The B-52 in Vietnam

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ABSTRACT

By the end of the 1950s the B-52 had taken its place as the premier nuclear bomber of the world. The aircraft had come under scrutiny almost immediately and the project was threatened multiple times afterwards. In fact, by 1961 the Air Force had already begun the search for another bomber with better capabilities in preparation for nuclear warfare. The summer of 1965, however, would allow the B-52 to show her talent over the skies of Southeast Asia. In this paper, I trace the history of the bomber between 1965 and 1972 to show how the Vietnam conflict proved that both the B-52 and the ability to wage conventional war were still very much a necessity for the United States Air Force.

In the current wars in Iraq and Afghanistan, the role of combat air power has primarily become close air support provided by the Air Force, Navy, and Marine Corps fighter bombers as well as Army attack helicopters, which appear on the scene when the call for air support goes out. A significant amount of the air support provided in the theater of operations, however, comes from the heavy bombers of the Air Force, especially the B-52, which flies above the combat area as a kind of mobile artillery platform ready to destroy any target a ground force designates. This capability is largely owed to the modernized weapons guidance systems such as the JDAMs (Joint Direct Attack Munitions), which allow for weapons operators to put the bombs "in the pickle barrel."[1]

The United States no longer has a need for the nuclear standoff capability that dominated air doctrine in the days of the Cold War and the US Air Force's Strategic Air Command (SAC). But the B-52 bomber, originally designed to destroy the war-making capabilities of the Soviet Union, has proven useful for the modern battlefield. The Vietnam War revealed the versatility of the B-52 during which time it provided close air support and flying missions. In Southeast Asia, the missions flown by the B-52 proved vital in aiding US ground forces during Arc Light and Linebacker I and forcing the North Vietnamese to get serious quickly at the peace talks during Linebacker II. The overall involvement of the B-52 bomber in Vietnam ensured its future employment in the Air Force.

These close air support strikes differed substantially from the missions of the early 1950's B-52 that was designed by Boeing to replace the B-47 and B-36 as the main arm of America's "Massive Retaliation" policy in response to the threat of nuclear attack from the Soviet Union. In the beginning of its career, it flew alert missions as our standoff with the Soviets in the Cold War continued, but no combat missions (Ethell and Christie 10-13). Although war seemed imminent during the Cuban missile crisis, the BUFF (B-52)[2] never dropped a bomb in anger until the Vietnam War. In fact, before US involvement escalated in 1961, the Air Force was already seeking a replacement for the B-52 (Tilford 33).

The bombs the B-52s dropped over Vietnam were not the nuclear devices that SAC had planned for the B-52 to carry. Loaded with

"iron" bombs, the B-52s flew missions over jungles, not Moscow, and dropped a conventional payload, not a nuclear one. After resolving certain issues of the system, the Air Force confirmed the effectiveness of the B-52 and six bombers were left "on call" each day at Andersen Air Force Base in Guam for quick employment. [3] By the Linebacker missions in 1972, the B-52's psychological effect also greatly appealed as much as its bomb capacity to the SAC (Tilford 33). The victims of the BUFF raids were constantly caught off guard since they could hear no plane, yet all of a sudden the ground would start to erupt around them in an apocalyptic manner (Ethell 59).

Some analysts have argued that the B-52's involvement in Vietnam, most notably the bombings during Linebacker II, caused the North Vietnamese to participate more seriously in the peace talks. At that point in the campaign, the North Vietnamese had run out of Surface-to-Air Missiles (SAMs), quickly giving the BUFFs free reign in enemy skies. The B-52 had proven useful during non-nuclear war and for that reason is still in service today.

Tactical Bombing with the B-52: "Coconut-knocking"

In 1965 the United States had begun to step up its military support of South Vietnam. This increase of United States contributions meant more troops, supplies, and aircraft, including the debut of the B-52 in Southeast Asia. The US government and the USAF had hesitated to send the B-52 into the conflict in Vietnam for several reasons. Above all the United States did not want to hint at a possible nuclear conflict by introducing America's primary nuclear delivery system in the region. Secondly, the US did not want to build up forces in the region to the point at which China and the USSR would take a keener interest and get more directly involved. However, by 1965 the situation demanded increased US presence in the region, and, in February, personnel from SAC bases in the States were sent to Andersen Air Force Base on Guam to prepare for "Arc Light."

The USAF had not sent the B-52s to Guam and Thailand to start a nuclear war, but rather to engage in a war that SAC had not expected in the Cold War era. The B-52 had not been designed to drop "iron bombs" like the F-4s, F-105s and F-100s. However on 18 June 1965, the Arc Light missions began when twenty-seven F models took off from Andersen AFB, Guam and bombed a Viet Cong target (Boyne 91). This was the first time the B-52 ever dropped a bomb in combat, and, after the initial positive reviews from the ground forces, it would certainly not be the last. The B-52 had found its calling supporting American ground forces in South Vietnam.

The B-52 mainly operated in South Vietnam during the war due to bombing restrictions and the fear that the giant planes might be lost if sent North. Indeed B-52s would not strike North Vietnam until 1966. The majority of B-52's missions, however, were Arc Light missions providing basic interdiction or air support operations.[4] Even major campaigns, such as Rolling Thunder, saw limited B-52 use. The B-52s only flew 141 Rolling Thunder missions (Clodfelter 118-19) because the US military commanders wanted to keep the B-52s supporting the ground forces rather than risking them in Rolling Thunder. Tactical air commanders, however, would have preferred using the BUFFs for larger payloads. Doing so would have reduced the number of fighter-bombers that ultimately bore the brunt of the work and led to more downed aircraft and casualties (Tilford 71). The USAF categorized the B-52 missions in South Vietnam as tactical airpower; the strategic airpower in the North did not fully develop until the 1972 Linebacker campaigns.

The original models to arrive in Southeast Asia were the B-52Fs, sent straight from Carswell and Mather Air Force Bases to Andersen. The early F models could only carry fifty-one 750 lb bombs, 27 internally and 24 externally (Ethell and Christy 56). The capabilities of this first contingent of B-52s

would pave the way for the more famous D models. However, the fact that the F models flew straight from their bases in the States without any modification meant that when they arrived, they, like their crews, were still geared towards "nuking" the Soviet Union rather than bombing an unseen enemy in thick jungle cover, necessitating changes to the planes themselves, to the crews, and to the manner in which they usually went about targeting and bombing.

Before the withdrawal of the F-models, the planes were still painted up for their strategic nuclear missions. Their bellies still clad in the anti-nuclear blast paint, the tops remained unpainted, leaving the shiny metal visible (Boyne 67), unlike the models with the black undercarriages and camouflaged tops. While this detail seems merely a cosmetic issue, those paranoid about losing one of the bombers considered it a highly visible target from the air and especially from the ground from where the majority of the threats to the BUFF would come. The USAF deployed only about 60 F models to Southeast Asia before replacing them with the more capable D-models less than a year later.

The D models proved more capable thanks to an operation coded "Big Belly," designed to reconfigure the bomb-bays of the D models, allowing them to carry a conventional payload more effectively (Boyne 93). The configuration of the F-models still permitted them to deliver nuclear ordnance and thus the design of the bomb-bays allowed the transport of fewer bombs with obviously larger effects. This modification coined the term "Big Bellies" for the D model, which did the brunt of the work after the Air Force removed the F models from the theater. The newly reconfigured D models had the capacity to carry up to 108 500 lb bombs (84 500 lb or 42 750 lb bombs internally) to include those on the under-wing pylons (Harry). This increased capacity allowed them to carry out the carpet bombing mission much more effectively after joining operations in March 1966.

Lack of effectiveness on some occasions and aircraft collisions on others, however, necessitated modification of the bombing method. Targeting was done by setting up "target boxes" 1km wide and 3kms long. The B-52s would then fly in a "cell" of three ships, and, once inside the box, they would cover it with bombs. The problem lay in finding a target on a radar scope over nothing but jungle. One attempt involved a helicopter, carrying a radar beacon, flying parallel to the target box. This technique had mixed results. It turned out well if the Radar-Navigator was able to actually get the formation to the target box rather than right on top of the helicopter carrying the beacon. The military abandoned this technique in favor of a more familiar method of targeting: "Combat Skyspot." However, full integration of the D-models needed to precede employment (Ethel and Christy 60). The testing system the crews would use in mock nuclear bomb runs involved an old radar truck that locked onto the B-52s, flying their runs and tracking how close they would come to their actual target, represented by a given set of coordinates. The same method was somewhat reversed, then used in Southeast Asia. It relied on a mobile sort of radar set up, which would lock onto the bomber and guide it to a designated release point that represented the beginning of the target box. This method also proved valuable because it allowed for last minute changes in targets (Arno 111).

Clearly the most effective system, the only modifications required pertained to the formations of the planes themselves. The original formations called for the bombers to fly almost abreast in a tight three ship cell. The turbulence caused by the massive planes led to some mid-air collisions, which the USAF could not afford. Thus AF officials determined that the radar system, which gave an altitude reading and was positioned in the nose of the aircraft, could be projected forward allowing the second ship to keep a one mile distance behind the first ship and the third ship to do the same with the second. The lead ship would, in turn, take charge of finding the target and releasing its bombs at the right time. The other two ships

would then time their releases accordingly. The only pending modification required the offset of the formation so that the two bombers following the lead bomber did not simply create a gigantic trench of craters in the jungle, but rather affected a wider area (Harry).

The targets included troop concentrations, ammo and supply dumps, and other such large buildups. Government officials in Washington, with the approval of the President, chose the targets during the early use of the B-52 and the war itself. This approval process led to a great deal of controversy because of the numerous restrictions it placed on the tactical commanders in South Vietnam (Ethell and Christy 59). The first few raids brought back mixed reviews; however, as tactics improved, the B-52s slowly became the workhorse of the air campaign over the South. Their effectiveness was such that the North Vietnamese could no longer mass troops or supplies; if they did, the B-52s would destroy them and everything around them. There was no escaping the raids. Since the B-52s operated at over 30,000 feet, the North Vietnamese could not even hear them coming. The very ground around them would start erupting in a chain of explosions, a phenomenon they would soon grow to fear more than any American weapon (Boyne 93). Viet Cong Minister of Justice Truong Nhu Tang recalled: "The first few times I experienced a B-52 attack it seemed, as I strained to press myself into the bunker floor, that I had been caught in the Apocalypse. The terror was complete. One lost control of bodily functions as the mind screamed incomprehensible orders to get out" (qtd. by Clodfelter 183). In getting the North Vietnamese Army (NVA) and Viet Cong to spread out, thus greatly reducing the threat of major build-ups and large scale assaults, the B-52s accomplished their mission, even if it appeared as though only trees felt the brunt of the raids.

Apart from carpet-bombing predetermined targets, the BUFFs also began to see action directly supporting ground operations. Multiple raids assisted besieged units or attacking units by leveling the enemy opposition. This method of air support became so effective that six BUFFs were left "on call." The B-52s seemed to embody General Curtis LeMay's concept of flying artillery (Keaney 20). For instance, during Operation "Birmingham" in early May of 1966, 162 sorties of B-52s dropped a total of 3,118 tons of anti-personnel ordnance to assist the 1st US Infantry and 25th Army of the Republic of Vietnam (ARVN) Divisions near the Cambodian border. The strikes devastated the enemy camps, structures, and stockpiles of supplies, and the psychological effects caused large numbers of Viet Cong to defect. The defectors told interrogators horror stories of B-52 raids that, again, occurred without warning (Kearney 20). The infamous psychological effect of B-52 raids would later drive defectors from the jungle, which would lead the commanders in chief of SAC and PAC (Pacific Command) to choose the B-52 as the primary aircraft for large scale bombing of the two major North Vietnamese cities, Hanoi and Haiphong (Tilford 164).

Other instances of B-52 air support for US and ARVN forces included assisting the Marines at Khe Sahn during the Tet Offensive of 1968. During the battle, B-52s initially made attacks every three hours, and by March 31st—almost three months into the battle—had dropped between 60,000 and 75,000 tons of bombs on targets picked personally by General William Westmoreland and based on the recommendations of General William Momyer (Tucker 206). Often, these target boxes were less than 1,000 feet from US lines.

B-52s also provided vital air support to ARVN forces at An Loc during the North Vietnamese spring offensive of 1972. During this siege, ARVN commanders on more than one occasion would stand and fight against the People's Army of Vietnam (PAVN) forces, sometimes supported by Soviet tanks, until the last minute when they would pull their forces out and allow a few cells of B-52s to decimate the incoming columns, which had moved into the designated target box. In the same siege, a

North Vietnamese prisoner revealed that an attack would come from the eastern part of the city. Recovered enemy documents supported this claim, giving the time that the attack would begin. The B-52s went to work on the attack route, 30 minutes before the attack was supposed to start, and devastated the entire attacking regiment. One North Vietnamese unit moved into the craters of an already bombed area, assuming that the B-52s would not strike the same place twice. Unlike lightning, another B-52 strike was called in on the same area after Maj. Gen. James F. Hollingsworth, the US Army III Corps advisor, learned of the enemy move (Tilford 146-47). The B-52s bombed the dozen target boxes situated around the perimeter of An Loc with surprising accuracy even though 90 percent of the raids' targets changed during their approach (Arno 201-02).

The majority of B-52 operations occurred in the South, leaving most of the strategic northern targets to the Tactical Air Command and their fighter-bombers. The B-52's use as a strategic bomber would not take place until the Linebacker II campaign, which was President Nixon's "or else" threat to the North Vietnamese if they decided not to get serious during the Paris Peace talks. That would be the strategic use of the bombers, which did not come about until the closing months of the war, after a majority of US forces had been pulled out and more BUFFs had to be sent back into the theater.

Linebacker II: Strategic Bombing with the B-52

The original uses of the B-52 in Southeast Asia can be seen as somewhat strategic. However, from 1965 to early 1972, the effects of the bombers generally were being felt by North Vietnamese commanders and troops and the Vietcong more than the leaders in Hanoi. Tactical air commanders made repeated requests to use the BUFFs in strategic bombing of the North. However, Washington usually denied authorization of these types of attacks for fear of losing the premier weapons platform, thus sending the wrong message to Hanoi.

But, by late 1972, Nixon called off all bets and sent the Stratoforts North to deal with the North Vietnamese. These would be the famed "Linebacker" campaigns, although the B-52 as a strategic bomber was employed mostly in Linebacker II. US fighter-bombers of the Air Force, Marines, and Navy had carried out the earlier raids in the North. Still, those raids were aimed at destroying the war-making capability of the North Vietnamese, a strategy which had proved futile. These raids carried out by the fighter-bombers of the US armed services, had the same objective of going after industry and war-making capability as the strategic bombing campaigns of the Second World War. However, instead of using large fleets of heavy bombers to carpet bomb cities in an attempt to destroy a factory complex, as had been done in Europe, US officials favored smart munitions to cut down on collateral damage. There was one problem with these campaigns: the North Vietnamese did not depend on factories and power plants to wage war. Many of their supplies came from Russia and China, and US leaders eventually realized that such strikes would not bring the North Vietnamese to their knees. Instead US commanders used their airpower to attack the North Vietnamese will to continue fighting (Clodfelter 177).

The strategy behind the use of the B-52 during Linebacker II differed altogether. However, a decrease in the number of the giant bombers had occurred with the steady withdrawal of American forces from Southeast Asia. Operation "Bullet Shot" increased the numbers of BUFFs in theater to over 200 by calling a few squadrons of G models to Andersen. During the months before "Bullet Shot" was approved, BUFFs were still flying, however almost entirely out of U Tapao Royal Thai Naval Air Base instead of Guam, due to the significantly shorter flight time. This change of station caused no heartache amongst the crews, who could write a multi-volume series of complaints about duty on Guam, especially since most crews had done time at both bases.

While the Air Force seemed to prefer U Tapao as a main operating base for the Stratoforts, crew comfort was not the primary reason. With the shorter flight time involved, the planes could carry more ordnance, which also meant less tanker support to extend the flights of the heavily laden BUFFs. U Tapao also gave the tankers a much closer facility to support the rest of the air fleet operating in that area. The B-52s coming out of U Tapao were indeed the ones with the payload at the absolute maximum tonnage (Ethell 60, Christy 41).

The purpose of Linebacker II was to get the North Vietnamese to begin serious negotiations at the peace talks and further to show that the United States would still support an independent South Vietnam. Earlier attempts had been made with Linebacker I and Pocket Money, the mining of Haiphong Harbor by US Navy A-6s and A-7s. The mining was intended to force the North Vietnamese to commence serious negotiations lest armed mines made Haiphong Harbor impossible to navigate (Tilford 149). The mining marked the beginning of Linebacker I, which was a tactical success, although it did not produce the desired negotiations. During Linebacker I, the BUFF primarily flew interdiction missions aimed at the war fighting capabilities of the North. Linebacker II would call for targets that the citizens of Hanoi and Haiphong could hear being destroyed. Officials chose B-52s for their massive payload and the psychological effects they caused and chose Stratoforts as the primary attack aircraft to bomb targets close to civilians (Tilford 164). Nixon ordered that civilians not be directly targeted. Thus the B-52 raids remained on the periphery of the cities, while smart bombs from fighter bombers of the Navy and Air Force destroyed the targets in "downtown" Hanoi and Haiphong (Michel 51).

Congress was also not helping Nixon's plans to get the United States out of the war, as they threatened to legislate against US involvement in Vietnam. Nixon had to do something while he still had the means and the funds to do so. On December 13, Henry Kissinger, assistant to Nixon for national security affairs and the United States representative at the peace talks, returned to Washington from the unsuccessful and frustrating peace talks, and was briefed on the upcoming air campaign: Linebacker II. "The 11 Day War," as it would later come to be known, allowed commanders to hit the targets that needed to be hit. Tactical commanders were finally able to mount a successful strategic bombing campaign, which would end the war for the US. With over 200 BUFFs in theater, at both U Tapao and Andersen, the stage was set for the most famous B-52 involvement of the conflict. On the 14th of December, Haiphong Harbor was reseeded with mines, and Nixon ordered the bombing to commence 72 hours later.

Differences in tactics would help the effects of the air strikes. However, the advances in technology would help bring more pilots home safely. In the previous campaigns, the number of aircraft carrying ordnance reached approximately 60%, while the other 40% supported aircraft performing multiple roles, such as MiG combat air patrols (MiGCAPs), anti-aircraft suppression, and radar jamming. This ratio accounted for a large portion of the previous aircraft losses during campaigns such as Rolling Thunder. By the time of the Linebacker campaigns in 1972, advancements in targeting and in guided munitions allowed for fewer aircraft to inflict more damage. Pilots used laser-guided bombs with deadly accuracy and the ratio of attack to support aircraft was reversed with 40% of the aircraft carrying munitions and 60% supporting those aircraft.

On December 18, 1972, Linebacker II began. Three waves of B-52s bombed three airfields at Kep, Phuc Yen, and Hoa Lac, in addition to the Yen Vien warehouse complex. This first day also marked the beginning of the infamous battles between the B-52s and the only enemy of the war to bring them down: the SA-2 Surface-to-Air Missile (SAM). The missiles claimed three BUFFs on that first day. These losses worried USAF officials, and it

would take a few mistakes to learn certain painful lessons. After a second day of bombing with no losses to enemy ground fire or air-to-air engagements, the next day provided that bucket of cold water to wake the US strategists up.

On the third day, the USAF lost six B-52s of 99 launched (Harry). Relative to the fighter-bombers this seemed like a small and manageable loss rate. However, losing the BUFFs represented a different matter all together. The B-52 was not just another plane, but rather a symbol of American military power (Tilford 167). Before Linebacker II, enemy fire had destroyed only one B-52 (Werrell 121). The US strategists had to rethink their tactics. The B-52s had repeatedly used the same approaches over the targets, resulting in an extremely long chain of giant aircraft over the target zone. It did not take the North Vietnamese long to know where to aim their guns and missiles. But the approach was only one of the problems. Another included the angle of the turn the B-52s would make immediately after dropping their bombs in order to ensure a rapid egress. The plans called for the B-52s to make a sharp turn right after "bombs away" to get out as fast as they could. However, such a turn with the bomb doors open gave a radar signature much larger than anything else on the scope and rendered the electronic countermeasures (ECM) gear essentially useless during the turn. Many of the BUFFs were hit making this turn (Werrell 142), which, in addition to SAM operators knowing the exact route of the B-52s, gave the North Vietnamese plenty of big targets. In addition, a Russian trawler steamed off the coast of Guam to alert Hanoi of incoming B-52s from the island. With this information, the SAM operators could calculate when the BUFFs would fly overhead (McCarthy and Allison 129). With the length of the formations over the target and the large radar signatures given off by the sharp turns and open bomb doors, the last few cells of bombers over the targets were not helped by the chaff dispensed at the beginning of the raid. By the time the "tail end Charlie" position reached its target, it flew alone and had absolutely no chaff protection because it had all blown away. Furthermore, SAC headquarters at Offut AFB, Nebraska, controlling the B-52s by issuing orders, forbade evasive maneuvers on the bomb run that could have aided the 52s, thus instating the infamous "press on" policy.

The "press on" policy meant exactly what it said. If the BUFF was able to make the trip despite malfunctions, it "pressed on." Similarly, if one of the three ships in a cell had to cancel the mission due to malfunctions; the other two ships remained to press on. This policy caused problems since the ECM gear used by the B-52s, especially the D models, proved most effective when used in conjunction with the two other ships of the cell. When one ship could not make the trip, the other two had to carry on without the full protection of the ECM gear, making them even better targets for enemy SAMs (Hudson).

To single out another unlucky group of crews, when Bullet Shot called for more B-52s in theater, the B-52G models were sent to supplement the numbers. The G models lacked the reconfigured bomb-bays to carry the extra iron bombs, and, more importantly, half of them lacked the proper ECM gear of the D models. Unlike the early stages of Arc Light, during which up-to-date aircraft and ECM gear had not been put into action for fear of losing them and the technology involved to the Communists, the Air Force outfitted the D models with state-of-the-art ECM gear designed to jam the SAM radar, preventing the missiles from locking on to them or causing them to miss the BUFFs all together. The G models did not have the benefit of this equipment, as they were still configured to fly nuclear bombing missions against Soviet targets, not World War II era high altitude bombing missions against such a heavy concentration of anti-aircraft artillery and missile batteries.

The heavy anti-air defenses set up around Hanoi were some of the most concentrated in the world. Before the B-52s began flying over

North Vietnam, it was said that "the biggest threat to a B-52, is another B-52" (Harry). That was because before 1972, only mid-air collisions could bring down B-52s. During Linebacker II these collisions were no longer the only threat to the 52s. The SAMs were not very accurate, despite the general assumption that a missile lock, especially on a plane like the B-52 which could not maneuver well, meant a definite hit. In fact the SAM operators, working overtime, would fire large salvos at BUFF formations. In order to keep the Wild Weasel aircraft from locking on to the radar, the tracking systems were not turned on until five to ten seconds before impact, making the salvos largely inaccurate. While the totals differ depending on the source, a conservative figure is 884 missiles fired with 24 hits, downing 15 B-52s, a 2.7 percent success rate of SAM firings. Other estimates put the total number of SAMs launched as high as 1,242 (McCarthy 171). Only the SAMs would bring down a BUFF during the war. Anti-aircraft artillery (AAA) would damage one aircraft, but MiGs would score no hits on a Stratofort. However, there are two confirmed, and a possible third, MiG kills by B-52 tail gunners during Linebacker II. Generally the MiGs were not used for interception, although some made the attempt (Werrell 124). On a few occasions B-52s could see MiGs flying alongside them as if in formation. The MiGs would relay the altitude, heading, and airspeed of the BUFF formations to the SAM operators for more effective targeting (McCarthy and Allison 84).

Given all of these factors, US officials halted the bombing from Andersen for three of the next four days, while only 30 BUFFs per day flew out of U Tapao. The three-day reprieve granted to the G models at Andersen allowed some time for officials to rethink strategies and possible solutions to different problems (91).

Commanders also halted all bombing operations on Christmas day of 1972, as a show of good faith and to give everyone a much needed rest. However on December 26th, day eight of the campaign, operations resumed. All new tactics developed allowed for shorter time over the target and more protection from SAMs for all aircraft. F-4s and drones dumped more chaff to start things off, allowing for a chaff blanket rather than a chaff corridor. The main change pertained to the approaches and launch sequences of the BUFFs. The BUFFs took off as fast and as close together as possible, allowing for a tighter group of bombers. The tactical changes also solved the previous problem of long strings of bombers on the same attack route. To decrease the time over the target area or the time on the bomb run while being targeted by SAMs, strategists chose multiple attack routes to be flown at varying altitudes with different turn angles for the post-drop turn. The only problem with the new strategy was that commanders allotted no time for practice, so the pilot's first time would have to be his best. If pilots got sloppy, the wrong targets would get bombed and mid-air collisions would pose a much bigger threat. However, when it came time, the mission was executed as well as possible, and all 120 of the BUFFs sent on December 26th dropped their bombs over the target zone in 20 minutes (McCarthy and Allison 127-28). Of those 120, two were lost; however, these losses were due to the "press on" policy, as the two birds both formed part of broken cells (Werrell 133).

The massive success of the Day Eight bombings was not just a result of different attack routes however. Colonel James R. McCarthy, commander of the 43d Strategic Wing at Guam who led the raid, credits the historical day to "an outstanding team effort" (McCarthy and Allison 139). The maximum effort of all those involved contributed to the success of the bombings. Many other aircraft flew missions in conjunction with the B-52s over Hanoi. A laundry-list of fighter-bombers, with their corresponding missions, shows just how much support was needed to perform the job successfully. SAM and AAA suppression, flown by F-105s and A-7Es, kept some SAM sites from operating, providing a slightly less stressful environment for the BUFFs. The F-4

performed multiple roles, from escort to chaff dispensing to MiG combat air patrols (MiGCAPs). The F-4s also used laser-guided bombs to wreck the largest SAM assembly plant in downtown Hanoi, thus striking a severe blow to the air defenses of the city (Tilford 168-69). F-111s hit airfields in an effort to keep MiG pilots from attempting interception of the Stratoforts prior to their destruction by the B-52 cells. EB-66s, EA-6As and Bs, and EA-3As provided additional ECM support for the BUFFs. But no airpower support testimony is complete without the recognition of the tanker—for example, the massive undertaking performed by the KC-135 tanker force flying out of Kadena, U Tapao, Takhli, and Clark Air Base in the Philippines. The tanker force represented the aerial lifeline to all aircraft during the war, but their support of the December 26th raids over Hanoi showcased their performance and dedication (140).

Day Nine brought about still more opportunities to improve upon the success of Day Eight. The two losses from the previous days were both D models; however, since they belonged to broken cells, the "press on" policy obviously made them easy targets. Strategists addressed the issue by mandating that, if a B-52 had to drop out past the point of securing a replacement, the broken cell would combine with the cell in front of or behind it creating a five-ship cell rather than the traditional three-ship cell. This new policy would prevent leaving a two-ship cell vulnerable to SAMs. Other changes further split up approach points of the wave coming from the Northeast, dividing it up into smaller streams designated to attack different targets (145-46).

The last few days of the campaign included much of the same routine, but involved fewer aircraft and sorties, a change made thanks to the unexpected accuracy and effectiveness of the bombing. Haiphong was not bombed again after the infamous Day Eight. Planners found themselves, in turn, running out of targets for the BUFFs to destroy. Hanoi's message to Washington suggesting that the peace talks resume clearly explains the change of event. In addition, the North Vietnamese ran out of SAMs, which allowed the B-52s to enjoy free reign over the skies of the North. The North could not afford to let happen since they feared the B-52 more than anything else in the US (Tilford 169-70). December 29th marked the last mission of Linebacker II, which was all-in-all a success, especially from the standpoint of the B-52. The overwhelming use of US air power had convinced the North Vietnamese the time had come to negotiate peace seriously with their enemies.

NOTES

[1] The term "pickle barrel" is symbolic. Dating from World War II, the Army Air Corps/Force used it initially to highlight the accuracy that the Norden bombsight afforded a skilful bombardier: "I can put my bombs in a pickle barrel from 20,000 feet." (Editor's Note: thanks to Professor Kip Muir for this clarification).

[2] Due to the massive size of the B-52, pilots affectionately nicknamed it Big Ugly Fat Fellow (BUFF).

[3] A fully loaded D model could carry 108 five hundred pound bombs into a target area.

[4] Arc Light was the name for all B-52 operations in Southeast Asia.

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