam, p. 149.
Vietnam, Thailand, and Guam. In April and May 1972, additional deployments brought the number of USAF and Marine Corps tacair up to 417 fighter-bombers and 171 B-52s. In addition, the U.S. Navy deployed 180 tacair aboard two carriers in the Gulf of Tonkin. This number doubled in early April with the addition of two more carriers, and a total of six carriers were available by early June. The U.S. air order of battle by May totaled more than 600 tacair, 171 B-52s, and 28 fixed-wing gunships, a force sufficient to provide air support for Quang Tri, An Loc, and Kontum.

Even this massive influx of tacair, B-52s, and gunships could not prevent the fall of Quang Tri for three reasons. First, the NVA timed the invasion to take advantage of poor visibility and low cloud ceilings. Continuous heavy rain and cloud cover in MR I during the first two weeks of the offensive severely limited the use of tacair. As a result, the NVA could push its mechanized forces across the flat plains of MR I with minimal losses. The United States fell back on all-weather, B-52 Arc Light strikes, but these were hampered by the lack of accurate and timely coordinates. U.S. naval gunfire was also used against targets near the coast, but poor weather limited the ability of forward observers to direct those fires. By the time the weather improved in mid-April, the impact of U.S. air strikes on the NVA assault proved to be too little, too late.

Second, the NVA increased its air defenses in MR I by pushing SA-2 radar-guided missiles up to and across the DMZ and by deploying large numbers of medium and heavy antiaircraft artillery. During the first weeks of the invasion, the NVA fired 1,000 SA-2 missiles near the DMZ. As a result, fixed-wing gunships could no longer operate near Quang Tri, and the low- and slow-flying FACs struggled to locate targets or control tacair strikes near the DMZ.

61. HQ PACAF, Summary of Air Operations in Southeast Asia, Vol. 93, p. 6-2; and Truong, The Easter Offensive of 1972, p. 38.
63. Ibid., p. 24.
Even the high-flying B-52s were restricted from operating north of Quang Tri City after one was struck by an SA-2 missile. Tacair continued to operate in MR I and Route Pack 1, but not without taking its own losses, as seven jets were downed by NVA air defenses in April.

Third, the Vietnamization of the tactical air control system severely limited the impact of U.S. air power in the defense of Quang Tri. Unlike weather or enemy air defenses, this factor was within U.S. control. The TACS was the organization responsible for integrating air power to support friendly ground forces. Overall responsibility for allocating air power in South Vietnam fell to the Tactical Air Control Center based near Saigon and manned by USAF and VNAF personnel. The Center planned and coordinated air operations, as well as directing and, when necessary, diverting air assets to the four military regions. The second level of air control was the Direct Air Support Center (DASC) in each military region. DASCs distributed air assets to ground units based on requests for air support. For this role, they had direct radio contact with aircraft that checked in to verify missions or be diverted to higher priority/urgent requests. The third level of air control was the tactical air control parties (TACPs) assigned directly to ARVN units. TACPs consisted of air liaison officers, responsible for coordinating and initiating air strike requests, along with ground and airborne FACs, who identified and marked targets and provided clearance for air strikes.

By the end of 1971, the VNAF had assumed responsibility for the DASC in MR I. By contrast, the transition to VNAF control of the DASCs in MR II and III was not scheduled to take place until June 1972. From the outset, the Vietnamese DASC struggled to cope with the influx of hundreds of U.S., English-speaking-only aviators crowding the skies and airwaves. Poor coordination between the VNAF air liaison officer and the 3rd Division planning staff and the ineptness of VNAF FACs prevented the U.S. military and the ARVN from applying the full weight of the air power available. Inadequate equipment and training left the FACs unable to perform the critical task of visual reconnaissance (identifying targets and providing updated battlefield intelligence) and of air strike control (providing terminal strike control for CAS).

Problems with both the air liaison officers and FACs were the result of the hasty expansion of the VNAF under Vietnamization. A shortage of qualified

64. HQ PACAF, Summary of Air Operations in Southeast Asia, Vol. 93, p. 2-7.
65. Seven jets were downed by NVA air defenses in April 1972. See ibid., p. 4-1.
67. Ibid., pp. 44-46.
68. Ibid., pp. 75-77.
pilots meant that many air liaison billets were left vacant or manned by inexperienced officers. Also, unlike the experienced American FACs, VNAF FACs were not pilots but observers who flew alongside inexperienced O-1 observation pilots. The breakdown of the TACS in MR I meant the VNAF could not effectively coordinate air strikes, nor could the FACs effectively employ tacair even when the weather allowed. Not until June, following the fall of Quang Tri, was a U.S. TACS reintroduced to MR I, a move that proved critical to the retaking of Quang Tri.

The fall of Quang Tri is the story of the inability of the United States to use its firepower to compensate for the weakness of its ally. The defense at An Loc considered next, however, demonstrates the decisive contribution that U.S. air power played under more favorable weather and air defense conditions and when operating with a functional tactical air control system.

THE BATTLE IN THE SOUTH: MR III AND THE SIEGE OF AN LOC
The NVA attack in Military Region III was a direct thrust from the Cambodian sanctuaries down Route 13 toward Saigon. After a feint toward the more densely populated Tay Ninh Province, the NVA sought to destroy the northernmost ARVN stronghold at Loc Ninh and then isolate and destroy the ARVN position at An Loc. If the NVA could capture An Loc, it would have 47 miles of open road to the capital, Saigon. The NVA committed 35,000 troops of three infantry divisions, one artillery division, and a tank regiment to this drive on the capital.

The ARVN 5th Division and its supporting elements stood in the way of the NVA breakthrough. Two battalions of infantry and two batteries of artillery were located at Loc Ninh; the remainder of the ARVN troops were located just south in An Loc or spread across a handful of fire support bases on the northern and western flanks of Binh Long Province. As the attack unfolded, the province chief, Tran Van Nhut, committed an additional 2,000 Regional Force and Popular Force units to the defense of An Loc, bringing the total inside An Loc to 6,200 Vietnamese troops and 25 U.S. advisers.

While the April 2 NVA feint at the ARVN firebases to the west in Tay Ninh

69. Ibid., pp. 23–29.
73. Ibid., pp. 30–31, 44.
Province inflicted heavy losses on the defenders, intelligence soon indicated that the main thrust would come in Binh Long Province along Route 13. On April 5, the 5th Viet Cong Division struck Loc Ninh with heavy artillery, tanks, and infantry. U.S. advisers brought continuous tacair, Cobra helicopter, and fixed-wing gunship attacks to break the first NVA assaults. Although the ARVN resistance and aerial firepower held the NVA off for three days, these measures were ultimately insufficient to stop the wave of attackers. The complexity of orchestrating artillery, tacair, attack helicopter, and gunship strikes severely tested the U.S. ground advisers and air controllers.

The stubborn resistance at Loc Ninh bought time for those at An Loc to organize their defense. The senior U.S. adviser in MR III, Lt. Gen. James Hollingsworth, was confident that U.S. firepower could offset the attackers’ numerical advantage: “Once the Communists decided to take An Loc, and I could get a handful of soldiers to hold and a lot of American advisers to keep them from running off, that’s all I needed. Hold them and I’ll kill them with air power; give me something to bomb and I’ll win.” This then was the formula that would define U.S. efforts in all the defensive battles of the Easter Offensive. ARVN troops willing to fight, supported by U.S. ground advisers, FACs, and a U.S.-run TACS system, could use massive CAS and BAI to repel and eventually destroy the mechanized formations that outnumbered the ARVN by more than three to one.

The first ground assault on An Loc came on April 13. The ARVN defenders, by now cut off from Lai Khe to the south by the NVA 7th Division, were subjected to a 7,000-round, fifteen-hour artillery barrage; this was followed by an attack by two regiments of infantry and two dozen T-54 and PT-76 tanks. The ARVN defenders were dug in in the town center, a rectangular perimeter measuring 2 kilometers by 1 kilometer; throughout the day, they repelled the attacking tanks and infantry with small arms and M-72 LAW anti-tank rockets. Once again, U.S. and Vietnamese air support was decisive in stopping the NVA advance. Having lost almost all of their artillery to NVA counterbattery fire, the defenders were left entirely dependent on air power.

Building on the experience at Loc Ninh, U.S. advisers and FACs applied the range of air platforms in layers to defeat the NVA attack. B-52s were used against enemy staging and assembly areas while U.S. and VNAF tacair

75. Andradé, America’s Last Vietnam Battle, p. 350.
76. Ibid., p. 50.
79. Ibid., p. 28.
delivered air strikes closer to the perimeter. The closest fires were delivered by the rocket firing, AH-1 Cobra helicopter gunships, augmented by the continuous presence of AC-119 and AC-130 gunships. U.S. advisers multiplied the number of sorties over An Loc by establishing a forward base at Bien Hoa to rearm and refuel tacair from carriers and airbases across Thailand and South Vietnam.

After two days of heavy attacks, the NVA had seized the northern half of An Loc at a terrible cost. It had lost 23 tanks and countless infantry, forcing it to regroup. Brig. Gen. John McGiffert, the number two U.S. adviser in MR III, was blunt in his assessment of this first wave: “I really believe that without these [B-52 Arc Light strikes and preplanned tacair] the city would have fallen, because I think the infantry would have gotten in with the tanks.” As it weathered the first assaults, the ARVN received critical reinforcements on April 14, as the ARVN 1st Airborne Brigade was successfully inserted by helicopter onto the high ground south of the town.

The NVA renewed its assault on April 19 with simultaneous thrusts at the Airborne units in the south and the 5th Division positions inside the town. After fierce resistance, the Airborne troops were driven off the southern high ground and lost their artillery in the process, once again leaving the defenders with no artillery inside the perimeter. From April 19 to April 22, the NVA battered the town with artillery, tanks, and infantry assaults while the ARVN used its light weapons and heavy CAS to repel the attackers.

After another weeklong pause, the Communists made their final attempt to destroy the garrison on May 11. The 5th and 7th NVA Divisions threw seven regiments of infantry against the northeastern and western flanks of an ARVN perimeter, which had shrunk to 1 kilometer by 1.5 kilometers. Once again the NVA relied on artillery to break ARVN resistance; in the first four hours, it fired 7,500 rounds into the ARVN positions and another 10,000 rounds in the twelve hours after sunrise. The NVA deployed for the first time the shoulder-launched SA-7 infrared-guided missiles to blunt the effects of air power. These systems proved effective against slow, prop-driven FACs, helicopters, and fixed-wing gunships and forced the U.S. military to withdraw many of these aircraft from the immediate battle area.

The last NVA assault collided with the heaviest and best orchestrated aerial

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80. Ibid., pp. 77–78.
81. Ibid., p. 88.
fights of the campaign. Acting on indicators of an impending attack, Lieutenant
General Hollingsworth had interceded with Abrams to secure the maximum
available air support on May 11. With General Abrams’s consent, Hollingsworth
was able to vector 300 tacair sorties and 30 B-52 Arc Light missions into An Loc on May 11 alone; over the next four days, he pushed a daily
average of 260 tacair sorties into An Loc to hammer NVA units and assembly
areas. Desperate to maximize the effects of these sorties, U.S. advisers cleared
the use of B-52 Arc Light strikes within 600 meters of the perimeter. Con-
fronted with these withering fires, and bedeviled by problems with tank/infantry coordination, the last big NVA push ground to a halt.

Although the NVA continued to shell the town with 2,500 rounds per day
from May 13 to May 16, the greatest danger had passed. Communist losses
and overwhelming aerial firepower had enabled the ARVN to hold An Loc. By
June 15, the Airborne units were strong enough to push back onto the high
ground to the south of the town and lift the siege.

By this time, An Loc had been reduced to a charnel house. The NVA had lost
three divisions and an estimated 10,000 killed and 15,000 wounded. The
ARVN defenders had suffered 2,300 dead and 3,100 wounded. The town had been almost entirely destroyed by 78,000 rounds of NVA artillery, more than
700 B-52 Arc Light strikes, and countless tacair attacks.

Even more than in MR I, air power appears to have been the decisive ele-
ment in defeating the Communist offensive. The circumstances of the siege
made An Loc a natural experiment in the influence of air power in support of
ground troops. In contrast to the battles of Kontum and Quang Tri, the defend-
ers of An Loc never enjoyed the support of ARVN artillery, naval gunfire, or
tanks. Instead, they relied entirely on small arms, M-72 LAWs, and air power.
For the duration of the siege, they also depended almost entirely on aerial re-
supply by parachute delivery.

ARVN commanders were unequivocal in their statements about the impor-
tance of CAS and BAI in the outcome at An Loc. In his postwar study of the
battle, Lieutenant General Truong explained the outcome in these terms: “An
Loc had held against overwhelming odds. To a certain extent this feat could be
attributed to the sheer physical endurance of ARVN defenders. . . . But the en-
emy’s back had been broken and An Loc saved only because of timely B-52

89. Willbanks, Abandoning Vietnam, pp. 146–147; HQ PACAF, Directorate, Tactical Evaluation Divi-
sion, CHECO Division, “Battle for An Loc (April 5–June 26, 1972); and Willibanks, Battle for
90. Ibid., p. 55.
91. Ibid., pp. 26–36.
Captured enemy documents revealed similar opinions on the Communist side. A handwritten letter seized on April 18 from a political commissar of the 9th Viet Cong Division to the Central Office for South Vietnam Headquarters explained the failure of the NVA in terms of its inability to coordinate tanks and infantry and “the effects of tactical air and B-52 strikes [that] were unbelievably devastating.”

After the war, North Vietnamese internal histories pointed to U.S. air power and aerial resupply as nearly insurmountable obstacles in the An Loc campaign:

> [E]ven though we had concentrated the maximum possible amount of our air defense forces for the key, decisive battle in Binh Long [An Loc], we were unable to prevent the enemy from being able to constantly resupply his forces and to replace and replenish his personnel. Although Binh Long was surrounded and we had blocked the road from Chon Thanh up to Binh Long, the enemy continued to be able to bring in reinforcements so his strength constantly increased. Fire support provided by tactical aircraft and B-52s played the decisive role in repelling our assaults and enabling the enemy to defend Binh Long. The reality of the situation clearly demonstrated one thing: since we did not have sufficient strength to disrupt the enemy’s air superiority, even if we had all of the enemy’s ground access routes sealed off tightly, it would still be difficult for us to prevent the enemy from bringing in additional forces and adding additional firepower to rescue the enemy’s surrounded and threatened position. Under those conditions, the decision to try a second time to assault and overrun the Binh Long province capital was not a good decision for us to have made.

Still, the application of such volumes of air power would not have been possible without effective coordination mechanisms. U.S. ground advisers, working with U.S. and Vietnamese FACs, were able to focus these fires on the enemy while minimizing collateral damage. During the course of the battle, U.S. FACs developed increasingly effective procedures for controlling the mass and variety of platforms in the battle area. Although less visible than the hardware or munitions employed, the organizational and procedural software of this system helps explain the success of air power at An Loc and

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92. Truong, The Easter Offensive of 1972, p. 131. Lam Quang Thi, Truong’s wartime deputy, came to similar conclusions in his history of the Battle of An Loc: “What then were the causes of success of the defense of An Loc? First, it was the air support available that made the biggest difference between An Loc and Dien Bien Phu. Day after day, B-52 sorties hit NVA assembly areas, logistical installations, even the first echelon assault units.” See Thi, Hell in An Loc, p. 209.
the failure of CAS/BAI missions in the opening phases of the defense of Quang Tri.

U.S. air power could not have been effective without the resistance of ARVN forces and U.S. advisers. On the third day at Loc Ninh, the collapse of ARVN resistance on the ground rendered CAS and BAI irrelevant. At An Loc, by contrast, the encircled ARVN forces fought tenaciously. As General Abrams aptly summarized, “I doubt the fabric of this thing could have been held together without U.S. air. But the thing that had to happen before that is the Vietnamese, some numbers of them, had to stand and fight. If they didn’t do that, ten times the air wouldn’t have stopped them.”

THE IMPACT OF AIR POWER IN MR I AND III
In the early battles of the Easter Offensive, the results of direct air attacks on the NVA were mixed. Constrained by weather, enemy air defenses, and an inadequate TACS in MR I, air power failed to stop the fall of Quang Tri Province. At An Loc in MR III, however, air power proved decisive. With better flying weather, a more moderate threat environment, and an operative TACS, the ARVN, supported by massive CAS and BAI, stopped the NVA attack.

Linebacker I: May 10–October 23, 1972

The collapse of Quang Tri Province and the victory at An Loc demonstrate both the potential and the limits of direct air attacks on enemy armies. This section examines the indirect approach to the Easter Offensive: the U.S. interdiction campaign to disrupt Communist transportation networks.

After the fall of Quang Tri Province in May 1972 and with the sieges of An Loc and Kontum approaching their climax, President Nixon ordered the mining of Haiphong Harbor and attacks against North Vietnam’s railways and distribution system. Code-named Linebacker I, the air campaign was meant to stall the NVA’s offensive by denying North Vietnam the ability to resupply its forces in the south.

NORTH VIETNAM’S TRANSPORTATION SYSTEM
North Vietnam relied on two major supply routes for its imports. Soviet ships offloaded at Haiphong Harbor, where goods were transported by rail to stor-

96. Ibid. (emphasis in original); and Sorley, Vietnam Chronicles, p. 826.
age facilities near Hanoi and Haiphong. Chinese supplies arrived via a 50-mile rail line connecting southeastern China and Hanoi. A northwest railway provided a tertiary route through southwest China.99

All three railways converged north of Hanoi, where a single rail line crossed the Red River over the Paul Doumer Bridge. This massive structure spanned more than a mile and handled both rail and road traffic. As a critical choke point, it had been repeatedly attacked during the Rolling Thunder air campaign. Following the 1968 bombing pause, the North Vietnamese repaired and fortified the bridge against future air strikes.

South of Hanoi, trains had to cross the Thanh Hoa Bridge, a second major choke point. From Thanh Hoa, southbound trains crossed the North Vietnamese panhandle to the city of Vinh (see map 2). From here, supplies either were moved via truck or boat or were carried by foot across the DMZ or westward into Laos along the Ho Chi Minh Trail.

The North Vietnamese road system roughly paralleled the railways and, at key choke points, utilized the same bridges. In addition, the North Vietnamese constructed a series of small pipelines to transport fuel from China to North Vietnam and further south to the base areas of Laos, Cambodia, and South Vietnam. These pipelines made the fuel supply network more resilient in the face of air attacks.100

In response to the March 31 invasion, the USAF conducted a series of small air strikes, code-named Freedom Train, against North Vietnamese transportation, storage, and military facilities south of the 18th parallel.101 With the launch of Linebacker I on May 10, the volume of air strikes north of Route Pack 1 increased dramatically, as the U.S. military sought to dismantle the North Vietnamese transportation system and relieve pressure on the ARVN.102

A significant operational innovation of Linebacker I was the USAF’s use of laser-guided bombs (LGBs) against transportation, power generation, and industrial targets.103 The U.S. Air Force and Navy’s development of precision-

99. HQ Seventh Air Force, Commanders’ Conference 18–19 July 1972, K168.06-228, AFHRA, p. 3.
103. Because of restrictions for carrier operations, the U.S. Navy did not employ a large number of laser-guided bombs. It employed electro-optic guided weapons, as did the Air Force, but these
Map 2. North Vietnam Transportation and Route Package

NOTE: Map reprinted with permission from the West Point Department of History, www.westpoint.edu/history/SiteAssets/SitePages/Vietnam%20War/AF.gif. Railways, Route Package labels, and cities of Thanh Hoa and Vinh added by authors with permission.
guided munitions dated back to World War II. In 1968, LGBs were introduced into Southeast Asia, and by 1972, tens of thousands of the smart bombs had been employed against trucks, bridges, and targets of opportunity along the Ho Chi Minh Trail and against NVA troops in South Vietnam.

On May 10, a dozen USAF F-4s dropped twenty-two 2,000-pound LGBs, destroying several spans of the Paul Doumer Bridge. LGBs had the added benefit of minimizing collateral damage, which, in turn, allowed air strikes to be conducted near civilian populations. Increased accuracy, coupled with larger warheads of 2,000 to 3,000 pounds, inverted the planners’ calculus; instead of estimating the number of air strikes required to destroy a single target, planners were able to calculate the number of targets that could be destroyed on a single mission. LGBs dropped from medium altitude further reduced the risk to aircrew now kept above the reach of antiaircraft artillery and SA-7s.

For all these advantages, LGBs also had drawbacks, the biggest of which was the requirement for good weather. Lasers do not penetrate clouds and, given the weather patterns in Southeast Asia, this restricted when laser-guided bombing could be conducted. Soon the weather forecast became a primary consideration for which targets could be struck. Weather conditions in the north remained relatively good from May through July, allowing 60 percent of the scheduled precision-guided strike packages to be flown. In August, however, the arrival of the monsoons restricted air strikes, requiring the USAF and the Navy to rely instead on inaccurate, long-range radio navigation and air-to-ground radar bombing against area targets.

Second, the Pave Knife electro-optic targeting pod limited the use of LGBs
over high-threat areas to daylight only. An earlier generation of laser designators had been used in low-threat areas of South Vietnam and the Ho Chi Minh Trail, but these hand-held devices relied on a stable and predictable flight path. Such tactics were untenable over the highly defended Hanoi. The USAF’s answer was the Pave Knife space-stabilized system, which could be operated from the backseat of an F-4 while the pilot maneuvered the aircraft against threats.

The third impediment was the acute shortage of Pave Knife targeting pods; in May 1972, the USAF had only six in Southeast Asia. By July, two aircraft losses had reduced the number of pods to four, forcing strike packages to be designed around protecting the aircraft carrying these precious devices. Combat air patrol and escort fighters shielded the strikers against MiGs, while other F-4s dispersed a chaff corridor over the target area to disrupt enemy search radars and F-105s on suppression of enemy air defense missions launched preemptive anti-radiation missiles to deter SA-2 operators from turning on their radars. Strike missions had as many as 100 aircraft, which included tankers, electronic jammers, and search and rescue assets all tasked to protect a handful of strikers.

Despite the complexity of the packages, the initial laser-guided air strikes were operationally remarkably successful, disabling the Paul Doumer Bridge on May 10 and the Thanh Hoa Bridge on May 13. This effectively cut the North Vietnamese rail system into thirds, forcing the shuttling of goods from the Chinese border to Hanoi, Hanoi to Thanh Hoa, and Thanh Hoa to Vinh. The USAF conducted primarily laser-guided attacks in Route Packs 5 and 6 near Hanoi from May through July (see table 1). In addition to these precision air strikes, USAF and Navy jets employing free fall munitions conducted more than 1,000 strikes north of Route Pack 1, attacking rail yards, rolling stock, bridges, and storage facilities. This combination of precision and conventional bombing effectively disabled the North Vietnamese rail system.

The arrival of the monsoon season in August severely limited the days avail-

113. The older devices were the Pave Nail (OV-10), Pave Turkey (AC-130), and the handheld AVQ-9 “Zot Box” laser designation systems. See Eighth Tactical Fighter Wing, _History of the Eighth TAC Fighter Wing_ , Vol. 1, p. 38.
able for laser-guided bombing. The NVA was showing no sign of calling off the offensive, prompting the White House to pressure the USAF and Navy to increase the bombing near Hanoi, Haiphong, and the Chinese border. The number of air strikes in Route Pack 6 rose, but with overcast skies, most of the bombs were dropped unguided through the clouds with far less accuracy. Table 1 denotes the USAF shift from precision to free-fall bombing resulting from the combination of poor weather and political pressure from President Nixon to continue air strikes.

### EVALUATING LINEBACKER I

The precision air strikes of Linebacker I had an immediate impact on North Vietnamese rail traffic, creating a backlog of trains at the Chinese border. Hanoi diverted labor, equipment, and supplies in an effort to repair the damaged rail, roadways, bridges, and vehicles. Further attacks on North Vietnam’s petroleum, oil, and lubricants inventories forced the dispersal of stockpiles, increasing the difficulty of storing and moving fuel south.

#### Table 1. United States Air Force Strike Missions in Linebacker I

<table>
<thead>
<tr>
<th>Month</th>
<th>Laser-Guided Missions</th>
<th>Free Fall Missions</th>
</tr>
</thead>
<tbody>
<tr>
<td>May (21 days)</td>
<td>40</td>
<td>5</td>
</tr>
<tr>
<td>June</td>
<td>46</td>
<td>5</td>
</tr>
<tr>
<td>July</td>
<td>42</td>
<td>15</td>
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<tr>
<td>August</td>
<td>21</td>
<td>22</td>
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<tr>
<td>September</td>
<td>25</td>
<td>120</td>
</tr>
<tr>
<td>October (23 days)</td>
<td>7</td>
<td>97</td>
</tr>
<tr>
<td>total (447 missions)</td>
<td>183</td>
<td>264</td>
</tr>
</tbody>
</table>


123. Military Art Faculty of the Military Science Institute, “Chien Dich Tien Cong Quang Tri 1972, Mat” [The 1972 Quang Tri offensive campaign, (secret)], trans. Merle Pribbenow (Hanoi: Military Art Faculty of the Military Science Institute, 1976), p. 76. In addition to being marked “secret,” this document is marked “document for internal distribution only” [tai lieu luiu hanh trong noi bo].
impact of the interdiction campaign was a significant rise in the time and cost required for the North Vietnamese to resupply their forces in the south. An assessment of Linebacker I conducted by Pacific Air Force Headquarters (PACAF) at the beginning of June was optimistic, concluding that the limited supplies flowing south would not support sustained NVA operations. In early August, a mixed assessment by the Joint Chiefs of Staff concurred that Linebacker I had substantially disrupted North Vietnam’s transportation and distribution system. It also concluded that Hanoi was intent on continuing the offensive in the south, prompting the Joint Chiefs to call for an escalation in air strikes in the north. By October, a new PACAF report was more pessimistic, estimating that the North Vietnamese had now generated the capacity to import by truck 10,000 tons of cargo daily from China, twice the volume they had been able to muster by ship and rail prior to Linebacker I. A recently declassified (2013) internal USAF evaluation of the Easter Offensive conducted in the fall of 1972 concluded that “in spite of the substantial U.S. air effort devoted to the Linebacker operation, we were unsuccessful in our objective of isolating NVA from its outside sources of supply. We should have recognized that this objective was unattainable, without politically unacceptable changes in the rules of engagement.” A MAC-V study of the Easter offensive concurred with the USAF findings and provides insight as to why Linebacker I did not have more impact on NVA operations. The report noted that the NVA had stockpiled its supplies in the sanctuaries and in the south prior to the invasion. These stockpiles proved critical, enabling the NVA to weather shortfalls in resupply during the four to six weeks it took for Hanoi to shift its supply routes from railways to roadways. As a result, the NVA was never forced to cancel or alter any of its major operations for lack of supplies. Such preparations neutralized the initial impact of Linebacker I, leaving it to air strikes in South Vietnam to block the resupply of NVA frontline troops.

In sum, Linebacker I increased the costs and time for the North Vietnamese to send supplies to the south. With its men and weapons already deployed to South Vietnam and its stockpiles in place prior to the invasion, however, the NVA was able to transition from railway to dispersed road transport and negate the effects of Linebacker I. In the next section, we conclude that it was not air interdiction but CAS and BAI in a combined arms effort with the ARVN

125. Ibid.
127. HQ PACAF, CORONA HARVEST, p. IV-16.
128. Ibid., p. IV-81-82.
that brought the Easter Offensive to an end and compelled Hanoi to seek a cease-fire.

**The Counteroffensive: Retaking Quang Tri**

If the story of the fall of Quang Tri Province was one of the failure of air power to stem the NVA’s advance, then the story of its recapture was one of the ARVN changes designed to make air power decisive in the largest South Vietnamese counteroffensive of the war. Changes in ARVN leadership, improved weather conditions, and the restoration of control and coordination mechanisms set the stage for a dramatic shift in the military balance in northern South Vietnam.

The replacement of General Lam with Lieutenant General Truong after the fall of Quang Tri paid immediate dividends. Not content to secure the defense of Hue, Truong instituted major changes in the organization and focus of I Corps. He recognized the control of air power and artillery fires as the key to both a successful defense and the eventual counteroffensive. To centralize and coordinate all U.S. and ARVN fires, he established a Fire Support Coordination Center as well as a Target Acquisition Element to amplify the effectiveness of U.S. air strikes. Finally, Truong pushed Vietnamese tactical air control parties to the various Division headquarters in I Corps to improve their capability to designate targets and control fires.131

Within two days of taking command, Truong initiated his first local offensives to stabilize the front and regain momentum. By mid-May, he had begun to launch multi-battalion airmobile and amphibious raids to keep the attacking NVA forces off balance.132 At the same time, Truong announced a program he labeled “Loi Phang” (Thunder Hurricane): “Loi Phang . . . was a sustained offensive by fire conducted on a large scale. The program scheduled the concentrated use of all available kinds of firepower, artillery, tactical air, Arc Light strikes, naval gunfire for each wave of attack and with enough intensity as to completely destroy every worthwhile target detected, especially those files of enemy personnel and materials that were streaming toward staging areas near Hue.”133 Whereas the NVA had used tanks, artillery, and speed to capture Quang Tri Province in April, Truong envisioned his coming offensive not as a blitzkrieg but as a methodical and overwhelming application of firepower, particularly U.S. air power.134

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134. Ibid., p. 65.
Improving weather and enemy overextension amplified the effects of Truong’s attack by fire. Once the clouds had lifted in MR I, U.S. air power was free to hammer the artillery, staging areas, and supply lines in Communist-held Quang Tri Province.\(^{135}\) As the NVA units continued to attack in hope of seizing Hue, they were fully exposed to ever increasing volumes of air, artillery, and naval gunfire.

By late June, Truong was ready to push north in force. Having received two elite units, the Vietnamese Marine Division and the Airborne Division, Truong was confident he could push from Hue toward Quang Tri. He opened the Lam Son 72 offensive on June 28 with elaborate deception operations and a two-day-long air and artillery bombardment. The two divisions were able to drive north using B-52s and tacair to clear away the weakened remnants of the NVA units. In slightly more than a week, Truong’s forces had reached the outskirts of Quang Tri City.\(^{136}\)

This rapid advance stalled as it became clear that the NVA would try to hold Quang Tri at all costs. The NVA rotated elements of six divisions through Quang Tri in an effort to block the Airborne and Marine advance. Truong’s answer was to place the fresher Marine division in the lead and increase the volume of fires. With the sieges at An Loc and Kontum largely over, the full weight of the B-52 force could now be brought to bear on Quang Tri. The overwhelming majority of the 3,407 B-52 sorties in South Vietnam in the month of August were funneled to I Corps for Truong’s offensive.\(^ {137}\)

On September 8, after two months of bombarding the NVA defenses, Truong unleashed a final wave of air and artillery attacks before launching five battalions of Vietnamese Marines against the Quang Tri Citadel. With the Marines fighting step by step through the rubble, the Communist defenders were driven out and the Citadel was retaken on September 16. Over the last ten days of the battle, the NVA lost 2,767 dead while the ARVN Marines lost some 1,500.\(^ {138}\)

Why was air power more effective in the Lam Son 72 counteroffensive than in the defense of Quang Tri in April? Several factors stand out. The first is weather. The North Vietnamese counted on bad weather to shield them from U.S. air power, and for the first weeks of the Easter Offensive, their hopes were realized. The weather and dense air defenses negated many of the tacair and gunship capabilities the USAF and Navy might have otherwise employed in

\(^{135}\) Thi, The Twenty-Five Year Century, p. 279; and Truong, The Easter Offensive of 1972, p. 76.


\(^{137}\) Ibid., p. 70.

defense of the forward firebases. By May the weather had improved and, with it, the availability and utility of air power. Second, Truong and the U.S. advisers reassembled a system to coordinate U.S. air power, artillery, and naval gunfire. Third, the enemy had broken itself in its bid to take Quang Tri and Hue. The NVA losses suffered in the April attacks and even more under the stubborn insistence on maintaining the offensive in May and June tilted the balance in favor of the ARVN. Fourth, the successful conclusion of the battles at An Loc and Kontum meant that the full weight of U.S. air power could be focused on a single, two-division attack in MR I. Finally, Truong’s aggressive leadership and acute understanding of air power ensured that CAS and BAI would be the centerpiece of his offensive.

Postwar accounts by North Vietnamese officials underscore the impact of the NVA’s overextension and the massive amounts of U.S. firepower applied in MR I. In its conclusions on the Quang Tri Offensive and ARVN counterattack, a 1987 Vietnamese Ministry of Defense study emphasized the costs of underestimating U.S. CAS and BAI:

The [ARVN] enemy’s situation had fundamentally changed. The puppet army had... moved up two mobile divisions from his strategic reserve forces, the Marine Division and the Airborne Division, and to these were added a large number of pieces of heavy technical equipment [heavy weapons] that directly participated in the battle. A point that requires special note and a full and adequate assessment is the direct participation of U.S. Air Force and the U.S. Navy fire support forces in large numbers to provide very intense and massive fire support (this was the heaviest amount of American firepower provided to support a single campaign in the entire history of the American aggression against South Vietnam, including even campaigns fought primarily by American ground forces; in terms of B-52s alone, during June 1972 the enemy flew an average of 135 B-52 bombing sorties per day, and more than 200 sorties on one day when the sortie level was the highest).139

The NVA history was equally emphatic about the costs of these mistakes: “We suffered heavy losses in six enemy counterattacks. Many of our units needed to be regrouped and reconstituted. We lost a large quantity of technical equipment and weapons but received no replacements for these losses (this was the phase in which we suffered our heaviest losses, larger than either of the two previous waves of attacks [March 30–April 9 and April 27–May 2, respectively]).”140

As at An Loc, CAS and BAI almost single-handedly blunted NVA con-

140. Ibid., p. 174.
ventional offensives, but the transition to the offense demanded friendly infantry attacks and the casualties they entailed. The South Vietnamese Marines alone suffered 5,000 casualties in their three-month bid to retake Quang Tri. Air alone, even in immense volumes, could not root out the NVA defenders of the Quang Tri Citadel if the ARVN forces were unwilling to fight and die on the ground. At An Loc, and in even greater measure at Quang Tri, they were willing.141

Air power played a decisive role in the defeat of the NVA in the Easter Offensive. The most compelling evidence of the impact of CAS and BAI comes from the U.S. advisers’ and North and South Vietnamese accounts. None of these groups had compelling interests in the bureaucratic struggles over the importance and proper employment of air power. All of them emphasized the role that tacair and particularly B-52s played in the defeat of the NVA. On May 5, General Abrams captured this sentiment in his remarks to the MAC-V staff: “On this question of the B-52s and tacair, it’s very clear to me that—as far as my view on this is concerned—that this government would now have fallen, and this country would now be gone, and we wouldn’t be meeting here today, if it hadn’t been for the B-52s and the tacair. There’s absolutely no question about it.”142 In strikingly similar terms, a 1976 internal, classified North Vietnamese history of the Quang Tri Offensive acknowledged the singular role of air power in upsetting the Communist advance: “During combat, with the increased American fire support, the puppet was able to erode our troop strength and equipment levels to a greater extent, increasing the ferocity and complexity of the battle and having an enormous impact on the combat strength of our troops. In practical terms, the intensity of U.S. firepower, which had been reinforced to the highest level possible, had a decisive impact and rescued the puppet army from complete collapse. Although we anticipated that the United States might resume bombing, we did not fully anticipate the capabilities and the full impact U.S. air and naval firepower would have on the progress of the campaign.”143

Lieutenant General Truong, the savior of ARVN fortunes in MR I, was equally adamant about the impact of U.S. air power in the outcome of the offensive: “The role of the U.S. Air Force was decisive in several instances. The support provided by U.S. tactical air and the B-52s on all major fronts was timely and most effective; it not only destroyed many enemy formations but

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141. Andradé, America’s Last Vietnam Battle, p. 196.
143. Military Art Faculty of the Military Science Institute, “Chien Dich Tien Cong Quang Tri 1972, Mat,” p. 76 (emphasis in original).
also sustained the morale of the ARVN soldiers. . . . Quang Tri certainly could not have been retaken, nor could ARVN forces have held at Kontum and An Loc, had it not been for the support provided by the U.S. Air Force. . . . The only adverse effect that can be attributed to the use of B-52s was that in time, ARVN forces became too dependent on them.”

The effective use of CAS and BAI in the Easter Offensive hinged on the control and coordination of those fires. The combination of U.S. ground advisers, U.S. FACs, and the U.S.-administered TACS made possible the victories at An Loc and Kontum, as well as the retaking of Quang Tri. The absence of a functioning, U.S. TACS in MR I played a large role in the failure of air power in the north in the opening month of the offensive.

Without U.S. air support, it is hard to imagine a successful ARVN defense in South Vietnam. With it, the defeat of the Easter Offensive was possible, and that outcome left the North Vietnamese with few alternatives to a negotiated settlement. This, in turn, brought the North Vietnamese to accept the “peace with honor” terms necessary to prompt the United States to decide to withdraw its forces from Vietnam. It was not, however, Linebacker I’s air interdiction campaign in North Vietnam that was decisive; rather, it was U.S. air power’s direct attack of the NVA fielded forces and forward supplies in the south that allowed the ARVN to hold at An Loc and Kontum and that turned the tide at Quang Tri.

The October Agreement, Linebacker II, and the Paris Peace Accords

It was the ARVN’s recapture of Quang Tri in September 1972 that caused Hanoi to seek a diplomatic solution to ending the war with the United States. According to American-Vietnamese historian Lien-Hang Nguyen, “Only after his military plans failed with the ARVN’s recapture of Quang Tri City did Le Duan accept that the diplomatic struggle had to prioritize ‘American troop withdrawal’ first and foremost.”

On October 8, 1972, North Vietnamese Foreign Minister Le Duc Tho met with President Nixon’s national security adviser, Henry Kissinger, in Paris and announced that Hanoi was willing to negotiate a cease-fire that allowed North Vietnamese troops to remain in South Vietnam and included a withdrawal of U.S. forces from Vietnam and the repatriation of U.S. prisoners of war.

Le Duc Tho’s terms, which no longer mentioned as a precondition the removal

145. Nguyen, Hanoi’s War, p. 270.
146. Kissinger, White House Years, p. 1343.
of the South Vietnamese government, were the same proposed by Nixon back in May.\footnote{Ibid., p. 1345.} By October 18, Tho and Kissinger had settled on the specific terms of the agreement, and on October 26 Kissinger proclaimed that “peace is at hand.”\footnote{Ibid., p. 1355; Pierre Asselin, \textit{A Bitter Peace: Washington, Hanoi, and the Making of the Paris Agreement}, appendix A (Chapel Hill: University of North Carolina Press, 2002), pp. 191–201; and Bernard Gwertzman, “Kissinger Asserts That ‘Peace Is At Hand’; Saigon Says It Will Agree to a Ceasefire,” \textit{New York Times}, October 26, 1972.} Saigon, however, had been excluded from the talks. President Thieu was first made aware of the specifics of the deal in late October. He refused to sign any agreement allowing North Vietnamese forces to remain in the south, a stance that led to a three-month delay of the peace deal and the commencement of the Linebacker II bombings.

Nixon took no action, however, until after the November presidential election. By then North Vietnam, feeling duped by the Americans, had begun to wonder about the degree of control the White House had over Saigon. When further negotiations in Paris went nowhere, Nixon ordered Linebacker II to start just before Christmas. Meanwhile, to assuage Thieu, Nixon promised billions in military aid, along with assurances that the United States would punish North Vietnam for any infractions of the peace treaty. Nixon also issued an ultimatum that if Saigon did not sign, the United States would withdraw and cut off all military support.\footnote{Kissinger, \textit{White House Years}, pp. 1459–1460.}

Linebacker II consisted of eleven nights of air strikes highlighted by B-52 attacks on rail yards, power plants, and airfields in Hanoi and Haiphong Harbor.\footnote{For operational details of Linebacker II, see Michel, \textit{The Eleven Days of Christmas}.} The USAF lost fifteen B-52s to North Vietnamese SA-2s in the process. By the tenth night of bombing, the North Vietnamese had run out of surface-to-air missiles to defend their skies. On December 28, Hanoi indicated a willingness to resume talks. Nixon ordered a bombing halt the next night, and talks resumed in early January. By January 27, 1973, the Paris peace accords were signed. The terms were virtually identical to those of the October 1972 agreement.\footnote{To appease Thieu, the name that the North Vietnamese had given to their troops remaining in South Vietnam, the Provisional Revolutionary Government of the Republic of South Viet-Nam, had been removed from the main text of the document and appeared only on one of the signature pages. The full wording for the two agreements is given in Asselin, \textit{A Bitter Peace}, appendices A and B.}

Whereas Linebacker I had done little to stop the Easter Offensive, Linebacker II did compel the North Vietnamese to return to Paris, but only to sign the peace agreement they had already agreed to in October. More important, U.S. air power employed as CAS and BAI in coordination with ARVN
ground forces defeated the NVA in the Easter Offensive and forced Hanoi to seek a peace deal.

Conclusion

U.S. close air support and battlefield air interdiction broke the North Vietnamese Army in the Easter Offensive. With its army decimated, North Vietnam had no immediate alternatives to accepting a U.S. peace deal. Still, the myth of Linebacker I and II endures. Even though the interdiction campaign in North Vietnam did not have a significant impact on the NVA’s campaign in the south, and the Christmas bombing of Hanoi succeeded only in bringing the North Vietnamese back to Paris to sign an agreement to which they had previously agreed, most observers have ignored the contributions of the larger, more effective, and more consequential direct attack on the NVA. In the south, U.S. ground advisers working with a U.S.-operated tactical air control system enabled the South Vietnamese army to halt, cripple, and eventually roll back the NVA. This U.S. advisory mission, led by a handful of U.S. Army and Air Force liaison officers, coordinated and controlled the thousands of tactical fighter-bomber sorties, B-52 Arc Light strikes, and fixed- and rotary-wing gunship missions that proved decisive.

We suspect that this bias in the existing historiography is more than accidental. The USAF has no incentive to publicize how close air support and BAI succeeded while independent air operations in North Vietnam failed. Likewise, the U.S. Army has had nothing to gain by emphasizing how the biggest battle of the Vietnam War was won not by U.S. ground troops but by a weak ally supported by a handful of U.S. military advisers and air liaison officers.

Although these conclusions are important revisions to analysts’ understanding of the Vietnam War, the contemporary implications of the Easter Offensive are both intriguing and more complex. On the one hand, the air offensives of 1972 offer a rare opportunity to examine competing theories of victory for air power. Our most important conclusion is that these air campaigns demonstrate the superior and enduring effectiveness of CAS and BAI relative to interdiction and strategic attack.

On the other hand, any findings based on a single historical episode are at best propositions; the generalizability of these lessons to contemporary cases depends on the answers to two questions: How representative was the 1972 Easter Offensive of the challenges militaries might face in the twenty-first century? How have changes in technology over the intervening forty years altered the ways in which air power works in practice—specifically, the balance between CAS/BAI and interdiction/strategic attack?
We argue that the functional challenges of 1972 continue to dominate U.S. military planning in the twenty-first century. Over the past two decades, in Afghanistan, Iraq, and elsewhere, the United States has had to decide how best to apply air power in support of allied armies of mixed quality. Many of those allies have faced conventional or quasi-conventional attacks by enemies with substantial troop formations and vehicles. In many instances, the United States has been unwilling to commit large numbers of U.S. combat troops, and decisionmakers have seen the employment of air power as a less risky and more flexible alternative to ground intervention. The United States’ allies have shared many of the weaknesses of the South Vietnamese armed forces; even after years of U.S. training, many allied armies struggle to coordinate air strikes, artillery, and logistics without extensive advisory support. Under these circumstances, the United States has been forced to allocate scarce air assets and weigh the costs and benefits of U.S. advisory support on the ground and in the air.

Although substantial changes in technology have occurred over the intervening four decades, we contend that developments in precision weaponry, sensors, and air defenses have not altered the balance of effectiveness between CAS/BAI and interdiction/strategic attack. Increasing precision and sensor developments have simplified the problems of finding and hitting targets; improved air defenses have increased the cost and risk of applying air power with manned platforms. Precision strike has enhanced the effectiveness of air power across the range of missions, but it has done little to alter the balance between direct support and deep attack. The risk in confronting enemy air defenses continues to be a function of exposure; all things being equal, deep attacks, whether for interdiction or strategic attack, expose aircraft to a greater aggregate risk than operations near the front lines.

None of these technological changes have resolved the underlying conceptual challenges of translating target hits into effects and accounting for enemy adaption. Instead, elemental questions remain. If the goal is to stop or roll back an enemy ground invasion, is it more effective to attack the enemy’s army in the field or to cut supply lines and attack strategic targets to the enemy’s rear? What can an opponent do to limit the effects of air power in the form of CAS/BAI or interdiction/strategic attack?

Today we argue that, as in Vietnam, interdiction is a siren song—conceptually appealing but generally unrewarding. Interdiction tends to be most effective against armies on the move; mobile offensive and defensive operations increase the enemy’s demand for supplies and with them the enemy’s vulnerability to interruption. Even under these circumstances, however, interdiction tends to be indecisive. The enemy can use stockpiling to limit its vulnerability to interdiction; if interdiction begins to take a serious toll, the enemy can reduce the tempo of its operations to match the available stockpiles and logistical flow. Furthermore, most enemies adapt to interdiction by developing alternative supply routes to bypass primary road and rail networks. Finally, the air planner uniformly struggles to determine the enemy’s future breaking point. In a cumulative campaign, it is easier to count the number of targets struck than to estimate how many additional strikes will be necessary to force political concessions or enemy collapse.

Direct attack on an enemy’s army, by contrast, is simpler, more effective, and less costly. By breaking armies with CAS and BAI, military planners deny their enemies the tools they need to accomplish their ends. The effectiveness of CAS and BAI is more closely linked to target destruction; by contrast, interdiction and strategic attack hinge on the material and psychological effects of target destruction on enemy decisionmaking. In this sense, our findings support and sharpen Robert Pape’s contention that denial strategies are superior to punishment strategies.153

Recent U.S. experiences in Iraq and Afghanistan support these conclusions.154 In the 1991 Gulf War, an interdiction campaign was pointless, as the Iraqi army had already deployed its forces and stockpiled supplies before the air war commenced. Likewise, U.S. strategic bombing neither decapitated Saddam Hussein’s regime nor paralyzed the Iraqi army as air planners had hoped. Instead, it was the combined direct attack on Iraqi forces and the threat of the impending ground invasion that convinced Iraq to offer to withdraw from Kuwait.155 And when the United States refused to accept Iraq’s concession, the ensuing ground war was a rout, as Iraqi forces, dispersed and attrited by air power, could not resist coalition ground forces.

In the 2003 Iraq War, strategic attack again failed to decapitate Saddam’s regime, and air interdiction was not even attempted. Instead, Saddam ordered

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153. Pape, Bombing to Win.
the concealment and dispersal of his forces against the air campaign he anticipated, making the U.S. Army and Marine Corps march to Baghdad, a relatively brief and low-casualty affair. In Afghanistan, the earliest U.S. air strikes against such strategic targets as government facilities and training camps were ineffective. Only after U.S. air power shifted from strategic targets to frontline targets designated by joint tactical air controllers embedded in Special Operations teams on the ground did the Taliban army collapse. Here, as in Vietnam, air power opened a breach that an allied army could then exploit. Emboldened by the precise application of air strikes, the Northern Alliance surged south to seize Kabul and topple the Taliban regime. Once again, the critical ingredients were small teams of U.S. advisers providing target coordinates and final control for CAS.

The tepid results of U.S. air operations in Libya and post-transition Afghanistan and Iraq can be traced to these same variables. The absence of U.S. ground observers and other elements of the control system severely limited the effectiveness of U.S. air strikes in all three cases. U.S. leaders have been understandably reluctant to approve air strikes in close proximity to allied forces when they do not trust the ability of the locals to identify and classify targets and control for collateral damage. These shortcomings have led to the reintroduction of the kind of small U.S. advisory and control elements that proved so critically important in Vietnam in 1972 and Afghanistan in 2001–02.

This finding has significant implications for U.S. military procurement and doctrine. USAF acquisition has long favored deep strike over CAS and BAI. For the past thirty years, the Air Force has prioritized the development of stealth aircraft designed to penetrate sophisticated enemy air defenses for the purpose of conducting strategic attack and air interdiction or establishing air superiority. The enormous procurement costs associated with these complex aircraft has crowded out not only the resources to maintain existing CAS and BAI platforms, but also any efforts to develop the next generation of aircraft capable of surviving and operating in forward areas.

The USAF has compounded this misallocation of resources toward deep strike and away from direct attack by removing BAI from its doctrine. Twice it has eliminated BAI as a separate mission, first during the major conventional battles by the U.S. Army in South Vietnam in 1966, and again in the 1991 Gulf War, after the American forces suffered the first serious casualties from SAMs.
Instead, it treats the BAI mission as a subset of air interdiction. This doctrinal change has profound implications. It obscures how air power actually works by assuming that the requirements to locate and attack enemy forces on the battlefield are similar to those required to indirectly attack those forces by interdicting their lines of communication. This blurring of missions has led to major errors, as air power theorists and historians have mistakenly lumped the Linebacker I air interdiction campaign in North Vietnam into the same category as the BAI air strikes in South Vietnam. The USAF should reintroduce BAI into its doctrine alongside CAS as direct attack missions aimed at defeating an enemy’s military capability.

Together, the procurement priority given to deep strike and doctrine, which undervalues direct attack, threatens to reduce the effectiveness of U.S. air power. The most important elements in CAS and BAI have always been the small number of highly trained personnel manning the aircraft, TACS, and ground advisory teams. Their effectiveness is a function of specialization and preparation. The USAF’s preference for sophisticated, multirole aircraft, and the elimination of BAI from doctrine have diminished the amount of time and resources devoted to the development and maintenance of the skills necessary to carry out air strikes in close proximity to friendly troops. Ironically, the battle over platforms is less significant than the unintended, second-order effects that such procurement decisions have on the readiness of aircrews to conduct CAS and BAI, particularly in support of allied ground forces. The real impact of a move from A-10s to F-35s is the dilution of CAS and BAI skills and a commensurate reduction in U.S. effectiveness in the highest-yield air missions.

Our second main finding recognizes the centrality of the air control system. Such a system is more important than having specialized aircraft, sensors, and precision weapons to engage enemy forces. These weapons systems will be ineffective unless their firepower can be coordinated and controlled on the battlefield and integrated into allied ground operations. The relatively ineffective direct attacks by the United States on Serbian forces in Kosovo in 1999 were the result of its inability/unwillingness to integrate U.S. air strikes with the operations of the Kosovo Liberation Army. A similar lack of integration

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158. For a history of U.S. Air Force doctrine with regard to BAI, see McCaffrey, *What Happened to Battlefield Air Interdiction?*


in the Libyan civil war in 2011 likewise extended the conflict for months. By contrast, the effective integration of air and ground forces in Afghanistan in 2001–02 made possible a quick and decisive outcome.

The backbone of the U.S. air control system is the small cadre of trained ground advisers, air liaison officers, observers, and tactical air controllers. Even a modest number of skilled personnel, supported by a moderately capable army, can halt or even roll back larger armies. For CAS and BAI to be effective in contemporary cases such as the campaign against the Islamic State, the United States must, at a minimum, deploy small numbers of ground advisers, air liaison officers, and controllers. But even though the past fourteen years of conflict have created a pool of experienced and qualified personnel, there is no guarantee that the services will maintain these capabilities. As budgets fall and the armed forces must cut capabilities, bureaucratic pressures within and between services will tend to squeeze out these niche capabilities in favor of preferred, if problematic, mission sets such as interdiction and strategic attack.

Although retaining specialized personnel and maintaining their proficiency and manning levels has not historically been a high priority for any of the services, it is vital to air power success. It is often the difference between “blowing up trees” and battlefield victory.

The experience of the 1972 Easter Offensive suggests that client states can defeat much larger enemy forces in major conventional battles even if their armed forces lack the proficiency of modern great powers. Air power is only likely to succeed, however, if the United States military has the doctrine, assets, and training to conduct effective close air support and battlefield air interdiction. This is only likely, however, if a competent, U.S.-run, tactical air control system is present: ground advisers, air liaison officers, observers, forward air controllers, and the associated air control networks. These small and seemingly niche capabilities may be the key to making small-footprint, advisory missions effective. The maintenance of these communities and capabilities in an era of defense cuts may be the difference between effective defense and the collapse of allies.

162. Under certain conditions, such as with NATO operations, a TACS need not be supported solely by U.S. soldiers and airmen. As seen at Quang Tri during the Easter Offensive, however, and today with long-term allies such as South Korea, the communication requirements for operating a functioning TACS are high and may not be achievable without the integration of U.S. personnel.